

# Analysing Determinants of Wages and Wages Discrimination; The Example of Serbia

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**Abstract.** In this paper two issues will be analyzed: firstly, how much main and additional jobs are paid and who are individuals who choose the latter; and secondly, whether difference in earnings between males and females becomes deeper during the transition period to market economy. In order to answer this question, we will test hypotheses about equality in determinants of earnings from main and additional job for both men and women. We will investigate the impact of several factors. For example, how the level of education, years of work experience, marital status, age etc. contribute to variations in explaining these differences. In the empirical part of this paper, the sample selection model will be estimated. The hypothesis about equality of earnings determinants will be tested by using standard Wald test statistic. The data used in this paper come from the Survey of population's economic situation and attitudes in Serbia.

**Key Words:** Main and Additional Job, Earnings, Sample Selection Model, Maximum Likelihood Estimation, Wald Test.

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## 1. Introduction

Analysing data from the Survey of economic situation and attitudes of the population (SAEPS) in Serbia<sup>2</sup>, this paper aims at defining whether and how fast some of the elements, in the classic economics theory defined as the determinants of certain earnings level, actually increase the differences in wages. According to the experiences of the Central and Eastern European (CEE) countries which are in an advanced stage of transition at present, the lowest differences were experienced at the beginning of transition process, but gradually deepened with the abandonment of inherited patterns of defining wages, the introduction of labour market institutions and reallocation of labour force from the state to the private sector (Milanovic (1999), Rutkovski (1996)).

An important characteristic of poor societies is a dominant share of personal consumption in their GDP. Personal consumption absorbs a significant portion of total income in Serbia. At the beginning of the 1990s, personal consumption accounted for 60 percent of GDP and increased to as much as 77 percent in 2001. With increased degree of poverty and thus prompted social stratification, the alternative forms of seeking employment as an addition to regular activity, and mainly in informal sector, has become increasingly often.

A phenomenon of multiple job holding is typical for poor countries and especially for the countries that have undergone the process of transition to market economy, but it is not unknown in developed countries either. Paxon and Sicherman (1996) analysed the dynamics of second job holding in the USA on the basis of panel data over the period 1976 – 1989, and came to the conclusion that 20 percent of working men and 12 percent of working women had an additional job besides their main activity. Having analysed second job holders in Russia, Foley (1997) discovered that in 1996 10.1 percent of all Russia's workers were engaged additionally, or 12.2 percent of men and 8.0 percent of women. According to the same author, in the late 1980s, about 20 percent of total Soviet workers were involved in illegal additional jobs. For majority of workers, period that followed was associated to complete termination of state service and transition to the private sector.

Reduced volume of activity in the entire economy in the 1990s and irregular and devaluated wages prompted a large number of employees in the socially-owned and state-owned companies in Serbia to start seeking additional job. A lot of employees who were sent to involuntary paid leaves constituted the institution of so called hidden unemployment. Also,

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<sup>2</sup> The Survey is not made in a standardized form of the Labour Forces Survey, but rather belongs to the group of Household Budget Surveys in terms of its form and the way of defining particular variables.

extensive migrations of the populations on the territories of former Yugoslavia during the 1990s and a massive inflow of refugees increased the number of economically active persons in Serbia. Since the economy was not able to provide jobs for all, informal forms of employment were becoming increasingly important. The estimated number of unemployed registered at the Bureau for Labour Market in 2001 was 0.77 million, whereas the number of employees was 2.1 million. These figures indicate that there are 2.7 employed on one unemployed in Serbia. Registered unemployment in the first quarter of 2002 was 0.79 million people. Unemployment rise in 2002 was largely contributed by the reduction of labour in the socially-owned sector, which was due to the beginning of restructuring process in socially-owned enterprises and bankruptcy of insolvent banks.

Transition in Serbia differs from the experience of other countries of the former socialist block, not that much in terms of the form that is typical for the process of transitions, but with regard to wasted time and to the effects of speedy reforms. Reforms in Serbia in 2001 were focused on the establishment of macroeconomic stability followed by carefully defined set of social policy measures in order to alleviate the consequences of reforms. Poverty rate was reduced from 33 to 20 percent<sup>3</sup> and real earnings increased by 16.5 percent, but at the cost of growth in total unemployment rate by 4.4 percent.

Besides pursuing the measures of macroeconomic stability and limiting irrational spending of budget resources, the Government of Serbia undertook provisional measures to limit the total wage bill of employees in public enterprises and state administration. These measures were primarily undertaken to prevent the abuse of monopolistic position of state-owned enterprises, but also to support liberalization of the economy.

The determinants of two different concepts of earnings definitions were used in analysing of this study: earnings from the main and from the additional activities<sup>4</sup>. The concept of earnings defined in the survey is broader than the concept of wage, since it includes, apart from the primary wage, per diem payments, refunds, commuting compensation when it is about the main activity, or fees and other forms of income in case of additional activity.

The characteristics of second job holders were analyzed on representative sample, and it was estimated that over  $\frac{1}{3}$  of employees in Serbia are engaged additionally. Due to small number

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<sup>3</sup> During 2001, more than  $\frac{1}{5}$  of assets from donations and credits were spent on the needs of social sector.

<sup>4</sup> The variables of earnings from main and additional jobs are defined as respondents' answers to the question "How much did you earn last month by performing your main activity?" and "How much did you earn last month by doing additional jobs?" These variables correspond to the variables of realised hours of work, which are obtained as respondents' answers to the question "How many hours per a week did you work within your main activity during last month?" and "How many hours per a week did you spend working additional profitable jobs during last month?"

of observation, it was hard to analyze separately formal and informal second job. Although the latter form of employment dominated among the second job holders in the past, today formal second job is gradually taking the lead. This is confirmed by the results of comparison of characteristics of wage earners in two points in time. The number of second job holders decreased, but on the other hand, a possibility for additional earnings is also reduced (Appendix B, Table 3.B).

This analysis starts from an assumption that no significant differences are likely with regard to the determinants of wages, which stand as a decisive factor in making decision whether to undertake an additional activity. More significant differences are to emerge only when the private sector reaches appropriate position in domestic economy. The Lokshin and Jovanovic empirical study (Lokshin and Jovanovic (2003)), based on the Yugoslav Labour Force Survey (YLFS) data challenged the hypothesis of difference in wages between the employed in private and socially-owned sector. The results indicated a slight advantage of the employed in private sector since their wages were higher relative to the average of those employed in socially-owned or state-owned sector<sup>5</sup>. The estimated wage gap is obviously minimal and is likely to deepen, which might be beneficial for explanation of our results. The socially-owned and state-owned sectors still employ the majority of labour in Serbia<sup>6</sup>. Estimated returns to education in the surveyed period were not expected to be low. However, an estimated return to one additional year of experience is expected to be low, because experience of the workers in social or state sector is not highly correlated with skills.

In the specification of earning regressions we will start with the Mincer semilogarithmic functional form<sup>7</sup>. Due to problems caused by using censored data, the econometric methodology applied on estimation of the earning functions will be based on the maximum likelihood estimation (MLE) of the sample selection model (Hall (2002), Heckman (1979)). In terms of the sample selection model we understood the Type II Tobit model, which consists of the selection equation and the earning equation (Amemiya (1985)). The sample selection model is widely used in the empirical papers that address the problems of sample selection bias (Milanovic (2001), Lokshin and Jovanovic (2003), Paternostro and Sahn (1999)). The MLE method provides

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<sup>5</sup> The results of estimated wage differential between private and state sector for both gender are as follows: male worker earns 8.25 dinars per hour on the average in private sector or 7.17 dinars in state sector; on the other hand, female worker earns 8.33 dinars per hour on the average in private, or 6.30 dinars in state sector.

<sup>6</sup> The private sector accounted for 16.4 percent in the total employment in 2001 while over the course of 2002 it slightly increased, reaching 17.6 percent.

<sup>7</sup> An overview of the different modifications of the Mincer equation was presented in the work of Heckman, Lochner and Todd (2001).

consistent and asymptotically efficient estimates of parameters when restrictive assumptions about normality and homoscedasticity of the residuals of estimated model are satisfied (Hall (2002)). The difference in the determinants of earnings from main and additional activity will be tested through the Wald test statistic.

Therefore, we will operate with econometric tools to show how the differences, which mark the beginning of transition process, gradually deepen, and what expectations are related to this process. To make efficient conclusion we will point out to the experience of leading transition countries: Poland, Czech Republic and Hungary in pursuing the wage policy during the transition period and compare the results of particular empirical studies based on the micro level data in these countries and the results obtained in our country. Due to the lack of relevant data<sup>8</sup> we will not analyse the changes which occurred in the period before the reforms in Serbia started. We will use two independent cross-section data set and for each of them specify two earning regressions, one from main and one from additional activity. The equations will be estimated at two points in time: the first one marks the beginning of transition, while in the second one the first effects of the undertaken economic policy measures in the area of wages determination are expected. The data are analysed in the statistical package *Stata 7.0*.

The paper will be organized as follows. The main characteristics of the Yugoslav and Serbian economy will be presented in the second section. In the third section we will present the data from the survey and point out to some basic characteristics of households in Serbia. In this section we will also define the method of sample design. Section four determines the methodology, defined models and methods of selected equations estimation. Section five deals with empirical results, which are obtained through the earning equations estimation and subsequent measuring of differences in earnings level between male and female working population. Finally, the last section contains main conclusions and directions for the further analyses.

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<sup>8</sup> YLFS was conducted for the first time in 1994, so the Yugoslav statistics does not dispose of any micro level data from the prior period.

## 2. Institutional and economic background

In order to understand wage-setting policy, we will describe institutional and economic background from the past, but this will not be confirmed empirically. The chronology of determining wages in the Yugoslav and Serbian economy in this paper starts from the period preceding the transition process in the former communist countries, followed by the period shortly before the disintegration of the former SFR of Yugoslavia and the last decade of the 20<sup>th</sup> century. The first sub-period is the longest, lasting from 1974 to 1988; the second sub-period covers only three years (1988-1990), while the last one covers the period from 1990 up to now.

At the beginning, the level of earnings was determined through the social compact. In its original meaning, social compact<sup>9</sup> served for co-ordination of workers' interest and defining conditions for income establishment and distribution, as well as for distribution of personal income of individual workers. The social compact, as a predecessor of collective bargaining agreements, was based on bargaining among the associations of working organisations, trade unions and executive council of socio-political communities. Therefore, a term of "personal income" was used instead of wages. In this period two factors limited the minimum and maximum level of wage. On one side, maximum wages were determined by the social compact<sup>10</sup> at the level of an enterprise, while, on the other hand, minimum wages were determined on the basis of consumer prices. These two factors were used to determine the level of individual wages, whereby a special attention was paid to keep a minimal difference in wages between skilled and unskilled workers, while the unobservable factors, such as loyalty to political system and party membership were the most important in initiation of employment, and guaranteed safe jobs.

Then, revising the Associated Labour Law and adopting the new Law on the Basic Employment Rights in 1989 and the Enterprises Law in 1988, the Yugoslav economy gradually accepted the market economy principles. This was a period of transition towards full abandonment of the practice of social compact. A new term of "wage" was introduced, while collective bargaining agreements for the first time appeared alongside social compacts. Collective bargaining agreements set up elements for determining the price of labour with regard

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<sup>9</sup> The definition of social compact is taken from Arandarenko (1997).

<sup>10</sup> The role of social compact in establishing criteria for personal income distribution might be perceived through the example that the average wages at the end of 1980s were the highest in oil industry, banking, foreign trade. On the other hand, the lowest average wages were paid out in textile industry, construction, water producing and forestry. Difference between the highest and the lowest average wages reaches only 2.5. Hence, social compact had a dominant influence on determining wages and permanently kept differences in wages between the state administration and some branches with monopoly position and worked-intensively sectors.

to the complexity of particular jobs, responsibility and working conditions. The prices of work were adjusted at the level of general collective bargaining agreements and special (occupational) collective bargaining agreements. Definition of small differences at the scale of points between the coefficients for the simplest and the most complex work brought about minor differences in the prices of work, and thus the expertise of highly educated workers was compensated with some other elements, such as the years of service for the workers at low educational level. Domestic legislation only partially replaced social compacts with new collective bargaining agreements, and consequently, the way of wages determination was not significantly changed. Maximum wages were limited by the gained profit in an enterprise, while minimum wages were set with regard to the consumer prices. The novelty was introduction of guaranteed wages, which were paid whenever the enterprise was not able to pay out the regular wages. Accordingly, the new law did not eliminate the instruments of protection of the employed, either, while minimum wages were determined by the Chamber of Commerce, trade unions and the Government.

On 1990 a new special Collective Bargaining Agreements Law was adopted, which completely eliminated social compacts as an element in determining wages. The Law prescribed three levels of collective bargaining: general collective bargaining agreement, special, occupational collective bargaining agreement and individual employment contract concluded between the employer and the employee. Wages were determined with regard to the expertise, complexity of work, responsibility, working conditions and labour price. The individual employment contracts established a minimum labour price for the simplest work which could not be lower than the labour price set at the level of occupational agreements. The lowest labour price was negotiated between the employer and labour union. The main characteristic of this period was permanent decreasing of real wages, which means that the increase in wages was not adjusted to the consumer prices growth. Special laws on wages had been adopted, together with modifications to the existing employment legislation until finally the new Labour Law was adopted in the late 2001.

The procedures laid down in the new Labour Law should bring about higher mobility of labour and development of general market mechanisms for coordination of supply and demand for labour, which would provide higher flexibility in determination of wages. Today Serbian companies pay out salaries as defined by collective bargaining agreements. The new Law also prescribes three levels of collective bargaining: the level of general collective bargaining agreements, occupational and individual collective bargaining agreements. As far as determination of individual wages of employees is concerned, the Law leaves more room for employers, allowing them to stimulate highly educated workers and workers who contribute to



the development of a company. The institution of a minimum wage<sup>11</sup>, as defined by the Law should be determined in tripartite negotiations between the Government, trade unions and employers.

Before passing the law, the Government undertook some measures in the area of wage setting policy during 2001; these measures have been in force in 2002 as well. A new term of “earning” was introduced instead of the former concept of “gross wage”, and includes a sum of personal incomes which comprise net wage, working hour food allowance, recourse and field allowance. By the introduction of a new method of wage calculation, tax base was increased and earnings got closer to the concept immanent to market economies. Subsequent changes in the definition of wage calculation followed the reform of tax and pension systems in Serbia.

Despite new legislation, however, wage bills in state enterprises are frozen because of their inefficiency and low productivity. Wage bills are limited in public enterprises which operate in the area of transportation, telecommunications, electricity supply, forestry and utilities and where average net wage exceeds by 20 percent monthly average paid out at the level of Serbia. As this concerns enterprises that employ  $\frac{1}{10}$  of labour and operate with a loss of nearly  $\frac{1}{3}$  of total operating loss of Serbian economy, the Government has pursued provisional measures during the period of transformation of these enterprises, in order to prevent the accumulation of costs that are to burden the state.

Wage policy was also aimed at adjusting disparity between wage earners in activities in which wages have lagged behind the Republic’s average for years, e.g. public education, public health, public services, which employ considerable portion of highly educated workers. Along with measures pursued in the area of wage setting policy, in 2001 the Government began liberalization of prices. Attention paid to the balance between wage growth in certain industries, liberalization of wages in the rest of economy, as well as the stabilization of growth in prices and costs of living in the last months of 2001 brought about unexpectedly high real growth in wages in 2001.

Apart from institutional turbulences, the surveyed period, conditionally divided into three sub-periods, encountered economic turbulences, as well. Yugoslav economy, as well as the economies in the other CEE countries, was a subject to the state interference in all fields. The 1974 Constitution and the 1976 Law on Associated Labour institutionally empowered

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<sup>11</sup> Minimum wage in transitional economies has a role of social protection of employees under the condition of rapid growth in difference in wages. Under the former Law, minimum wage in Serbia was set at the level of 35% of average wage. According to the new law, minimum wage is supposed to be defined per the hour of work every six months. During the 1990s, minimum wage amounted to 30 percent of average wage in Russia; in Hungary and the Czech Republic it was calculated at the level of 32 percent of average wage, while in Slovenia it reached as much as 60 percent of average wage (Brainerd (2000)).

monopolies in the Yugoslav economy. These two legislative enactments, which defined the concepts of self-managed agreements and social compacts as the main elements of the economy of compact, did not encourage competition. The primary role of political system was to regulate all social functions. Under such conditions, establishment of the formal labour market institutions was not at issue, while variations in supply or demand for labour did not affect the wages, whereby the supply significantly exceeded the demand for labour.

Increase in employment was not based on efficient employment in the productive sectors. A low 2 percent employment growth rate recorded in the 1980s was replaced with a permanent decrease. At the same time, unemployment rate increased, reaching almost 20 percent in the late 1980s, which resulted from the limitation of private sector development<sup>12</sup>, either in terms of setting up new enterprises or with regard to the number of employed in private companies, influx of labour from rural areas which was not adjusted to the needs and possibilities of the economy, the first signs of hidden unemployment, encouragement of unnecessary additional education for those who sought for employment for a long time, huge regional differences, etc.

The problems accumulated for a long time and inefficiency in economic reforms led the heavily indebted Yugoslav economy to high inflation, which was generated mainly by increases in wages. Subsequent macroeconomic policy measures yielded results only in the short run. The increasingly deep economic and political crisis resulted in disintegration of the SFR of Yugoslavia. Further decline of the rest of Yugoslav economy (Serbian and Montenegrin) continued over the 1990s, which can be seen in the negative GDP growth rates, high price growth rates, general drop of economic activities, unfavourable foreign exchange and permanent unemployment growth.

The basic macroeconomic variables of the Serbian economy are showed in Table 1.A (Appendix A). We presented annual percentage changes of the main macroeconomic indicators for the last ten-year period except for the years 1992 and 1993 which are excluded due to the 1993 hyperinflation.

The late 1980s put an end to implementation of the concept of centralistic – planned economy and opened a path towards the market-oriented economy. The experiences of other transition countries in the period by the end of 1980s were similar since they stemmed from the same systems of the compact economy.

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<sup>12</sup> Firstly, number of employees in private firms was confined to five persons. This limit was revoked in 1991.

Many empirical studies, which were made at the end of the last decade, suggested that most CEE countries<sup>13</sup> are still below the level of economic welfare experienced prior to market economy transition process (Grün and Klasen (2001)). Transitional economies were characterised with permanent decrease in income and rise in inequality (Milanovic (1998)) which was supported by employment decrease and sometimes even by drop in real wages (Rutkovski (1996)). The outcomes of these studies could be useful for explaining our findings through the use of the econometric methods in microeconomic data analysis.

### **3. Data and descriptive statistics**

This paper is based on the new micro level data from the SAEPS, conducted in July 2001 and May 2002. This Survey consists of four major sections and provides information about: 1. demographic and socio-economic characteristics of households; 2. demographic and socio-economic characteristics of respondents; 3. main income sources in the households; 4. main expenditures in the households; 5. rents and other housing expenses; 6. the availability of durable consumer goods in the households; 7. the households' evaluation of their own economic position; 8. the reactions of the polled households to the reform processes in the Yugoslav economy; 9. the households' evaluation of the Government measures; 10. estimated time necessary for overcoming the crisis.

The first survey was based on the sample size of 2006 households, while the second encompassed 1512 households in Serbia. These two surveys comprise information on 6884 and 4945 household members, respectively. The households were chosen by two-stage stratified sampling without repetition. The first stage units were voting places, which were chosen proportionally to the number of registered electors, while the second stage units were the households, whereby each household had the same probability to be sampled. One adult person was chosen from each polled household and therefore, apart from the basic information about the households, the survey also contains particular information about the chosen respondents. The main characteristics of the polled households are presented in Appendix (Table 2. A).

This survey is based on a representative sample of population in Serbia, population of big regions such as Central Serbia, Belgrade and Vojvodina, according to gender, age and living

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<sup>13</sup> With regard to GDP as a general indicator of development in one country, comparison between the 2000 real GDP and the 1987 GDP in particular CEE countries, shows that only a few of them exceeded the GDP achieved in 1987 (The World Bank Data Base). This refers to Poland, which registered the 33 percent GDP growth in 2000 relative to the 1987 GDP, Albania (8 percent), the Slovak Republic (7 percent), Hungary and Slovenia (4 percent), the Czech Republic (0 percent). In the rest of countries, GDP is still under the level achieved in 1987. GDP achieved in Serbia in 2000 accounts for about 40 percent of the value achieved in 1987.

place. The first survey was participated by 53.3 percent of households from Central Serbia, 25.9 percent from Vojvodina and the rest of 20.8 percent from Belgrade. 54 percent of the total households were urban. No significant changes in the structure of the total number of households were observed in the second survey. The average number of members in the polled households was 3.4 and 3.3 respectively. Gender division was steady – 51.7 percent of female respondents participated in the first survey, i.e. 51.1 percent in the second.

To analyze wage determinants, we confined initial sample to working age population, i.e. individuals between 18 and 64<sup>14</sup> years of age, excluding persons with personal income (pensioners and alike) and those incapable of working. After eliminating these observations, the sample was reduced to 1543 and 1098 individuals in June 2001 and May 2002, respectively. In the first survey 66.8 percent of respondents were permanently employed, while 22 percent were active in an additional activity. Over one-third of those with permanent employment had an additional activity, too. With regard to gender, male accounted for 54.8 percent labour force, i.e. 60.3 percent pursued an additional activity. Working in their main activity, women earned<sup>15</sup> approximately 80 percent of the average male wage; as for additional activity, they earned 69.2 percent of the male wage. According to the results of the second survey, 67.8 percent of the total number of respondents were permanently employed, 21.1 percent worked additionally, while 31.2 percent of respondents with main job were engaged in an additional activity. The structure of respondents active in main and additional activities remained unchanged in terms of gender. It is interesting that the women earned higher real wages both in main and additional activities relative to the previous year. Women earn 81.4 percent of a male wage within their main activity and 77.7 percent of male wage when they are engaged additionally<sup>16</sup>. The observed difference in these two time points could be partly explained by educational structure of the polled population.

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<sup>14</sup>Random sampled respondents who answered the questions about wages were adults older than 18; pupils were excluded from the sample. Retirement age of 64 is higher than the age defined under the law. In 2001 retirement age was 55 for women and 60 for men. In the early 2001, retirement age was raised to 58 for women and 63 for men.

<sup>15</sup> The ratio of the average earnings of women and men calculated according to the YLFS data is 82 percent (the data corresponded to October 2000). Paternostro and Sahn (2001) calculated this ratio on the basis of the figures in Romania, separately for urban and rural areas, which is 80 and 85 percent, respectively. This paper contains the outlook of the ratios of average female and male earnings in several countries; this ratio is especially high in Slovenia, reaching even 90 percent. As compared to the early 1990s, the obtained data indicates lower gender discrimination with regard to average wages. Paternostro and Sahn (2001) explained this trend with the increased educational level of women and in general faster increase in demand for highly educated labour force. Using data from 1996, Grajek (2001) calculated that female in Poland earn 78.4 percent of the average male wage. In the Czech and Slovak Republics, according to Jurajda's (2000) results of data analysis from 1998, female who work in the nonpublic sector earn 70 percent of average male wages, whereas Jolliffe (2002), applying similar analysis to the data from 1995 shows that women in Bulgaria earn 79 percent of average male wage.

<sup>16</sup> This difference in ratio between female and male earnings from additional activity measured in the second survey probably results from the significant overestimation of average female earnings from additional job. On the other

All measures of inequality presented in Table 1.B show low level of inequality in earnings from the main and relatively high level of inequality in earnings from secondary job for both genders. With regard to inequality in hourly earnings at two points of time successively, measured by Gini and Theil indices, a decrease in earnings inequality by several percentage points is observed in the second survey. The values of Gini coefficient for male hourly earnings from main job in two surveys are 35.113 and 37.316 respectively, while with regard to female hourly earnings from the same job, these values are 31.395 and 27.828 respectively<sup>17</sup>.

On the other side, female earnings inequality from main activity measured by main deciles ratio in May 2002 is higher than in July 2001. An exception is observed only in decile ratios 75<sup>th</sup> to 50<sup>th</sup>, 90<sup>th</sup> to 50<sup>th</sup> and 90<sup>th</sup> to 10<sup>th</sup> for male earnings from main activity. These ratios show lower level of inequality measured from the second survey data. The inequality of male and female real hourly earnings from additional activity measured as the ratio of the 90<sup>th</sup> (high-paid workers per hour) and 10<sup>th</sup> decile (low-paid workers per hour) is high in both surveyed period.

The inequality indices show decreasing inequality in earnings from main job by several points, and at the same time increasing inequality in earnings from additional job. In 2002 the male wage from additional job per hour of work is lower in real terms compared to 2001. At the same time the number of hours of work in additional job decreased on average for men and remained unchanged for women. On the average, women perform unchanged number of hours of work in additional job per month, but earn more. As for occupational structure, female professionals with university education are often engaged on the second job. Men employed as clerks and qualified workers opt for additional job more often than men and women of other

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hand, this situation is probably a consequence of the decreasing percentage of respondents engaged in additional activity and the reduction of sample size in the second survey.

<sup>17</sup> Milanovic (1999) calculated measures of inequality in wages for some of CEE countries (Bulgaria, Hungary, Poland, Slovenia, Latvia) and Russia in the pretransition period and in the advanced period of transition. Results show the highest increase of wages inequality in Russia. An indicator of inequality shows increase by more than two times. The coefficient is increased from 28 in 1989 to 60 points in 1996. Explanation for spread of inequality in wages Milanovic (1999) found in the reallocation of employed from state-owned to private enterprises. According to the measures of earnings inequality in the first few years of transition in the CEE countries provided by Rutkovski (1996), no significant inequality in earnings was registered. In the period 1987-1993, the measured values of Gini coefficient for all selected countries displayed increase in earnings inequality. The highest growth in earnings inequality was measured in Slovenia (earnings inequality reached from 19.9 to 27.3 Gini points). Over the same period earnings inequality in Hungary rose from 27 to 31.5 points, this was the highest level of earnings inequality. As for three former Yugoslav Republics - Slovenia, Croatia and FYR Macedonia, Gini coefficient implied the same inequality degree (27 points) in 1993. Relatively high and steady level of inequality in earnings per hour is characteristic for Malaysia. The results provided by Milanovic (2001) indicate small decrease from 50.1 Gini points in 1984 to 47.7 in 1997. Dinkic et al. (2000) calculated Gini coefficients of wages inequality in Serbia in 1998 and 2000. Values of these coefficients were estimated at 35.3 and 32.8, respectively. These figures are not fully comparable with ours since earnings are not expressed at the same scale.

occupations. Foley's (1997) results show that male and female professionals from all lines of business in Russia, i.e. workers with higher education, have higher rates of secondary job holding.

Smaller real male earnings from additional job can be explained with reduced number of second job holders in Serbia, with the fact that many workers are motivated more to work on their main job due to higher and more regular wages, with the lack of time for additional job or with poor offer of additional jobs due to the reduced volume of work in the informal sector. According to Foley (1997), motivation for seeking additional employment in Russia is mostly present among those workers who are on involuntary paid leaves, who work part-time and whose wages run late for several months.

Inequality in earnings from main job is not likely to decrease. According to the experiences of CEE countries, differences in wages usually deepen in the first years of transition (Milanovic (1999)). Our result can be explained with prompt measures undertaken by the Government in 2001 regarding freezing wage bills in big state-owned enterprises and liberalization of wages in the rest of economic sector, correction in wages in some areas of the public sector, in particular in health care, education, public utilities, judiciary and other civil services, which used to have wages far beyond the average for a long time, and repayment of outstanding social benefits. With the progress of the restructuring of big socially-owned enterprises and privatization process, differences in wages are likely to increase.

Changes in shape of log hourly earnings distribution in July 2001 and May 2002 can be described by graphs of probability kernel density estimates (*graphs 1a to 2b*). According to graphs men on average earned more than women from each type of activity in both surveyed periods. Female earnings distribution had more peaked sharp than male earning distribution for both kind of jobs in July 2001. On the other side, some changes in earning distributions can be observed in the survey conducted in May 2002. Earning distributions for both genders had higher spread compared to the last year, whereby male earnings from additional activity were more dispersed.

## 4. Methodological framework

Before defining methodology we will begin with null hypothesis that there is no significant differences in determinants of earnings from main and additional job. To test differences in earnings it is necessary to estimate factors, which determine the wages, and to put estimating procedure in an appropriate econometric form. Methodological framework for modelling and estimating a set of earning equations from main and additional activity is based on the procedure of the sample selection model estimation. This procedure takes into consideration a possible problem of sample selection bias<sup>18</sup> that appears due to dealing with censored data<sup>19</sup>.

Owing to the problems with estimates of regression parameters, which are caused by the correlation of residuals and “omitted variables”, there are various approaches to the estimation of sample selection models in practice. The application of appropriate estimation method depends on initial assumption about the distribution of the error term. Heckman in his paper (1979) developed a two-stage procedure of estimation for the example of censored samples. This procedure eliminates the selection bias thus solving the problem of estimation by inclusion of the MLE estimates from the Probit in the earning regression. Hall (2002) gave a summary of semi-parametric and parametric methods of estimation. Given the assumption of normality of residuals, the application of parametric method is easier since there are readymade algorithms in statistical packages. In Laird’s paper (1978) the nonparametric maximum likelihood estimator is deducted, which is an appropriate estimation method under the assumption of mixing distribution of residuals.

Following theoretical expressions given by Amemiya (1985) and Heckman (1979) we will specify two econometric equations. The first one will be binary response model – the Probit model. This model gives the probability that some individuals make decisions to participate in the labour force (in our case to choose main or additional job) and it is called the selection equation. Various factors such as number of years of schooling, age, marital status, living place etc. can influence this choice. These factors will be included in equation depending on their impact on the probability that someone would choose to work in main or additional activity.

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<sup>18</sup> According to Heckman (1979), nonrandomly selected samples cause problems with the bias of the estimated parameters, which arise from the ordinary least square estimation of earning regressions. This problem arises due to the lack of information from the whole population and the fact that conclusions are made only on the basis of the observable characteristics of the individuals selected in a subsample, and their decision to participate, for example in the labour force, is often made nonrandomly.

<sup>19</sup> In terms of the estimating sample selection model, censored data represent missing values for the earning regression variables which are excluded due to condition defined by the Probit equation  $z^*_{sj} \leq 0$ ,  $s=1,2$ ,  $j=1,\dots,n'$ , where  $n'$  is censored set of observations.

The problem of sample selection bias which appears in estimation of earning regressions generated a need for simultaneous estimation of Probit and earning equation– that determines the mechanism of an individual choose in sample. According to this, the second model, which will be specified, is earning regression and in the model specification we should start with the ordinary Mincer functional form. Heckman (1979) suggested the two-stage method of estimation, and allowed for the possibility of application of different estimators of parameters and standard errors of earning regression in the second iteration of his method. Hall (2002) explained the advantages of the application of MLE method as that method provides consistent and asymptotically efficient estimates if the assumptions of normality and homoskedasticity of residuals from the uncensored sample are satisfied. Therefore, in our paper we decided to apply the MLE procedure in order to obtain consistent estimates.

Joint dependent variable will be defined as a natural logarithm of real hourly earnings, which consists of the log real hourly earnings from the main and log real hourly earnings from additional job, for both men and women. The principle of choice of appropriate observation of the dependent variable – real hourly earnings depends on the assumption that probability of working is greater than zero. Earning equations, if correctly specified, can be expressed as functions of the same observed characteristics as well as the sample selection equations. In order to solve a classic econometric problem of identification of estimated parameters in the system of simultaneous equations, the only difference in the set of explanatory variables in these two equations refers to identification variables.

Following Amemiya (1985) and Heckman (1979) we will analitically define selection equations and earning equations for both men and women for each kind of job and estimate them separately. From the economic point of view, this problem represents analytical solution of the classic utility function. In general, for main activity we will specify the following set of equations:

$$z^*_{1j} = a + \lambda w_{1j} + v_{1j} \quad j=1, \dots, n', \dots, n \quad (4.1a)$$

$$y_{1j} = b + \beta x_{1j} + u_{1j} \quad j= n'+1, \dots, n \quad (4.1b)$$

$$\left. \begin{aligned} z^*_{1j} > 0 \text{ if } z_{1j}=1 &\Rightarrow y_{1j} \text{ is observed} \\ z^*_{1j} \leq 0 \text{ if } z_{1j}=1 &\Rightarrow y_{1j} \text{ is unobserved} \end{aligned} \right\} \quad (4.1c)$$

Where the first equation presents the sample selection equation and the second is earning equation from the main job.

On the other side, the following two equations will be specify for additional job:



$$z_{2j} = c + \phi w_{2j} + v_{2j} \quad j=1, \dots, n', \dots, n \quad (4.2a)$$

$$y_{2j} = d + \gamma x_{2j} + u_{2j} \quad j=n'+1, \dots, n \quad (4.2b)$$

$$\left. \begin{aligned} z_{2j}^* > 0 \text{ if } z_{2j} = 1 &\Rightarrow y_{2j} \text{ is observed} \\ z_{2j}^* \leq 0 \text{ if } z_{2j} = 0 &\Rightarrow y_{2j} \text{ is unobserved} \end{aligned} \right\} \quad (4.2c)$$

In both equations,  $j$  is number of individuals, indices 1 and 2 represent main and additional job, respectively.  $n$  is total number of observations.  $z_{1j}$  and  $z_{2j}$  are dummy variables. When dummies take value 1, they imply that  $z_{1j}^*$  and  $z_{2j}^*$  are positive and  $j$  observation of the dependent variable  $y$  is observed. In general, the selection mechanism, as defined by the Probit equations (4.1a) and (4.2a), reduced chosen sample at the subsample of uncensored data.  $y_{1j}$  and  $y_{2j}$  are logs of original data,  $\log(Y_{1j})$  and  $\log(Y_{2j})$ , and  $w_{1,2j}$  and  $x_{1,2j}$  are sets of explanatory variables in the selection and earning regressions with corresponding parameters, respectively. We will start with assumption that the estimated residuals from each set of equations are bivariate Gaussian distributed with parameters:  $(v_{1,2j}, u_{1,2j}) \sim N(0, 0, 1, \sigma_{u1,2}, \rho_{1,2})$ , where  $\rho_{1,2}$  are correlation coefficients between residuals of the Probit and earning regressions. Application of the MLE procedure, in the conditions of presence of correlation in estimated residuals from the selection and earning equation ( $\rho \neq 0, \rho \in [1, -1]$ ), provides consistent estimates of all parameters.

Applied econometric papers often point out to the problem of heteroskedasticity of residuals, which is a result of the application of data from surveys (Jurajda (2000)), as well as of nonrandomly selected observations due to conditions defined by the selection models (Jolliffe (2002)). Deaton (1997) explains that the given problem appears because of clustering the data, i.e. of selected method of sampling. Since data from surveys are based on stratified samples, units within one stratum are homogenous, and those out of stratum are heterogeneous; this results in the problems caused by heteroskedasticity, and the quality of obtained estimates and their standard errors are therefore questionable. Jolliffe in his paper (Jolliffe (2002)) gave a significant contribution to the comparison of the quality of estimated parameters under the conditions of heteroskedastic residuals. He provides empirical proof that selected testing procedure rejects the Heckman two-step estimator and maximum likelihood estimators as inconsistent. The work of Pagan and Vella (1989) contains several procedures of testing the diagnostics of residuals for different specifications of selection model, but they will not be demonstrated in this paper.

The significance of differentials between earnings from two types of activity will be tested with Wald test. According to the null hypothesis we will investigate if the estimated vectors of parameters of exogenous variables from the earning equations (4.1b) and (4.2b) are significantly different. The null will be  $H_0: \beta - \gamma = 0$  against alternative  $H_1: \beta - \gamma \neq 0$ . Under the assumption that the estimated sets of parameters are independent normally distributed the form of standard Wald test statistic is (Greene (2000)):

$$W = [ \hat{\beta}_{MLE} - \hat{\gamma}_{MLE} ] [ \hat{V}_{\beta} + \hat{V}_{\gamma} ]^{-1} [ \hat{\beta}_{MLE} - \hat{\gamma}_{MLE} ], \quad (4.3)$$

where  $\hat{\beta}_{MLE}$  and  $\hat{\gamma}_{MLE}$  are vectors of estimated parameters from the earning equations, and  $\hat{V}_{\beta}$  and  $\hat{V}_{\gamma}$  are appropriate variance and covariance matrices of the estimators. The Wald test statistic is standard  $\chi^2$  ( $l$ ) distributed statistics with  $l$  degrees of freedom, where  $l$  is number of restrictions put on estimated parameters.

## 5. Estimation results

The methodology presented in *Section 4* was applied on the estimation of sample selection models in order to analyse the determinants of earnings from the main and additional activities of employees in Serbia. Selection models are estimated separately in 2001 and 2002 at the same set of explanatory variables. Dependent variables in the estimated earning equations are natural logs of hourly earnings from main and additional job. In the selection equations dependent variables are dummies: labour force participation and second job holding. Since the survey was specific, we were constrained by the choice of variables that could be included in the analysis of determinants of earnings. The set of explanatory variables included in earnings equations contains: experience<sup>20</sup>, experience squared, education<sup>21</sup>, age dummies, regional dummies, marital status, the type of settlement and dummies which mark the type of an enterprise in terms of ownership. Selection equations include the same variables except four identification variables which are excluded from earning equations due to identification issue. Earning equations also

<sup>20</sup> The variable *experience* is calculated as difference between the age and the number of years of schooling plus 7 (age before enrolment in the primary school).

<sup>21</sup> The variable *educate* is numeric and takes values from 0 to 7 for individuals with less than primary education (0 - no educated person, 2 - 1 to 3 grades of primary school, 6 - 6 to 7 grades of primary school), 8 for primary education, 12 for any secondary education, 14 for junior college education and 16 for university and higher degrees of education.

include a dummy variable *the type of firm* that is excluded from the selection equations. In the set of explanatory variables, the following are excluded in all models: respondents between 18 - 29 years of age, population from Central Serbia, rural citizens and employees in the socially-owned sector, which are the reference category of relevant variables. The average values and standard deviations of all variables involved in the specifications of earning regressions and selection equations are presented in the *Table 3.B (Appendix B)*.

### **5.1. Selection equations**

The variable, which approximated attainment of education level expressed in the years of schooling, is positive and statistically significant factor of female and male participation at the labour market in both surveyed periods. Examining the impact of education to the probability of participation in two independent periods, it may be observed that this factor is increasingly important, in particular with regard to female labour.

In 2002, education level increased the probability of participation of women by as much as 26.8 percent and of men by 9 percent. On the other hand, education level is irrelevant for individual choice of additional job. The years of service had a positive and significant effect on the likelihood for both men and women to be employed. In the case of main job, this is an expected result. The variable of work experience was included in the set of explanation primarily with regard to its effect on the likelihood of choosing additional job. However, the variable of *experience* turned out to be significant for the choice of additional job only with men, which is probably the result of connections that are acquired over the years of work, which enable employed men to find additional job. On the other hand, the set of dummies which define the age are significant only in female selection equation in the choice of additional job, considering positive effect on the likelihood of selection. This result is closely related to the significance of the variable *experience*, implying that women with more years of service and those belonging to older age groups are engaged additionally more often than younger women with less working experience. These results are not confirmed in the estimation of selection equations on the data from 2002. The variables of age groups for women up to 50 become significant when the participation of women in main job is concerned, but the significance of the age group of women over 50 is lower in relation to younger women in main job. In the selection equation for additional job, age did not have any significant effect on the probability of choice for both genders. Regional variables proved not to be significant for the probability of participation in both main and additional activity, which implies that urban population of Vojvodina and

Belgrade has equal chance to find employment as the citizens of towns in Central Serbia. According to estimated equations based on the 2001 data, married men were more likely to be in the group of those additionally engaged. The values of estimated coefficients of the variable *married* had positive sign for men and negative sign for women. In selection equations for main job, as estimated on the basis of the 2002 data, the variable *married* becomes significant, with expected sign for male and female.

The selection of identification variables in participation equations was problematic. Besides theoretical econometric requirements, economic and demographic solution of their selection refers to the selection of variables that will affect the decision of some individuals to participate on the labour market, but will not have a direct impact on wage. Jolliffe (2002) used economic identification variables *social benefit income*, *received remittance* in cash and in kind and *rents from real estate* in the selection equation. Milanovic (2001) in his work used identification variable *income from capital*. In our surveys insufficient number of households had only these forms of income because of ownership structure that was present for a long time in Serbia; that is why we introduced a general variable non-labour income (*nlabour\_income*), which comprises remittance income, income from rents, dividends, shares and social benefits in cash and in kind received from the state. This variable has statistically significant and negative effect on the likelihood of women to opt for the second job. In 2002 data, non-labour income significantly reduces likelihood to participate on the labour market for both genders. Demographic identification variables that are most frequently used in the selection equation are *children of pre-school age* and *number of household members*, and we applied them in our analysis, as well. Higher number of members in one household decreases the likelihood of employment for men, while variable the number of children in a household has different impact on the probability of participation, depending on gender. In female selection equation for additional job, the presence of at least one child in a household reduces the likelihood of participation, while, in male participation equation for main job, this factor has a positive impact on the probability of selection. Besides these two variables, we included a dummy of “whether a household owns a car” (*car\_dummy*) in selection equation, which, together with variable non-labour income, reflects the economic situation of a household, and may increase the likelihood that someone opts for an additional job. However, the estimated values of parameters turned out to be insignificant, except in male selection equation for main job in the 2002 data. Instead of this variable, the one that input the market value of a car would be more useful, but we did not have this data available in the first survey.

The Wald test of the significance of the set of identification variables in selection equations confirms that it was justly included in almost all equations except in the female selection equation in the main job in 2001 and the male selection equation in additional job in 2002<sup>22</sup>. The values of the test statistics, 37.65 [p=0.0000], 12.48 [p=0.0141], 8.61 [p=0.0716], 34.81 [p=0.0000], 20.01 [p=0.0005], 8.96 [p=0.0621], pointed out to significance of the estimated set of parameters in the rest of selection equations for main and additional job for both genders (*Table 4.C*).

## 5.2. Earning regressions

We used two different methods of earning equations estimation – the OLS and the MLE. The MLE method provides consistent estimates which are corrected for sample selection bias. We also reported the OLS estimates because the results of the Likelihood Ratio (LR) test in some cases accept hypothesis of independent estimation of the Probit and the earning equations for chosen set of exogenous variables. We did not conduct testing hypothesis about equality of estimated parameters obtained from two different estimation methods, but in explanation of our results we will take the MLE estimates as relevant. Earning regression parameter estimates and their standard errors are presented in *Table 3.C (Appendix C)*.

We did not provide any procedure for testing heteroskedasticity of the residuals, but the comparison of estimated parameters in two periods of time pointed to their instability. Therefore, standard errors of estimated parameters were corrected by Huber-White procedure<sup>23</sup>. The application of this estimator resulted in higher standard error estimates, but did not have any relevant effect on the change of significance of estimated parameters.

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<sup>22</sup> The values of  $\chi^2$  (4) statistics, 4.35 [p=0.3602] and 1.59 [p=0.8107], which are presented in *Table 4.C*, imply the acceptance of null hypothesis about joint nullity of four estimated parameters of the identification variables in the female selection equation of main job in 2001 and male selection equation from additional job in 2002, respectively. This results from the insignificance of estimate of each parameter separately. In male selection equation of additional job none of four selected factors was statistically significant, while in female participation equation only the factor of children of pre-school age was significant, as this reduces the probability of women with small children to opt for additional job, which is expected.

<sup>23</sup> Huber-White estimator of standard errors is calculated in *Stata 7.0* using the formula  $WH_{RSE} = \frac{n}{n-p} (x'x)^{-1} x' diag(u_j^2) x (x'x)^{-1}$ , where  $n/(n-p)$  is number of degree of freedom of correction factor,  $p$  is number of estimated parameters,  $n$  is number of observation,  $x$  is set of explanation factors and  $u_j$  are residuals from the estimated models.

Goodness of fit of the estimated models is confirmed by results of conducted testing procedure. The values of the Wald test statistics of significance of the estimated sample selection models, presented in *the Table 4.C.* imply high significance of estimated models to under 1 percent, except for selection model of men employed in additional activity, which is significant at the 5 percent level.

The education level has a positive and significant effect on the wages of employees in Serbia (*Table 3.C.*). Higher education level had a positive impact on the average female wage from additional job in both estimated earning equations, but it also appears as statistically significant in the equation of male earnings from additional work in 2002. Male wage within main job rose by 5.5 percent on average with an additional year of education in 2001, while this rise amounted to as much as 12.1 percent for women. When additional job is concerned, female wages increased by 9.6 percent with an additional year of schooling, while attained education was not significant for male wages. Negative and low impact of education on earnings from additional activity was typical for men in Russia, because education level was not critical factor for the choice of additional job, but second job holding appeared as a consequence of increased poverty in Russia in the early 1990s (Foley (1997)).

The estimated marginal effects of education level are not stable<sup>24</sup> in the two points in time, except the estimated return to education in female earnings equation from the main job. In male wages equation from additional job in 2002 the variable *education* became statistically significant at the 10 percent level. Significantly higher returns to education obtained through the estimation of earning equation from additional job implies that men with more years of schooling, who live in urban areas and who are older than 29, have more opportunity to earn from additional job than men of lower education level and those who lives in mixed and rural area.

Women have higher returns to education than men. Higher rates of returns to education for women are especially characteristic for transition countries. Having analyzed labour market in several transition countries, Brainerd (2000) came to the conclusion that returns to education for both men and women increased as compared to the period of communism<sup>25</sup>, but women

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<sup>24</sup> The tested differences between estimated parameters are statistically significant in the male earning equations from main and additional job [ $z=-3.96$  and  $z=3.54$ ] and female earning equation from additional job [ $z=-5.42$ ] at the 1 percent level.

<sup>25</sup> Münich (2000) et al. analysing returns to education in the Czech Republic in two separate time periods, one in communism and other during transition, on the panel data of employed men, came to the conclusion that estimated returns are increasing with the progress of transition. They reported the estimates of returns to an additional year of education for men which was 2.7 percent in 1989, to increase to 5.8 percent in 1996. In their paper they presented a review of estimated returns for different countries. For example in 1989 the estimated returns to education for both

continuously have higher returns to education than men. This is explained with the fact that in these countries women are more highly educated than men.

The results indicate significant regional differences<sup>26</sup> in male and female earnings. Women who live and work in Belgrade and in Vojvodina earn more than women employed in Central Serbia. Similarly, men who work in Belgrade earn more than men in Central Serbia. Statistically significant difference in additional wages of men who live in Belgrade compared to men in other towns in Serbia is not confirmed in the results of estimated earning regression in 2002. There is no evidence of significant differences in the estimated parameters of female earnings from additional job across regions, too.

Dummy variables by which we can control for occupation are excluded from the specification of earning equations due to the multicollinearity of number of dummies on the right side of equation. Instead, we used a set of variables which reflects ownership structure of an enterprise in which employee work. Women who work in their own firms or shops earn more than women who work in the socially-owned enterprises. This also applies to men concerning main job. In 2002, women who work in their own firms or shops do not earn significantly more through additional engagement. While women employed in their own companies or shops in 2001 had significantly higher wages than women who work in the socially-owned enterprises, in 2002 men who work in private companies earn significantly more than men employed in the socially-owned enterprise. Men and women who work in public enterprises or in public administration earn more than their counterparts in purely socially-owned enterprises. Although wage bills in public enterprises are under the Government's control, employees in these enterprises have statistically significant higher earnings on average than workers in the socially-owned enterprises in Serbia.

Using the Wald test statistic we tested the equality of estimated parameters of earning equations from main and additional job separately, as well as equality in male and female earnings from the same job. Tested difference in determinants of earnings from main and additional job is only significant for male earnings estimated in 2001 [ $\chi^2(15)=35.4975$ ,

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genders in the US were 9.3 percent and it was much higher than in Germany (4.9 percent in 1987), Great Britain (6.8 percent in 1987) or in Switzerland (7.9 percent in 1987).

<sup>26</sup>We tried to estimate interactive impact of variables region and education on the wage level (*Table 3A.C*). Estimated values of returns to education are reasonably lower related to estimates of earning regression which are presented in *table 3.A*. Significance of attained education is confirmed in earning equations from the main job for both genders at the 1 percent level. In case of additional job, years of schooling are statistically significant determinant of earnings only for women. The estimates of jointly impact of Belgrade region and education variables are relevant and stable factor for men and women earnings from main job in both periods. In 2001, this variable significantly affects men and women earnings with 2.1 and 2.8 percent, respectively, while in 2002 their impact was reduced (1.8 percent), but significant for women employed in Belgrade.

$p=0.0028$ ] and female earnings estimated in 2002 [ $\chi^2(15)=28.3693$ ,  $p=0.0194$ ]. In all other cases we cannot conclude that the factors, which determined earnings from main and additional activities, prompted significant differences. This can be partially explained with the structure of professions of employees who opt for additional job (most often these are clerks and qualified workers with high school education) and maybe by still not too large difference between wages of employees who work in private and socially-owned sector (Lokshin and Jovanovic (2003)).

When we test differences between male and female wages from the same job, we can conclude that there are some differences in estimated parameters in earnings equations from the main job in 2001 [ $\chi^2(15)=30.44$ ,  $p=0.0104$ ]. Using the 2002 data, the same result is obtained [ $\chi^2(15)=37.14$ ,  $p=0.0012$ ]. We can take this results as relevant, because many empirical studies confirm presence of differences in wages between genders (Jolliffie (2002), Lokshin and Jovanovic (2003), Paternostro and Sahn (1999), Foley (1997)). Also, in both periods statistically significant differences in the structure of estimated parameters of earnings from additional job between men and women [ $p=0.0160$  ,  $p=0.0756$ ] are confirmed. Our results confirm the assumption of no equalized earnings structures from main and additional job for men in 2001 [ $\chi^2(15)=36.73$ ,  $p=0.0014$ ] and for women in the course of 2002 [ $\chi^2(15)=28.36$ ,  $p=0.0194$ ].

## 6. Conclusion

In conclusion we will point out to the main findings, which are provided by earnings equations estimation for both genders in the case of participation in main and in additional jobs in Serbia. Education level affects significantly wage premium from main activity for both men and women. Education is more significant for the determination of wages for women. Other important findings concern large regional differences in male and female wages. Women who work in Belgrade and in Vojvodina had significantly higher premium, which is more than men can earn. In 2002 we observed an increased significance of Belgrade in the determination of wages of employed men, while the premiums of women are lower compared to men. Female wages depend more on the choice of residence than male wages. Both men and women earn more when they work in their own company or shop than workers in the socially-owned sector. While in 2001 women employed in the private sector had significantly higher premiums than women employed in socially-owned enterprises, in 2002 the impact of private sector in the determination of male wages has become more significant. In 2002 data, employment in public enterprises or in



public administration provides statistically significant higher premiums for both men and women than those who are employed in socially-owned sector.

There are much less significant factors in the determination of earnings from additional job. Education level is important for wages from the second job for both genders in 2002. While in 2001, premiums for men who live in Belgrade and work in additional job were not significant, it changed in 2002. On the other side, in both survived period women had significantly higher premiums from second job, which means that urban areas in Serbia offered wider opportunities for better additional earnings for highly educated women. The type of enterprises in which the individual works, in terms of ownership, did not have significant effect on additional wages of employed men and women.

The choice of additional job does not depend only on the need for additional income necessary to solve the problems in poor households in which those individuals live as was the case with early years of transition in other countries, but the search for additional job was also motivated by the wish to change their main job. The results also imply that more intensive mobility of younger, better educated and those who possess skills that enable easy transfer from one job to another is very likely. This is further confirmed by the results, which proves our findings that the years of working experience are not a significant factor of male or female earnings determination in case of main or additional employment.

The estimated earning gap, after running our regressions, between males and females from main and additional job in 2002 was 24 and 35 percent, respectively. Estimated wage gap from main activity remained unchanged compared to 2001, while in additional job it decreased. In 2001 gender wage gap from additional activity was estimated at 42.8 percent.

The Wald test strongly rejected the hypotheses of equality in determinants of male and female earnings from main job in observed period. The same result is also confirmed in testing differences in wage structures from additional job between genders. By using the same testing procedure, we found statistically significant differences in the estimated parameters of earnings equations from main and additional job for men in 2001 and for women in 2002.

Problems that accompanied transitional economies at the very beginning, and which resulted from negative GDP growth rates, negative growth rates of real wages and high inflation rates did not circumvent Yugoslav and Serbian economy at that time. Ten years later, Serbian economy started implementing reforms and achieved positive results in the first year. GDP grew at the rate of 5.5 percent, nominal earning increased by 25.2 percent, real wages rose by 16.5 percent, while year-end inflation rate of 40.7 percent was achieved under the conditions of partial liberalization of prices and wages. A significant reallocation of labour force from state-owned

and socially-owned enterprises to the private sector is expected in the forthcoming period, together with full liberalization in wage setting, which will inevitably affect the rise of inequality in earnings in general terms (Milanovic (1999)). However, in terms of gender, as was indicated by the results, women have significantly higher returns to an additional year of schooling than men, because they are highly educated on average, which should increase the ratio between female and male earnings (Brainerd (2000)).

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## Appendix A.

**Table 1. A** – Survey of main macroeconomic indicators in Serbia

Main indicator	Annual percentage changes <sup>3)</sup>								
	1991 <sup>1)</sup>	1994	1995	1996	1997	1998	1999	2000	2001
Consumer price index (CPI) <sup>2)</sup> (annual average)	121.0	0.0 <sup>1a)</sup>	74.8	94.1	18.3	30.0	41.1	70.0	91.8
Real GDP (material) (at 1994 prices)	-11.7	2.6	5.7	4.7	7.4	2.3	-18.3 <sup>2)</sup>	5.7	5.5
Export of commodities (in current USD)	-16.2	-48.9	3.3	17.1	47.6	8.8	-49.0	13.8	9.7
Import of commodities (in current USD)	-24.6	-36.7	40.5	52.9	17.5	0.7	-33.9	15.6	26.1
Average real net wage	-5.5	206 <sup>1a)</sup>	16.2	-0.2	20.5	1.6	-16.5	5.5	16.5
Unemployment rate	18.6	21.6	22.9	23.9	22.5	22.8	25.5	25.6	26.9
Population in the middle of the year (in thousand)	7825	7849	7856	7844	7828	7807	7781	7747	7667

Source: Federal Bureau of Statistics and Republic Bureau of Statistics and Informatics.

**Notes:** <sup>1)</sup> The years 1992 and 1993 are excluded because of hyperinflation in the Yugoslav economy that made the nominal economic aggregates immeasurable.

<sup>2)</sup> In 1999 real GDP declined due to NATO bombing.

<sup>1a)</sup> The data corresponded to the period December-February.

<sup>2)</sup> CPI corresponded to retail price index.

<sup>3)</sup> The data for Kosovo and Metohija are excluded from the overall period except for CPI, which lacks only the Kosovo and Metohija figures for the last three years.

**Table 2. A** – Main characteristics of the households in Serbia – total sample

	2001		2002	
	Mean	Standard Deviation	Mean	Standard Deviation
Real household income <sup>1)</sup> in dinars	4467.676	3961.179	5886.599	4027.638
Earnings (main and additional job)	2747.100	2905.476	2899.515	3078.467
Social transfers	635.097	1244.693	977.707	1845.835
Remittance and gifts	301.077	1274.056	507.475	1903.009
Income from own estate/store	428.045	1616.833	688.348	1747.519
Income from own private business without firm/shop	n.a.	n.a.	416.323	1255.763
Benefits and subventions	14.294	129.385	14.082	101.379
Income from capital	72.406	401.058	84.522	481.729
Value of consumption in kind	269.656	660.871	298.626	908.279
Nonlabour income in dinars <sup>1)</sup>	378.235	1347.558	426.889	1580.482
Expenditure for food <sup>1)</sup> in dinars	1910.514	1465.272	2091.315	1251.180
Population according to age intervals <sup>2)</sup>				
18-29	0.202	0.401	0.203	0.403
30-39	0.187	0.390	0.197	0.398
40-49	0.209	0.406	0.183	0.386
50-64	0.221	0.415	0.160	0.366
65 and older	0.185	0.386	0.257	0.437
Children to 3 years	0.088	0.283	0.104	0.305
Children 4-6	0.087	0.283	0.078	0.268
Children 7-14	0.219	0.414	0.219	0.413
Youth 15-17	0.130	0.336	0.095	0.294
Average number of household's members	3.427	1.554	3.333	1.504
Number of households	2006		1512	

Source: G17 Survey of population's economic situation and attitudes in Serbia.

Notes: n.a. not available.

<sup>1)</sup> Deflated by CPI.

<sup>2)</sup> Respondents in the Survey are over 18.

## Appendix B.

**Table 1. B** – Distribution of real hourly earnings and measures of inequality

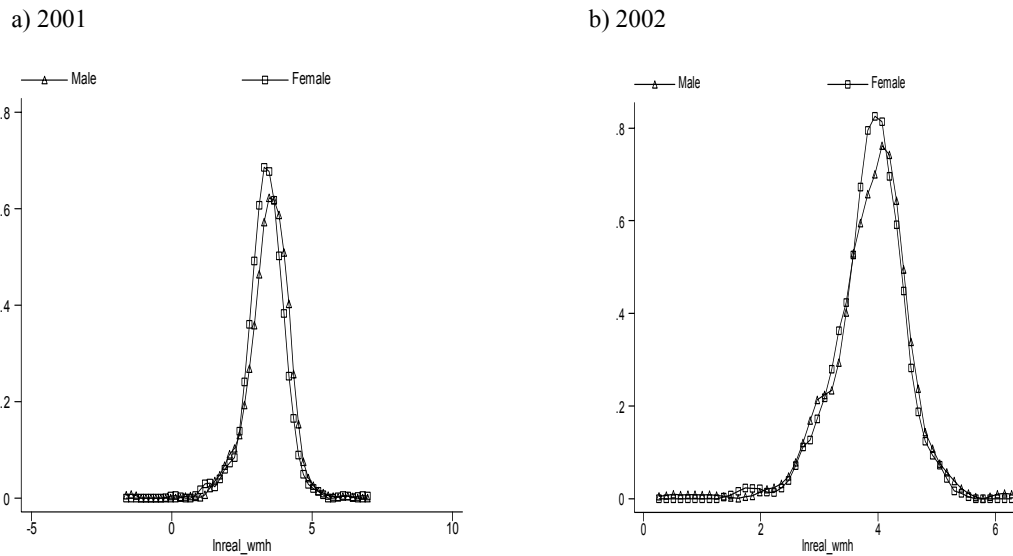
Main indicator	2001				2002			
	Main job		Additional job		Main job		Additional job	
	Male	Female	Male	Female	Male	Female	Male	Female
	Mean		Mean		Mean		Mean	
Overall mean	38.525	34.163	59.159	46.672	49.752	44.632	60.317	54.566
Median <sup>1)</sup>	32.568	27.239	42.635	35.529	46.302	41.157	38.585	30.868
Measures of inequality								
Gini	35.113	37.316	45.757	43.919	31.395	27.828	47.488	56.009
Theil	22.822	32.194	36.755	33.007	18.510	12.869	40.498	68.349
Decile ratio 50-10	19.541	14.550	30.792	24.160	26.752	22.783	26.238	20.578
Decile ratio 50-25	11.843	8.629	18.949	15.791	15.434	13.455	16.977	15.434
Decile ratio 75-50	18.188	13.027	36.319	23.686	15.434	15.434	30.010	27.928
Decile ratio 90-50	38.490	31.976	75.796	65.983	30.868	32.926	84.887	72.025
Decile ratio 90-10	58.032	46.527	106.589	90.143	57.620	55.709	111.125	92.604

Source: G17 Survey of population's economic situation and attitudes in Serbia.

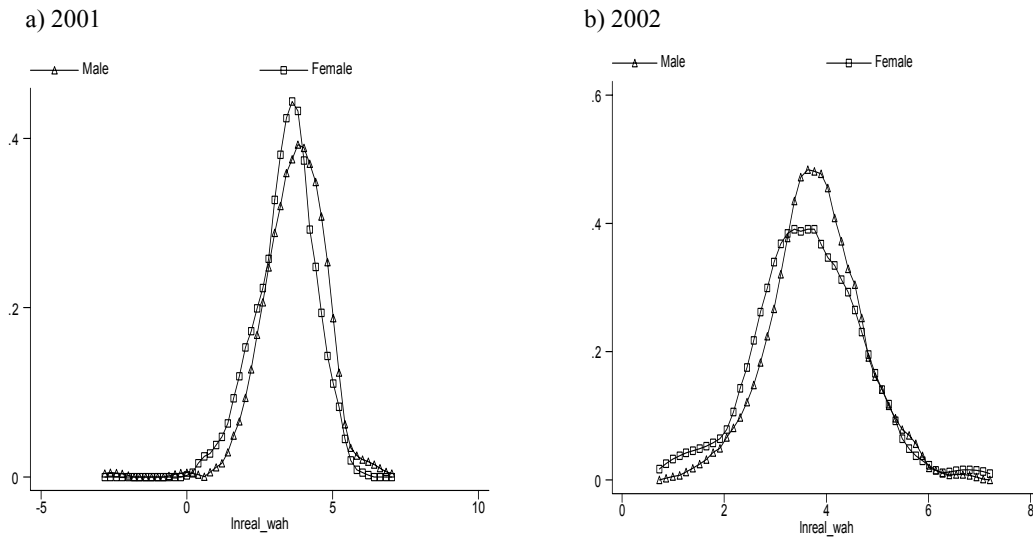
**Notes:** Gini and Theil indices are weighted by sample weight (Milanovic (2001)).

<sup>1)</sup> Increase of the median earning is not too surprising bearing in mind that the real earning in Serbia in April 2002 was 39.2 percentage higher than in June 2001. (The data about earnings from two surveys correspond to the figures recorded in the previous month.)

**Graph 1** – Gaussian kernel density estimate of log hourly earnings from the main job by gender



**Graph 2** – Gaussian kernel density estimate of log hourly earnings from the additional job by gender



**Notes:** We used Gaussian kernel  $K_G = 1/\sqrt{2\pi} e^{-z^2/2}$ , with density estimator specify as  $\hat{f}_h(y) = (1/nh) \sum_{i=1}^n K_G[(y_i - y)/h]$ , where  $n$  is sample size and  $h$  is bandwidth. In estimating of the probability kernel density of log hourly earnings for both type of activity and both gender are used full sets of observations. The optimal bandwidth is specified as a minimum of mean integrated squared error.



**Table 2. B** – Means and standard deviations of main variables included in the estimated equations

Variables	2001				2002			
	Main job		Additional job		Main job		Additional job	
	Male	Female	Male	Female	Male	Female	Male	Female
	Mean (Standard Deviation)		Mean (Standard Deviation)		Mean (Standard Deviation)		Mean (Standard Deviation)	
Log hourly earning <sup>1)</sup>	3.423 (0.727)	3.289 (0.682)	3.678 (0.993)	3.506 (0.884)	3.737 (0.607)	3.655 (0.559)	3.686 (0.916)	3.426 (0.990)
Average number of working hours per week <sup>1)</sup>	44.966 (13.578)	41.708 (10.144)	25.299 (19.417)	22.309 (16.418)	47.749 (14.929)	43.799 (12.766)	25.825 (18.612)	26.581 (18.646)
Age	40.876 (10.376)	39.355 (9.342)	37.423 (9.999)	39.184 (10.464)	39.992 (10.314)	39.248 (9.742)	37.484 (10.195)	40.099 (11.039)
<b>Age dummies (percentage)</b>								
18-29	0.167 (0.373)	0.181 (0.385)	0.267 (0.443)	0.191 (0.394)	0.178 (0.383)	0.206 (0.405)	0.278 (0.450)	0.173 (0.380)
30-39	0.292 (0.455)	0.301 (0.459)	0.335 (0.473)	0.295 (0.458)	0.324 (0.468)	0.301 (0.459)	0.300 (0.460)	0.347 (0.478)
40-49	0.306 (0.461)	0.370 (0.483)	0.250 (0.434)	0.353 (0.479)	0.285 (0.452)	0.333 (0.472)	0.276 (0.449)	0.247 (0.433)
50-64	0.232 (0.423)	0.138 (0.345)	0.147 (0.355)	0.160 (0.368)	0.189 (0.393)	0.143 (0.350)	0.144 (0.353)	0.169 (0.377)
Experience	21.726 (10.785)	19.928 (9.722)	18.250 (10.239)	20.516 (11.126)	20.834 (10.588)	19.844 (10.453)	18.448 (10.248)	21.841 (12.912)
Experience <sup>2</sup> /100	5.881 (5.236)	4.915 (4.181)	4.374 (4.404)	5.438 (4.913)	5.459 (4.887)	5.027 (4.783)	4.445 (4.136)	6.420 (7.278)
Marriage dummy (Yes=1) (percentage)	0.798 (0.401)	0.716 (0.451)	0.778 (0.417)	0.675 (0.470)	0.806 (0.396)	0.734 (0.442)	0.747 (0.435)	0.769 (0.424)
Number of children up to 5 years (percentage)	0.275 (0.571)	0.176 (0.446)	0.382 (0.650)	0.226 (0.559)	0.315 (0.582)	0.162 (0.388)	0.328 (0.587)	0.163 (0.371)
Number of household members	3.658 (1.370)	3.524 (1.237)	3.639 (1.293)	3.333 (1.450)	3.649 (1.274)	3.407 (1.282)	3.743 (1.288)	3.531 (1.465)
Type of settlement (percentage)	0.527 (0.499)	0.623 (0.485)	0.489 (0.501)	0.488 (0.501)	0.491 (0.500)	0.566 (0.496)	0.479 (0.501)	0.468 (0.502)
Household possesses a car (Yes=1) (percentage)	0.653 (0.476)	0.623 (0.485)	0.572 (0.496)	0.526 (0.501)	0.694 (0.461)	0.610 (0.488)	0.719 (0.451)	0.588 (0.495)
Education in years	12.150 (2.513)	12.430 (2.078)	12.173 (2.333)	11.686 (2.466)	12.178 (2.009)	12.403 (2.457)	12.052 (1.731)	11.258 (3.735)

Source: G17 Survey of population's economic situation and attitudes in Serbia.

Notes: <sup>1)</sup> Hourly earnings and working hours are greater than zero.

**Table 2. B** – Means and standard deviations of main variables included in the estimated equations, continued

Variables	2001				2002			
	Main job		Additional job		Main job		Additional job	
	Male	Female	Male	Female	Male	Female	Male	Female
	Mean (Standard Deviation)		Mean (Standard Deviation)		Mean (Standard Deviation)		Mean (Standard Deviation)	
<b>Level of education</b> (percentage)								
Less than primary	0.025 (0.156)	0.010 (0.099)	0.028 (0.167)	0.032 (0.178)	0.016 (0.126)	0.021 (0.144)	0.015 (0.120)	0.088 (0.284)
Primary education	0.097 (0.296)	0.068 (0.252)	0.059 (0.236)	0.148 (0.357)	0.079 (0.269)	0.081 (0.273)	0.066 (0.249)	0.151 (0.359)
Secondary education	0.644 (0.479)	0.669 (0.471)	0.722 (0.449)	0.628 (0.485)	0.706 (0.706)	0.625 (0.485)	0.783 (0.413)	0.559 (0.499)
Junior college education	0.090 (0.286)	0.114 (0.318)	0.056 (0.229)	0.114 (0.319)	0.088 (0.283)	0.092 (0.290)	0.058 (0.235)	0.038 (0.192)
University education	0.144 (0.351)	0.139 (0.346)	0.134 (0.342)	0.076 (0.266)	0.106 (0.308)	0.179 (0.384)	0.072 (0.259)	0.164 (0.372)
<b>Regional dummies</b> (percentage)								
Belgrade	0.189 (0.392)	0.207 (0.406)	0.151 (0.358)	0.142 (0.351)	0.197 (0.398)	0.241 (0.428)	0.192 (0.395)	0.172 (0.379)
Vojvodina	0.251 (0.434)	0.255 (0.437)	0.255 (0.437)	0.188 (0.393)	0.221 (0.416)	0.235 (0.425)	0.197 (0.399)	0.182 (0.388)
Central Serbia	0.560 (0.497)	0.537 (0.499)	0.594 (0.492)	0.668 (0.472)	0.581 (0.494)	0.524 (0.500)	0.610 (0.489)	0.646 (0.480)
<b>Occupations</b>								
Managers	0.099 (0.300)	0.069 (0.253)	0.065 (0.247)	0.048 (0.214)	0.096 (0.295)	0.024 (0.153)	0.095 (0.294)	0.008 (0.092)
Professionals	0.122 (0.327)	0.124 (0.329)	0.109 (0.312)	0.074 (0.262)	0.070 (0.255)	0.153 (0.360)	0.048 (0.215)	0.129 (0.337)
Clerks	0.189 (0.392)	0.402 (0.491)	0.162 (0.369)	0.198 (0.400)	0.255 (0.436)	0.413 (0.493)	0.249 (0.434)	0.241 (0.430)
Qualified workers	0.444 (0.497)	0.301 (0.459)	0.336 (0.473)	0.267 (0.444)	0.386 (0.487)	0.232 (0.423)	0.339 (0.475)	0.134 (0.343)
Nonqualified workers	0.038 (0.192)	0.053 (0.224)	0.036 (0.186)	0.062 (0.242)	0.065 (0.247)	0.038 (0.190)	0.046 (0.210)	0.032 (0.176)
<b>Enterprise ownership</b> (percentage)								
Majority socially owned enterprise	0.129 (0.335)	0.109 (0.313)	0.146 (0.354)	0.096 (0.296)	0.129 (0.335)	0.144 (0.352)	0.131 (0.339)	0.089 (0.286)
Mixture of private and	0.037 (0.189)	0.057 (0.233)	0.029 (0.170)	0.069 (0.254)	0.069 (0.253)	0.044 (0.204)	0.072 (0.260)	0.040 (0.197)

socially owned enterprise								
Socially owned enterprise	0.289 (0.453)	0.278 (0.448)	0.225 (0.419)	0.213 (0.411)	0.324 (0.469)	0.304 (0.461)	0.299 (0.460)	0.238 (0.428)
Own enterprise/firm/store	0.184 (0.387)	0.080 (0.273)	0.150 (0.358)	0.049 (0.218)	0.153 (0.360)	0.090 (0.287)	0.046 (0.210)	0.042 (0.202)
Own private business without firm/store	0.021 (0.142)	0.014 (0.119)	0.026 (0.159)	0.005 (0.069)	0.017 (0.131)	0.009 (0.097)	0.022 (0.147)	0.006 (0.083)
Almost entirely or entirely private enterprise	0.137 (0.344)	0.198 (0.399)	0.074 (0.262)	0.122 (0.328)	0.152 (0.360)	0.197 (0.398)	0.155 (0.363)	0.099 (0.301)
Public enterprise or public administration	0.201 (0.400)	0.249 (0.433)	0.154 (0.362)	0.140 (0.348)	0.147 (0.355)	0.210 (0.408)	0.087 (0.283)	0.167 (0.375)

Source: G17 Survey of population's economic situation and attitudes in Serbia.

Notes: <sup>1)</sup> Hourly earnings and working hours are greater than zero.

**Table 3. B – Main characteristics of the wage earners by gender**

	2001		2002	
	Male	Female	Male	Female
Number of observations – persons engaged in main activity	565	466	408	336
Percent of employed in main activity	54.80	45.20	54.84	45.16
Percent of employed engaged in main activity without pay	4.83	5.75	1.16	1.13
Average real monthly wages > 0 earned from main job (in dinars)	5859.37	4882.81	8643.04	7778.74
Max. real monthly earnings from main job (in dinars)	29296.88	19531.25	34572.17	25929.13
Min. real monthly earnings from main job (in dinars)	683.59	517.58	950.73	864.30
Max. number of working hours per week in main activity	70	60	80	70
Average of working hours per week > = 0 in main activity	42.37	38.88	47.57	43.76
Percent of employed in additional activity <sup>1)</sup>	36.28	28.97	33.33	28.57
Average real monthly wages > 0 earned from additional job (in dinars)	5181.92	3577.55	4546.749	4032.52
Max. real monthly earnings from additional job (in dinars)	29844.81	14922.40	17286.08	15557.48
Min. real monthly earnings from additional job (in dinars)	198.96	198.96	345.72	518.58
Max. number of working hours per week in additional activity	98	80	80	80
Average number of working hours per week >= 0 in additional activity	25.40	23.44	25.23	23.80

Source: G17 Survey of population's economic situation and attitudes in Serbia.

**Notes:** Earnings from the additional activity include the last month earned money from the second formal and informal job.

<sup>1)</sup> Percentages are calculated regard to the primary job holders.

## Appendix C.

**Table 1. C – Variable Definitions**

Variable	Description
Inreal_wmh	Log hourly earnings from main job
Inreal_wah	Log hourly earnings from additional job
experience	Experience in years
experi_sq	Experience <sup>2</sup> /100
married	Dummy variable- marital status
children_5	Number of children up to 5 years
no_members	Number of household members
educate	Education in years
nlabour_income	Nonlabour income
type_sett	Dummy variable – type of settlement
reg_Voj	Dummy variable – region Vojvodina
reg_CSrb	Dummy variable – region Central Serbia
reg_Bgd	Dummy variable – Belgrade
Voj_educ	Dummy variable – region Vojvodina*educate
CSrb_educ	Dummy variable – region Central Serbia *educate
Bgd_educ	Dummy variable – Belgrade*educate
firm_1	Dummy variable – employed in majority socially owned enterprise
firm_2	Dummy variable – employed in mixture of private and socially owned enterprise
firm_3	Dummy variable – employed in socially owned enterprise
firm_4	Dummy variable – have own enterprise/firm/store
firm_5	Dummy variable – employed in almost or entirely private enterprise
firm_6	Dummy variable – employed in public enterprise or public administration
age18_29	Dummy variable – age from 18 to 29
age30_39	Dummy variable – age from 30 to 39
age40_49	Dummy variable – age from 40 to 49
age50_64	Dummy variable – age from 50 to 64
car_dummy	Dummy variable – households posses a car

**Table 2. C – MLE estimate of selection equations**

Variables	2001				2002			
	Main job		Additional job		Main job		Additional job	
	Male	Female	Male	Female	Male	Female	Male	Female
	Estimate (Standard Error)		Estimate (Standard Error)		Estimate (Standard Error)		Estimate (Standard Error)	
educate	0.0473 <sup>c)</sup> (0.0273)	0.1783 <sup>a)</sup> (0.0324)	0.0219 (0.0272)	0.0215 (0.0292)	0.0904 <sup>b)</sup> (0.0368)	0.2682 <sup>a)</sup> (0.0311)	-0.0089 (0.0322)	0.0313 (0.0304)
Experience	0.0917 <sup>a)</sup> (0.0271)	0.1373 <sup>a)</sup> (0.0308)	0.0430 (0.0323)	-0.0317 (0.0298)	0.0626 (0.0399)	0.0186 (0.0448)	0.0836 <sup>b)</sup> (0.0412)	0.0139 (0.0385)
experi_sq	-0.1161 <sup>b)</sup> (0.0502)	-0.2483 <sup>a)</sup> (0.0557)	-0.1158 <sup>c)</sup> (0.0633)	0.0388 (0.0504)	-0.0913 (0.0767)	-0.0087 (0.0924)	-0.2206 <sup>a)</sup> (0.0840)	-0.0318 (0.0757)
age30_39 <sup>1)</sup>	0.1165 (0.2069)	-0.0157 (0.2378)	-0.2473 (0.2398)	0.7844 <sup>a)</sup> (0.2576)	0.4823 (0.3082)	0.5085 <sup>c)</sup> (0.2815)	-0.2013 (0.2724)	0.2877 (0.2817)
age40_49	-0.2525 (0.3142)	-0.2845 (0.3377)	-0.2294 (0.3378)	0.9387 <sup>a)</sup> (0.3485)	0.1791 (0.3893)	0.8097 <sup>b)</sup> (0.3686)	-0.1477 (0.3316)	0.0404 (0.3620)
age50_64	-0.3032 (0.4172)	-0.2530 (0.4080)	-0.2222 (0.4108)	0.9649 <sup>b)</sup> (0.4205)	0.1933 (0.4218)	0.4677 (0.3297)	0.1214 (0.3264)	0.1687 (0.3498)
reg_Voj <sup>2)</sup>	0.2107 (0.1310)	-0.1253 (0.1143)	0.0498 (0.1145)	-0.3186 <sup>b)</sup> (0.1253)	-0.0427 (0.1578)	-0.1086 (0.1486)	-0.1333 (0.1409)	-0.0749 (0.1488)
reg_Bgd	0.1331 (0.1247)	-0.1668 (0.1295)	-0.0747 (0.1312)	-0.2271 (0.1434)	0.1275 (0.1757)	-0.0175 (0.1516)	-0.0861 (0.1541)	-0.0353 (0.1529)
Married	0.2363 (0.1369)	-0.1775 (0.1296)	0.2649 <sup>c)</sup> (0.1425)	-0.3268 <sup>b)</sup> (0.1281)	0.5162 <sup>a)</sup> (0.1681)	-0.2850 <sup>b)</sup> (0.1612)	0.0168 (0.1836)	-0.2221 (0.1553)
no_members	-0.0766 <sup>b)</sup> (0.0308)	-0.0017 (0.0487)	-0.0899 <sup>b)</sup> (0.0411)	-0.0784 (0.0528)	-0.1584 <sup>a)</sup> (0.0473)	-0.0621 (0.0537)	0.0173 (0.0452)	0.0684 (0.0480)
nlabour_income	0.0004 <sup>a)</sup> (0.000008)	-0.00002 (0.00003)	-9.99e-07 (0.00002)	0.00003 (0.0003)	-0.0001 <sup>a)</sup> (0.00002)	-0.0001 <sup>a)</sup> (0.00003)	0.00002 (0.00003)	-0.0008 <sup>c)</sup> (0.0005)
children_5	0.0585 (0.0804)	-0.2142 <sup>c)</sup> (0.1212)	0.2726 <sup>b)</sup> (0.1120)	0.1963 (0.1498)	0.5686 <sup>a)</sup> (0.1924)	-0.1167 (0.1514)	0.0911 (0.1344)	-0.3397 <sup>b)</sup> (0.1685)
type_sett	0.0161 (0.1091)	0.3756 <sup>a)</sup> (0.1112)	-0.1690 (0.1087)	-0.1915 (0.1214)	-0.2477 (0.1492)	-0.0600 (0.1342)	-0.1093 (0.1293)	-0.0778 (0.1332)
car_dummy	0.1302 (0.0860)	-0.0817 (0.1219)	-0.1530 (0.1035)	-0.1599 (0.1181)	0.2453 <sup>b)</sup> (0.1209)	0.0187 (0.1380)	0.0601 (0.1363)	-0.1665 (0.1178)
Const	-1.1178 <sup>a)</sup> (0.4013)	-3.0809 <sup>a)</sup> (0.5218)	-0.6689 (0.4240)	-0.6796 (0.4711)	-1.1369 <sup>b)</sup> (0.5172)	-3.0033 <sup>a)</sup> (0.4958)	-1.0274 <sup>b)</sup> (0.4905)	-1.3796 <sup>a)</sup> (0.4718)

Source: G17 Survey of population's economic situation and attitudes in Serbia.

**Notes:** <sup>a)</sup> Significant at the 1% level.

<sup>b)</sup> Significant at the 5% level.

<sup>c)</sup> Significant at the 10% level.

<sup>1)</sup> Reference age18\_29.

<sup>2)</sup> Reference reg\_CSrb.

**Table 3. C** – OLS and MLE estimate of earning regressions, dependent variables: log hourly earnings in the main and additional activity

Variables	2001							
	Main job				Additional job			
	Male		Female		Male		Female	
	Estimate (Standard Error*)		Estimate (Standard Error*)		Estimate (Standard Error*)		Estimate (Standard Error*)	
OLS	MLE	OLS	MLE	OLS	MLE	OLS	MLE	
educate	0.0946 <sup>a)</sup> (0.0186)	0.0550 <sup>a)</sup> (0.0185)	0.1118 <sup>a)</sup> (0.0189)	0.1208 <sup>a)</sup> (0.0210)	0.0220 (0.0404)	0.0262 (0.0398)	0.0922 <sup>c)</sup> (0.0489)	0.0956 <sup>b)</sup> (0.0471)
experience	0.0190 (0.0172)	-0.0100 (0.0198)	0.0010 (0.0237)	0.0094 (0.0235)	0.0201 (0.0463)	0.0299 (0.0462)	-0.0435 (0.0482)	-0.0476 (0.0464)
experi_sq	-0.0311 (0.0312)	-0.0023 (0.0358)	0.0450 (0.0475)	0.0297 (0.0469)	-0.0081 (0.0907)	-0.0355 (0.0940)	0.0741 (0.0856)	0.0803 (0.0819)
age30_39 <sup>1)</sup>	0.0165 (0.1351)	-0.0948 (0.1477)	0.1203 (0.1629)	0.1195 (0.1603)	0.1273 (0.3568)	0.0828 (0.3513)	-0.1097 (0.4106)	-0.0026 (0.4268)
age40_49	0.0211 (0.1836)	0.0401 (0.2074)	-0.1569 (0.2302)	-0.1722 (0.2235)	0.1642 (0.5534)	0.1043 (0.5363)	-0.0707 (0.6042)	0.0381 (0.5962)
age50_64	0.0149 (0.2231)	0.1192 (0.2524)	-0.3434 (0.2780)	-0.3575 (0.2672)	-0.1027 (0.7201)	-0.1497 (0.6960)	-0.2581 (0.8246)	-0.1405 (0.7915)
reg_Voj <sup>2)</sup>	-0.0268 (0.0703)	-0.0533 (0.0799)	0.2131 <sup>a)</sup> (0.0697)	0.2072 <sup>a)</sup> (0.0681)	-0.1420 (0.1779)	-0.1268 (0.1734)	-0.0118 (0.1959)	-0.0462 (0.1969)
reg_Bgd	0.2883 <sup>a)</sup> (0.0723)	0.2861 <sup>a)</sup> (0.0815)	0.3859 <sup>a)</sup> (0.0730)	0.3763 <sup>a)</sup> (0.0706)	0.6453 <sup>a)</sup> (0.1882)	0.6299 <sup>a)</sup> (0.1806)	0.0307 (0.2273)	0.0177 (0.2140)
married	-0.0825 (0.0693)	-0.1397 <sup>c)</sup> (0.0798)	-0.0729 (0.0617)	-0.0834 (0.0618)	0.0624 (0.1736)	0.1108 (0.1746)	0.2531 (0.1983)	0.2005 (0.2135)
type_sett	0.0508 (0.0685)	0.0005 (0.0758)	0.1911 <sup>a)</sup> (0.0690)	0.2114 <sup>a)</sup> (0.0743)	0.1460 (0.1539)	0.1179 (0.1511)	0.3351 <sup>c)</sup> (0.1800)	0.3100 <sup>c)</sup> (0.1752)
firm_1 <sup>3)</sup>	-0.0574 (0.0800)	-0.0739 (0.0791)	-0.0878 (0.1027)	-0.0875 (0.1009)	-0.0689 (0.2124)	-0.0585 (0.2040)	-0.0545 (0.2469)	-0.0600 (0.2343)
firm_2	0.0438 (0.1449)	0.0122 (0.1289)	0.0751 (0.1389)	0.0748 (0.1368)	0.0870 (0.2417)	0.0785 (0.2328)	0.3083 (0.3050)	0.2911 (0.2917)
firm_4	0.1101 (0.1130)	0.1654 <sup>c)</sup> (0.0994)	0.4209 <sup>a)</sup> (0.1527)	0.4185 <sup>a)</sup> (0.1493)	-0.1114 (0.3170)	-0.1203 (0.3042)	0.5968 <sup>b)</sup> (0.2525)	0.5822 <sup>b)</sup> (0.2382)
firm_5	0.0331 (0.1073)	0.0343 (0.0859)	0.2180 <sup>a)</sup> (0.0816)	0.2187 <sup>a)</sup> (0.0801)	0.5901 (0.2513)	0.6045 <sup>b)</sup> (0.2396)	0.5968 (0.2524)	-0.0910 (0.2952)
firm_6	0.0339 (0.0676)	0.0233 (0.0692)	0.0368 (0.0732)	0.0356 (0.0719)	0.2230 <sup>b)</sup> (0.1916)	0.2244 (0.1837)	-0.0860 (0.3134)	0.1272 (0.2085)
const	1.9907 <sup>a)</sup> (0.2622)	3.3104 <sup>a)</sup> (0.2699)	1.4599 <sup>a)</sup> (0.2846)	1.2070 <sup>a)</sup> (0.3963)	2.7449 <sup>a)</sup> (0.6111)	2.3322 <sup>a)</sup> (0.6475)	0.1330 <sup>a)</sup> (0.2217)	2.3547 <sup>a)</sup> (0.7514)
Number of uncensored observations	565	565	466	466	205	205	135	135
Adj R-squared	0.1249		0.2204		0.1150		0.1147	
$\rho$		-0.9148 (0.0398)		0.1679 (0.1945)		0.2817 (0.1546)		0.1968 (0.3412)
LR tests ( $H_0: \rho=0$ )**		40.79 [0.0000]		0.72 [0.3968]		2.97 [0.0846]		0.32 [0.5742]

Source: G17 Survey of population's economic situation and attitudes in Serbia.

Notes: \* Standard errors of estimates are corrected by using Huber-White estimator of variance.

- a) Significant at the 1% level.
  - b) Significant at the 5% level.
  - c) Significant at the 10% level.
  - 1) Reference age18\_29.
  - 2) Reference reg\_CSrb.
  - 3) Reference firm\_3.
- \*\*  $p$  – levels of significance of the test statistics are in parentheses.



**Table 3. C** – OLS and MLE estimate of earning regressions, dependent variables: log hourly earnings in the main and additional activity, continued

Variables	2002							
	Main job				Additional job			
	Male		Female		Male		Female	
	Estimate (Standard Error*)		Estimate (Standard Error*)		Estimate (Standard Error*)		Estimate (Standard Error*)	
OLS	MLE	OLS	MLE	OLS	MLE	OLS	MLE	
educate	0.0684 <sup>a)</sup> (0.0198)	0.0435 <sup>b)</sup> (0.0214)	0.1298 <sup>a)</sup> (0.0133)	0.1360 <sup>a)</sup> (0.0143)	0.1017 <sup>c)</sup> (0.0595)	0.0992 <sup>c)</sup> (0.0604)	0.0923 <sup>b)</sup> (0.0369)	0.1138 <sup>a)</sup> (0.0438)
experience	0.00001 (0.0240)	-0.0185 (0.0227)	0.0131 (0.0159)	0.0144 (0.0157)	-0.0062 (0.0561)	-0.0801 (0.0892)	0.0189 (0.0434)	0.0196 (0.0554)
experi_sq	0.0209 (0.0486)	0.0492 (0.0462)	0.0016 (0.0307)	-0.0007 (0.0302)	-0.0130 (0.1232)	0.1598 (0.1867)	-0.0048 (0.0741)	-0.0080 (0.1084)
age30_39 <sup>1)</sup>	0.1603 (0.1621)	0.0729 (0.1681)	0.0328 (0.1100)	0.0458 (0.1079)	0.3984 (0.3683)	0.6400 (0.4888)	0.0105 (0.4305)	0.4274 (0.3971)
age40_49	-0.0338 (0.1834)	-0.0517 (0.1890)	-0.0047 (0.1425)	0.0148 (0.1407)	0.3123 (0.5838)	0.6010 (0.7169)	0.0315 (0.5588)	0.2385 (0.5527)
age50_64	-0.2046 (0.1689)	-0.1909 (0.1776)	-0.1523 (0.1467)	-0.0148 (0.1407)	0.2861 (0.7800)	0.4308 (0.8330)	-0.4412 (0.5491)	-0.1057 (0.4769)
reg_Voj <sup>2)</sup>	0.0495 (0.0796)	0.0703 (0.0814)	0.1596 <sup>a)</sup> (0.0586)	0.1582 <sup>a)</sup> (0.0573)	0.2350 (0.1910)	0.3439 (0.2277)	0.2735 (0.2693)	0.1712 (0.2486)
reg_Bgd	0.2894 <sup>a)</sup> (0.0746)	0.2714 <sup>a)</sup> (0.0803)	0.2426 <sup>a)</sup> (0.0586)	0.2414 <sup>a)</sup> (0.0574)	0.0199 (0.2206)	0.0664 (0.2301)	0.3217 (0.2057)	0.3030 (0.2367)
married	0.2143 (0.0921)	-0.1429 (0.1021)	0.0334 (0.0563)	0.0255 (0.0550)	0.2008 (0.2128)	0.2136 (0.2265)	0.2058 (0.2350)	0.0683 (0.2415)
type_sett	0.0240 (0.0651)	0.0597 (0.0722)	0.0586 (0.0572)	0.0565 (0.0559)	0.1182 (0.1871)	0.2118 (0.1933)	0.7689 <sup>a)</sup> (0.2359)	0.7098 <sup>a)</sup> (0.2392)
firm_1 <sup>3)</sup>	0.0836 (0.0912)	0.0591 (0.0836)	0.0851 (0.0783)	0.0870 (0.0766)	-0.1629 (0.3139)	-0.1366 (0.3019)	-0.4436 <sup>c)</sup> (0.2546)	-0.3310 (0.2534)
firm_2	0.1493 (0.1014)	0.1763 <sup>c)</sup> (0.0983)	0.0392 (0.1342)	0.0391 (0.1307)	-0.3108 (0.2287)	-0.3636 (0.2405)	0.7078 <sup>a)</sup> (0.2587)	0.8017 <sup>a)</sup> (0.2566)
firm_4	0.1319 (0.1406)	0.2227 <sup>c)</sup> (0.1277)	0.2839 <sup>b)</sup> (0.1106)	0.2831 <sup>a)</sup> (0.1079)	0.5587 (0.5378)	0.6899 (0.6047)	-0.0806 (0.5500)	-0.0184 (0.5228)
firm_5	0.1524 <sup>c)</sup> (0.0810)	0.1356 <sup>c)</sup> (0.0772)	0.0019 (0.0803)	0.0041 (0.0787)	0.0239 (0.1971)	-0.0046 (0.2076)	-0.0335 (0.3172)	0.0202 (0.2747)
firm_6	0.2841 <sup>a)</sup> (0.0788)	0.2508 <sup>a)</sup> (0.0785)	0.1813 <sup>a)</sup> (0.0639)	0.1828 <sup>a)</sup> (0.0626)	-0.1145 (0.2504)	-0.1598 (0.2393)	0.0979 (0.3090)	0.0691 (0.3330)
const	2.5806 <sup>a)</sup> (0.2456)	3.4305 <sup>a)</sup> (0.3149)	1.5499 <sup>a)</sup> (0.2072)	1.4271 <sup>a)</sup> (0.2314)	2.1473 <sup>a)</sup> (0.7744)	3.5854 <sup>a)</sup> (1.3530)	1.5055 <sup>b)</sup> (0.5836)	-0.3779 (0.9316)
Number of uncensored observations	406	406	336	336	135	135	96	96
Adj R-squared	0.1058		0.3415		0.1285		0.2582	
$\rho$		-0.8182 (0.0779)		0.1167 (0.0939)		-0.7846 (0.2601)		0.8738 (0.1026)
LR tests ( $H_0: \rho=0$ )**		23.85 [0.0000]		1.52 [0.2181]		2.44 [0.1182]		9.65 [0.0019]

Source: G17 Survey of population's economic situation and attitudes in Serbia.

Notes: \* Standard errors of estimates are corrected by using Huber-White estimator of variance.

- a) Significant at the 1% level.
  - b) Significant at the 5% level.
  - c) Significant at the 10% level.
  - 1) Reference age18\_29.
  - 2) Reference reg\_C̄Srb.
  - 3) Reference firm\_3.
- \*\*  $p$  – levels of significance of the test statistics are in parentheses.

**Table 4. C** – Statistics of the estimated sample selection models

	2001				2002			
	Main job		Additional job		Main job		Additional job	
	Male	Female	Male	Female	Male	Female	Male	Female
Log likelihood	-939.964	-860.116	-704.319	-506.380	-589.303	-475.092	-460.024	-355.533
atanhp	-6.39 [0.000]	0.85 [0.397]	1.72 [0.085]	0.56 [0.574]	-4.88 [0.000]	1.23 [0.218]	-1.56 [0.118]	3.11 [0.002]
$\sigma$ (s.e.)	0.8383 (0.0653)	0.6009 (0.0364)	0.9667 (0.0941)	0.8354 (0.0731)	0.6845 (0.0603)	0.4405 (0.0229)	1.1153 (0.3394)	1.2094 (0.2879)
Model significance $\sim \chi^2$ (29)	188.74 [0.0000]	236.50 [0.0000]	95.96 [0.0000]	93.86 [0.0000]	194.24 [0.0000]	292.81 [0.0000]	43.14 [0.0442]	117.56 [0.0000]
Significance of identifying variables in the selection equations $\sim \chi^2$ (4)	37.65 [0.0000]	4.35 [0.3602]	12.48 [0.0141]	8.61 [0.0716]	34.81 [0.0000]	20.01 [0.0005]	1.59 [0.8107]	8.96 [0.0621]

**Note:**  $p$  – levels of significance of the test statistics are in parentheses.

**Table 5. C – Wald test of equality in determinants of earnings**

Estimated earning equations	H <sub>0</sub>	Degrees of freedom	$\chi^2$ test statistic
2001			
Male	Difference in estimated coefficients from the equation of the main and additional job is equal to zero	15	36.7300 [0.0014]
Female	Difference in estimated coefficients from the equation of the main and additional job is equal to zero	15	20.0600 [0.1696]
Male/Female	Difference in estimated coefficients from the equation of the main job is equal to zero	15	30.4400 [0.0104]
Male/Female	Difference in estimated coefficients from the equation of the additional job is equal to zero	15	29.0200 [0.0160]
2002			
Male	Difference in estimated coefficients from the equation of the main and additional job is equal to zero	15	10.3200 [0.7993]
Female	Difference in estimated coefficients from the equation of the main and additional job is equal to zero	15	28.3600 [0.0194]
Male/Female	Difference in estimated coefficients from the equation of the main job is equal to zero	15	37.1400 [0.0012]
Male/Female	Difference in estimated coefficients from the equation of the additional job is equal to zero	15	23.4200 [0.0756]

Source: G17 Survey of population's economic situation and attitudes in Serbia.

Notes: *p* – levels of significance of the test statistics are in parentheses.

**Table 2A. C – MLE estimate of selection equations**

	2001							
	Main job				Additional job			
Variables	Male		Female		Male		Female	
	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*
educate	0.0418	0.0281	0.1826 <sup>a)</sup>	0.0331	0.0211	0.0277	0.0281	0.0296
experience	0.0918 <sup>a)</sup>	0.0271	0.1372 <sup>a)</sup>	0.0309	0.0434	0.0323	-0.0308	0.0299
experi_sq	-0.1185 <sup>b)</sup>	0.0502	-0.2474 <sup>a)</sup>	0.0558	-0.1161 <sup>c)</sup>	0.0634	0.0374	0.0506
age30_39 <sup>1)</sup>	0.1206	0.2061	-0.0159	0.2379	-0.2471	0.2396	0.7771 <sup>a)</sup>	0.2577
age40_49	-0.2476	0.3103	-0.2862	0.3376	-0.2330	0.3376	0.9291 <sup>a)</sup>	0.3483
age50_64	-0.2789	0.4118	-0.2584	0.4082	-0.2304	0.4107	0.9538 <sup>b)</sup>	0.4209
Voj_educ <sup>2)</sup>	0.0152	0.0103	-0.0079	0.0095	0.0045	0.0093	-0.0205 <sup>b)</sup>	0.0104
Bgd_educ	0.0109	0.0098	-0.0101	0.0104	-0.0035	0.0102	-0.0108	0.0112
married	0.2437 <sup>c)</sup>	0.1366	-0.1779	0.1295	0.2662 <sup>c)</sup>	0.1425	-0.3239 <sup>b)</sup>	0.1278
no_members	-0.0763 <sup>b)</sup>	0.0308	-0.0017	0.0490	-0.0898 <sup>b)</sup>	0.0412	-0.0766	0.0527
nlabour_income	0.0000 <sup>a)</sup>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
children_5	0.0546	0.0805	-0.2130 <sup>c)</sup>	0.1211	0.2726	0.1119	0.1894	0.1496
type_sett	0.0144	0.1091	0.3665 <sup>a)</sup>	0.1111	-0.1749	0.1088	-0.2111 <sup>c)</sup>	0.1210
auto	0.1295	0.0861	-0.0800	0.1236	-0.1536	0.1037	-0.1581	0.1172
const	-1.0427 <sup>a)</sup>	0.4043	-3.1466 <sup>a)</sup>	0.5205	-0.6680	0.4203	-0.7967 <sup>c)</sup>	0.4689

Source: G17 Survey of population's economic situation and attitudes in Serbia.

**Notes:** \* Standard errors of estimates are corrected by using Huber-White estimator of variance.

<sup>a)</sup> Significant at the 1% level.

<sup>b)</sup> Significant at the 5% level.

<sup>c)</sup> Significant at the 10% level.

<sup>1)</sup> Reference age18\_29.

<sup>2)</sup> Reference reg\_CSrb.

**Table 2A. C – MLE estimate of selection equations, continued**

	2002							
	Main job				Additional job			
Variables	Male		Female		Male		Female	
	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*
educate	0.0899 <sup>b)</sup>	0.0372	0.2661 <sup>a)</sup>	0.0320	-0.0063	0.0325	0.0303	0.0312
experience	0.0641	0.0397	0.0190	0.0448	0.0833 <sup>b)</sup>	0.0413	0.0135	0.0386
experi_sq	-0.0949	0.0764	-0.0095	0.0925	-0.2191 <sup>a)</sup>	0.0841	-0.0312	0.0758
age30_39 <sup>1)</sup>	0.4677	0.3050	0.5125 <sup>c)</sup>	0.2819	-0.2013	0.2722	0.2932	0.2819
age40_49	0.1664	0.3875	0.8120 <sup>b)</sup>	0.3688	-0.1525	0.3316	0.0477	0.3627
age50_64	0.1879	0.4198	0.4692	0.3298	0.1112	0.3257	0.1742	0.3505
Voj_educ <sup>2)</sup>	-0.0044	0.0129	-0.0028	0.0125	-0.0096	0.0117	-0.0008	0.0125
Bgd_educ	0.0136	0.0139	0.0050	0.0124	-0.0034	0.0120	0.0001	0.0123
married	0.5220 <sup>a)</sup>	0.1676	-0.2885 <sup>c)</sup>	0.1617	0.0168	0.1848	-0.2252	0.1551
no_members	-0.1608 <sup>a)</sup>	0.0469	-0.0600	0.0539	0.0176	0.0454	0.0709	0.0484
nlabour_income	-0.0001 <sup>a)</sup>	0.0000	-0.0001 <sup>a)</sup>	0.0000	0.0000	0.0000	-0.0001 <sup>c)</sup>	0.0001
children_5	0.5694 <sup>a)</sup>	0.1925	-0.1152	0.1516	0.0924	0.1345	-0.3403 <sup>b)</sup>	0.1690
type_sett	-0.2588 <sup>c)</sup>	0.1478	-0.0708	0.1339	-0.1203	0.1293	-0.0801	0.1331
auto	0.2413 <sup>b)</sup>	0.1213	0.0207	0.1390	0.0626	0.1377	-0.1676	0.1183
const	-1.1265 <sup>b)</sup>	0.5052	-3.0245 <sup>a)</sup>	0.4932	-1.0690 <sup>a)</sup>	0.4844	-1.4000 <sup>a)</sup>	0.4759

Source: G17 Survey of population's economic situation and attitudes in Serbia.

**Notes:** \* Standard errors of estimates are corrected by using Huber-White estimator of variance.

<sup>a)</sup> Significant at the 1% level.

<sup>b)</sup> Significant at the 5% level.

<sup>c)</sup> Significant at the 10% level.

<sup>1)</sup> Reference age18\_29.

<sup>2)</sup> Reference reg\_CSrb.

**Table 3A. C** – MLE estimate of earning regressions, dependent variables: log hourly earnings in the main and additional activity

	2001							
	Main job				Additional job			
Variables	Male		Female		Male		Female	
	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*
educate	0.0513 <sup>a)</sup>	0.0190	0.1073 <sup>a)</sup>	0.0215	0.0159	0.0407	0.0941 <sup>c)</sup>	0.0489
experience	-0.0094	0.0199	0.0128	0.0239	0.0298	0.0462	-0.0463	0.0467
experi_sq	-0.0044	0.0359	0.0213	0.0475	-0.0397	0.0940	0.0776	0.0825
age30_39 <sup>1)</sup>	-0.0989	0.1482	0.1002	0.1605	0.0827	0.3536	-0.0008	0.4263
age40_49	0.0343	0.2085	-0.1994	0.2253	0.1142	0.5375	0.0350	0.5987
age50_64	0.1219	0.2542	-0.3736	0.2683	-0.1066	0.6970	-0.1423	0.7945
Voj_educ <sup>2)</sup>	-0.0024	0.0061	0.0163 <sup>a)</sup>	0.0052	-0.0079	0.0138	-0.0027	0.0157
Bgd_educ	0.0213 <sup>a)</sup>	0.0060	0.0279 <sup>a)</sup>	0.0053	0.0464 <sup>a)</sup>	0.0135	0.0046	0.0157
married	-0.1399 <sup>c)</sup>	0.0797	-0.0803	0.0618	0.1146	0.1758	0.1968	0.2119
type_sett	0.0049	0.0760	0.2210 <sup>a)</sup>	0.0742	0.1259	0.1509	0.2978 <sup>c)</sup>	0.1754
firm_1 <sup>3)</sup>	-0.0773	0.0797	-0.0875	0.1014	-0.0309	0.2069	-0.0602	0.2336
firm_2	0.0176	0.1279	0.0871	0.1363	0.1183	0.2350	0.2855	0.2924
firm_4	0.1576	0.0997	0.4174 <sup>a)</sup>	0.1497	-0.1185	0.3048	0.5812	0.2373
firm_5	0.0355	0.0865	0.2218 <sup>a)</sup>	0.0804	0.6470 <sup>a)</sup>	0.2378	-0.0880	0.2945
firm_6	0.0188	0.0687	0.0435	0.0721	0.2240	0.1829	0.1242	0.2078
const	3.3524 <sup>a)</sup>	0.2748	1.3623 <sup>a)</sup>	0.4001	2.4466 <sup>a)</sup>	0.6369	2.3273 <sup>a)</sup>	0.7623
$\rho$	-0.9146	0.0398	0.1567	0.1994	0.2812	0.1530	0.2214	0.3250
LR tests (H <sub>0</sub> : $\rho=0$ )	40.75	p=0.0000	0.60	p=0.4397	3.02	p=0.0820	0.43	p=0.5100
Number of uncensored observations	565		466		205		135	

Source: G17 Survey of population's economic situation and attitudes in Serbia.

**Notes:** \* Standard errors of estimates are corrected by using Huber-White estimator of variance.

<sup>a)</sup> Significant at the 1% level.

<sup>b)</sup> Significant at the 5% level.

<sup>c)</sup> Significant at the 10% level.

<sup>1)</sup> Reference age18\_29.

<sup>2)</sup> Reference CSrb\_educ.

<sup>3)</sup> Reference firm\_3.

**Table 3A. C** – MLE estimate of earning regressions, dependent variables: log hourly earnings in the main and additional activity, continued

	2002							
	Main job				Additional job			
Variables	Male		Female		Male		Female	
	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*	Estimate	Standard Error*
educate	0.0371 <sup>c)</sup>	0.0218	0.1271 <sup>a)</sup>	0.0145	0.0934	0.0612	0.1027 <sup>b)</sup>	0.0443
experience	-0.0171	0.0225	0.0155	0.0157	-0.0773	0.0897	0.0238	0.0551
experi_sq	0.0464	0.0457	-0.0044	0.0301	0.1500	0.1879	-0.0167	0.1073
age30_39 <sup>1)</sup>	0.0678	0.1666	0.0361	0.1077	0.6465	0.4877	0.3940	0.3910
age40_49	-0.0626	0.1876	0.0035	0.1405	0.6188	0.7146	0.2098	0.5495
age50_64	-0.1969	0.1770	-0.1357	0.1373	0.4696	0.8293	-0.1355	0.4766
Voj_educ <sup>2)</sup>	0.0056	0.0067	0.0123 <sup>a)</sup>	0.0043	0.0267	0.0186	0.0215	0.0198
Bgd_educ	0.0216 <sup>a)</sup>	0.0061	0.0180 <sup>a)</sup>	0.0042	0.0008	0.0176	0.0248	0.0195
married	-0.1418	0.1018	0.0286	0.0553	0.1989	0.2241	0.0676	0.2363
type_sett	0.0598	0.0721	0.0593	0.0559	0.2221	0.1935	0.7203 <sup>a)</sup>	0.2384
firm_1 <sup>3)</sup>	0.0623	0.0839	0.0861	0.0768	-0.1397	0.3004	-0.3372	0.2543
firm_2	0.1664 <sup>c)</sup>	0.0983	0.0372	0.1305	-0.3641	0.2400	0.7799 <sup>a)</sup>	0.2566
firm_4	0.2233 <sup>c)</sup>	0.1268	0.2745 <sup>b)</sup>	0.1077	0.6972	0.5932	-0.0547	0.5069
firm_5	0.1340 <sup>c)</sup>	0.0766	0.0065	0.0786	0.0034	0.2083	0.0241	0.2749
firm_6	0.2473 <sup>a)</sup>	0.0773	0.1821 <sup>a)</sup>	0.0629	-0.1567	0.2401	0.0613	0.3380
const	3.5001 <sup>a)</sup>	0.3109	1.5456 <sup>a)</sup>	0.2322	3.6463 <sup>a)</sup>	1.3906	-0.2707	0.9718
$\rho$	-0.8214	0.0764	0.0931	0.0985	-0.7804	0.2692	0.8698	0.1114
LR tests ( $H_0: \rho=0$ )	24.46	p=0.0000	0.88	p=0.3474	2.31	p=0.1286	8.48	p=0.0036
Number of uncensored observations	406		336		135		96	

Source: G17 Survey of population's economic situation and attitudes in Serbia.

**Notes:** \* Standard errors of estimates are corrected by using Huber-White estimator of variance.

<sup>a)</sup> Significant at the 1% level.

<sup>b)</sup> Significant at the 5% level.

<sup>c)</sup> Significant at the 10% level.

<sup>1)</sup> Reference age18\_29.

<sup>2)</sup> Reference CSrb\_educ.

<sup>3)</sup> Reference firm\_3.