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GENDER INEQUALITY IN THE SERBIAN LABOUR MARKET

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ABSTRACT: *Many positive changes have been implemented in Serbia since the beginning of the transition period, and while these improve the position of women in the labour market the main indicators still show significant gender differences. Women are the majority of the unemployed and there are significant differences betweenregions and districts, in fields of work, experience, and the length of time taken to find work. An analysis of trends in the labour market over the past decade shows a worsening of the position of women, with a lower participation in economic activity and employment, rising unemployment rates, and an increase*

in the average time to find work and the proportion of women in traditionally female occupations. Problems of gender inequality demand more attentionin order to improve existing legislation and the implementation of economic policies in the labour market which will ensure higher participation ofwomen with lower education, with special emphasis on increasing the motivation of these women to undergo continuing education and training.

KEY WORDS: *activity, employment, unemployment, discrimination, gender equality, gender inequality index.*

JEL CLASSIFICATION: J70, J71

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1. INTRODUCTION

In the framework of neoclassical theory, any existing differences in wages among workers are ascribed to differences in productivity. This means that the market evaluates workers strictly on the basis of their contribution to production. More precisely, the greater the workers' productivity, the higher their wage. However, given that workers may have characteristics which are evaluated in the market, albeit not related to productivity (differences in gender, race, origin and so on), there is room to introduce the concept of discrimination.

Gary Becker, in his famous work *The Economics of Discrimination* (Becker, 1957, 1971), claims that discrimination in literature is most often related to that behaviour of an individual which is not motivated by the "objective" perusal of facts. Within the context of the labour market, in other words employment issues, objectivity is interpreted as an employer's readiness to pay each worker commensurate with his or her contribution to production. If the employer's decision on employment or setting the worker's wage involves any other parameter in addition to the worker's productivity (personal preference with respect to gender, race, or some other parameter), "non-objectivity", in other words discrimination, makes an appearance in the decision-making process.

Although discrimination may be manifested in various forms, this paper primarily addresses gender discrimination by the employer[1], whether in the form of a wage difference between men and women or as exclusion from the market of the group discriminated against.[2] Defined thus, inequality between women and men is present in most countries and may be interpreted in two ways. The first is related to the fact that men and women may decide to achieve different levels of education, resulting in a difference in productivity[3]. Such differences in wages would be justified, because they are based on a differing contribution by the employees to production. The second may involve differences in rewarding women and men for equal productivity, and this falls within the domain of discrimination.

Being universal, this problem is present in a great number of countries in transition. There are many empirical studies dealing with the issue of discrimination in

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[1]   There may be discrimination by employees, employer, buyers or the State.
[2]   When using the term discrimination (in the labour market) in this paper, we think of it as a process leading to gender inequality.
[3]   The motivation for such a step may derive from cultural, historical, geographic or other factors.

the transition countries of Central and Eastern Europe (Adamchik and Bedi, 2003; Brainerd, 1998; Jurajda 2001; Newell and Reilly, 2001), all concluding that discrimation against women is undoubtedly present.

The situation in Serbia does not differ greatly from other countries in transition (Arandarenko and Krstić, 2011; Babović, 2007; Krstic and Reilly, 2000). The main indicators of gender difference show the existence of significant differences in the position of women compared to men in the labour market. Women make up the majority of the unemployed and pronounced differences exist with respect to both regions and districts as well as fields of work, experience, and time taken to find employment. An analysis of trends in the labour market over the past decade indicates that the position of women is constantly worsening because their participation in economic activities and employment is falling, unemployment rates are rising, the average time taken to find a job is increasing, and the proportion of women in typically female occupations is on the rise.

The first part of this paper deals with the causes of discrimination and aims to provide the reader with a broader insight into this problem. This may prove very useful when making assessments about the future events or within comparative studies. It is followed by a brief insight into the empirical literature, while the final section analyses the situation in Serbia in detail. Whenever possible, we have dealt with and compared the results obtained with those from neighbouring countries.

2. CAUSES OF GENDER DISCRIMINATION

In the Serbian language there are two terms, translating as "sex" and "gender", which are frequently treated in everyday speech as synonyms, arguably without justification. As in English, the term denoting "gender" pertains to the differences between men and women which are imposed or acquired under the influence of society, whereas the term denoting "sex" is used to describe biological differences. There is an essential difference between these two terms which was well observed by Margaret Mead, who wrote:

"Unlike sex, which is a biological concept, gender is a social construct specifying the socially and culturally prescribed roles that men and women are to follow."[4]

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4   Mead (2005).

Gender differences, therefore, represent a social construct. Gender inequality is a specific form of inequality because it does not arise from existing difference in economic contribution but from existing social perceptions and norms. Women have been in a subordinate position throughout history. Although there are examples of women who were leaders, waged wars, or possessed great wealth, such examples are the exception rather than the rule. It is an interesting fact that the subordinate status of women has remained constant regardless of cultural, historical, political, religious, economic and other factors which vary subject to territory and time. Thus it is impossible that male dominance has existed in every society by chance alone. In order for such an effect to exist, there must be an omnipresent causative process.

In the attempt to explain discrimination, the sociologist Robert Jackson follows an interesting line of reasoning. If we begin raising the question retrospectively, the present situation would be the starting point. Why are there differences today in the behaviour and perception of men and women? The answer is socialisation. Differences in identity and expectations are the result of their having been treated differently throughout history. The next question is why parents indoctrinate their children, instilling the idea of gender difference. The answer to this question is tradition. People observe ideas and rules that have already been determined and transfer them to their children. Finally we come to the question of the source of the gender tradition according to which men are dominant. Again the answer is simple: biology. At the root of gender differences lies the biological difference between men and women.

It should be clear that this does not mean that it is biological differences which have created gender inequality, but there exists a consistent causal relation which links biological differences and the origin of inequality. However, there are disagreements in defining the biological characteristics which have led, in combination with other conditions, to the emergence of gender inequality. The three most frequently mentioned are: (1) reproductive ability, (2) physical predisposition (strength, stamina) and (3) genetic or hormonal predisposition to aggression and dominance. Without dwelling on the deeper argumentation, one might say that reproductive ability is nevertheless the best candidate, first of all because it represents and absolute and universal difference.[5]

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[5] The argumentation presented here is rather terse and the reader may think that this is overly simplified. It is clear that no definite answer can be provided to this question; however, for a more profound insight into the argumentation supporting this line of reasoning, refer to Jackson (2007).

Why has it been essential to turn to the root of the problem of gender inequality? Better insight into the possible causes of gender inequality will, no doubt, be of more use when answering questions related to the difference in the degree of gender discrimination among countries and the downward trend in the level of discrimination; issues which will be considered later. This paper further provides empirical references explaining the choice of approach in the analysis applied in the main section, which analyses the position of Serbia.

3. INSIGHT INTO EMPIRICAL REFERENCES

The literature dealing with the position of women in countries in transition is growing rapidly. Some of the better-known studies include Adamchik & Bedi (2003) for Poland, Brainerd (1998) for Russia, Jurajda (2001) for the Czech Republic and Slovakia, Newell & Reilly (2001) for a number of countries in transition, Orazem & Vodopivec (2000) for Slovenia and Estonia, and Hunt (2002) for Eastern Germany. Most of these studies analyse the gender pay gap during the period before 2000.

Adamchik and Bedi analyse the situation in Poland during the period from 1993 to 1997. The studies show that the gap between the wages of men and women remained almost unchanged throughout the period of observation. Between 50% and 60% of the difference in wages could be explained on the basis of industrial and residential segregation. Nevertheless, the authors warn that in spite of this these explained differences cannot be lightly discarded as factors which are in no way related to discrimination. Furthermore, a significant part of the difference in wages remains unexplained, which is interpreted as the effect of a sheer preference for discrimination.

Jurajda presents a comparative study of the Czech Republic and Slovakia in 1998. Although Slovakia is in a rather better position, he concludes that agreat part of the difference in wages between men and women may be ascribed to the difference in education. In addition, these differences exist to a large extent because of the relegation of women to poorly paid jobs. The key findings are that, within the private sector in the Czech Republic and Slovakia, almost two thirds of the gap in wages is not explained and is there fore potentially related to discrimination.

The best-known study of this type in Yugoslavia was carried out for the period from 1995 to 1998 (Krstić & Reilly, 2000). It transpires that the problem of discrimination is present, but is much smaller by comparison than, for example, in

Russia. Moreover, it was determined that the hypothesis claiming that the gender wage gap had increased during the observed period was not statistically significant.

The common point for the majority of studies is the approach taken in analysing gender discrimination. With the exception of the experimental studies[6], the significance of gender inequality is tested by econometric means on the basis of the methodology presented in well-known papers (Blinder, 1973; Oaxaca, 1973; Cotton, 1988; Neumark, 1988)[7]. However, this method of analysis deals solely with the problem of the difference in wages. In addition, it is possible to investigate discrimination by observing parameters such as access to or exclusion from the labour market, or by investigating the perception of the population as to the existence of inequality. An analysis of the rate of activity, employment, and unemployment can also provide us with good insight into the seriousness of the problem of gender discrimination in a country.

A good example is presented by Hunt (2002). She shows that the wages of women in East Germany during the period from 1990 to 1994 grew by ten percentage points compared to men's wages. However, the very title of the paper in which the question is raised, *When is a Ten-Point Fall in the Gender Wage Gap Bad News?*, clearly shows that reduction of the gap in wages need not always be a sign of diminishing gender discrimination. She proves that the employment of women during the same period fell six points more than did that of men and that unemployment showed an increase of five points more. Hunt claims that this result may represent the effect on the market of the departure of a great number of less qualified workers, most of whom were women.

Therefore it is possible, just as this theory suggests, that transition leads to gender discrimination as expressed in a greater difference in wages, and it is also possible that the main effect will be shown in differences in employment. Either way, it is obvious that the position of women needs to be observed from several aspects. Without wishing to favour any approach (difference in wages or employment),

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[6] An interesting experimental study was carried out in Chile, in which a number of fictional CVs were sent as applications for jobs advertised in a weekly newspaper. There were a number of controlled variables such as qualifications and employment experience, while gender, name, surname and the place of residence varied. The results, unlike those in similar international studies, showed no significant differences in the number of calls for employment by groups. Refer to: Bravo, Sanhueza&Urzua (2008).

[7] These are just some of the best-known works dealing with decomposition of the discrimination effect. Although the approaches in the empirical works cited vary, these papers contain the basis of this methodology.

this paper goes on to analyse the problem of gender discrimination in Serbia on the basis of the parameters given above (rate of activity, employment, and unemployment). Among other things, the reason for such an approach in the analysis is linked to data availability.

4. SOME CHARACTERISTICS OF GENDER DISCRIMINATION IN SERBIA

It was determined through analysis of various demographic and other features that women in the Serbian labour market belong to a segment of particularly sensitive (vulnerable) groups, together with other disadvantaged groups of the working age population: Roma people, refugees and internally displaced people, disabled people, the rural population, the young (15-24 years) and the elderly (50-64 years)[8]. On the basis of on the available data, which originates primarily from the Labour Force Survey (LFS), the paper goes on to analyse women's position in the labour market in comparison to that of men.

Table 1. Main groups of population according to activity, employment, unemployment[9] and gender in Serbia 2000-2010

MEN	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Rate of activity	65.8	67	65.2	66	64.6	63	60.1	59.7	60.4	57.7	55.5
Rate of employment	59.1	59.9	57.5	56.9	54.9	52.4	49.3	50.3	53.2	49.1	45.3
Rate of unemployment	10.1	10.5	11.8	13.8	15.1	16.8	17.9	15.8	11.9	14.8	18.4
WOMEN	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Rate of activity	48.9	48.1	47.5	45.9	47	44.6	42.5	42.8	43.3	41.4	39
Rate of employment	41.8	41.1	40.3	38.7	36.3	32.9	32	33.8	36.5	34	31.1
Rate of unemployment	14.6	14.5	15.2	15.8	22.9	26.2	24.7	21	15.8	17.8	20.2

Source: LFS 2010, Bulletin 533, LFS 2009. Bulletin 517, Statistical Office of the Republic of Serbia (SORS)

Disaggregation of the main trend indicators in the labour market during the 2000-2010 period may be followed from the basic data of the Labour Force Survey

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8   Arandarenko & Krstić (2010).

9   *Rate of activity (**AR**)* represents the percentage of active population in the total population aged 15 and higher; *rate of employment (**ER**)* represents the percentage of the employed in the entire population aged 15 and higher; *rate of unemployment (**UR**)* represents the percentage of the unemployed in the total number of active population.

presented in Table 1, which indicates the existence of differences between the rate of employment, unemployment, and activity of men and women, in favour of men.

In view of the fact that education is deemed one of the most important factors in the vertical mobility of labour and a preventive factor of social exclusion, the statistical data[10] indicates that the educational level of women in Serbia does not differ significantly from that of of men.

Figure 1. Rate of activity (AR), employment (ER) and unemployment (UR) in Serbia 2000-2010 by gender
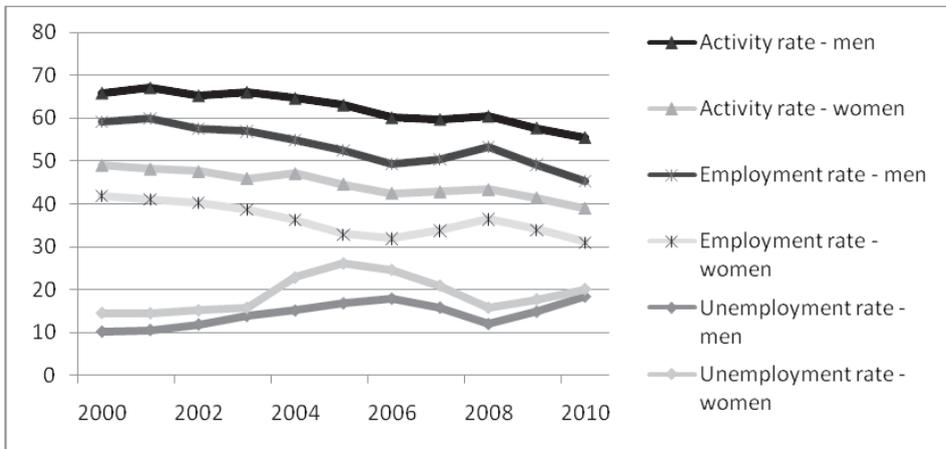
Source: LFS 2000 to 2010, SORS

Thus in 2009, for example, 60.5% of the total number of students holding vocational and academic titles were women, which is why one could conclude that the chances for employment are equal.

However, the data shows the existence of gender differences because Serbia's labour market is characterized by a lower rate of activity among women and a higher rate of unemployment (Figure 1). The analysis showed the existence of great dispersion in all indicators observed (Table 2), which served to prove the original assumption of the existence of gender inequality in the labour market. The average rates of all indicators during the entire period under observation show that the position of men in the labour market is better than that of

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10   Statistical Office of the Republic of Serbia (2011.), *Information, Statistics of Social Activities*, Issue 106 - year LXI, 29.04.2011.

women. The rates of activity and employment of men are higher and the rate of unemployment lower compared to the same rates for women.

5. METHODOLOGICAL OBSERVATIONS

Table 2 shows gender disaggregation of the main labour market trend indicators. A gender-based difference in the average rate of the indicators is observed among the Serbian labour market indicators analysed (Huber, Brückner, Köllő, Traistaru & Mickiewicz, 2002, p. 5). The extent of their variability was determined by the coefficient of variation (cv), indicating a significant difference between the rate of employment and the rate of unemployment of women and men which favours men. This relative measure of variability (Huber, 2008, pp. 9-10), which determines the scope of disperion of members of the numerical sequence from the average value, shows that there is greater variability in the labour market indicators for women.

Table 2. Labour market indicators in the period 2000-2010 in Serbia

Indicator	Total			Men			Women		
	$\bar{x}$	s	cv	$\bar{x}$	s	cv	$\bar{x}$	s	cv
Rate of activity	53.15	3.47	0.07	62.27	3.81	0.06	44.64	3.12	0.07
Rate of employment	44.53	4.19	0.09	53.45	4.66	0.09	36.23	3.79	0.10
Rate of unemployment	16.31	3.24	0.20	14.26	2.89	0.20	18.97	4.25	0.22

Source: author's calculation based on data from the LFS 2010, SORS

Although women's rate of employment is at a significantly lower level than men's, it suffered a lesser drop since the beginning of the economic crisis (Table 1). This situation is a result of the fact that a great number of women work in the public sector (education, etc.), where the certainty of employment is greater. At the same time, research conducted to date on the position of vulnerable groups (Arandarenko&Krstić, 2010) indicates the paradox that the number of employed women with university degrees is higher than the number of men in the same category, while at the same time a much greater number of men with low qualifications are employed than women. The result of such disproportion in the labour market is a gradual reduction in the difference in rate of employment and unemployment between men and women since the beginning of the crisis. This, however, is not due an improvement in the position of women but is a result of the

fact that a proportionally greater number of men remained jobless in the period observed. Earlier experience in this field indicates that more intensive integration of a greater number of less qualified women in the labour market would, at the macro level, significantly affect the increase in the total rate of employment.

In addition to descriptive methods by which we wished to corroborate the existence of differences, we wanted to test whether there are statistically significant differences between men and women according to given indicators of the labour market. Given the scarcity of data, we had to apply some non-parametric methods in testing the existence of difference between the sets of women and men, according to the labour market indicators observed. For this purpose we decidedto use the Wald-Wolfowitz[11] test (Wald, Wolfowitz, 1940), which can show whether the samples belong to identical sets. The advantage of using this test lies in the fact that alternative hypotheses may be formulated with a broad range of options, for example, that two samples belong to the basic sets which differ by location, dispersion, asymmetry, etc.[12]

Table 3. Statistics of the Wald-Wolfowitz test

		Number of Runs	Z	Exact Sig. (1-tailed) p-value	Exact Sig. (2-tailed) p-value
Rate of activity	Exact Number of Runs	2(a)	-4.151	0.000	0.000
Rate of employment	Exact Number of Runs	2(a)	-4.151	0.000	0.000

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11 For n_1 and n_2 greater than 10, the test statistics have an approximately normal distribution. Since the discreet distribution of the *S*-test statistic is approximated by normal distribution it is also necessary to make a correction of continuity in order to obtain the correct value of the *z*-test statistic.

12 The Wald-Wolfowitz test and the Kolmogorov-Smirnov test are two well-known tests which can be used to test for differences between two population distributions, where these distributions can differ in mean, variance, or shape. In 1940 Wald & Wolfowitz proposed this nonparametric test of the identity of the distribution functions of two continuous populations against general alternative hypotheses. A sample of *m* independent values from the first population is combined with a sample of *n* independent values from the second population, the combined sample is ranked, and the test statistic is computed as the number of runs, where a run is defined asa succession of adjacently-ranked values from the same population which are followed and preceded in rank by values from the other population or no value at all.

Rate of unemployment	Minimum Possible	8(b)	-1.529	0.063	0.126
Rate of unemployment	Maximum Possible	10(b)	-0.655	0.260	0.520

a) No inter-group ties encountered.

b) There are 1 inter-group ties involving 3 cases.[13]

Source: author's calculation using SPSS

The null hypothesis that we have formulated claims that there are no significant differences between men and women for selected indicators. However, the obtained results contradict it. The indicators obtained in this paper support the assumption of the existence of statistically significant differences between the genders in the labour market. This is indicated by the values of the adjusted statistics of the Wald-Wolfowitz test, namely the value of the z test, which is significant at the level of 5% for the two indicators: rate of activity and employment (Table 3).[14] Although the existence of gender difference according to rate of unemployment had been identified in the previous part of the analysis, the statistics of the Wald-Wolfowitz test indicate that they are not statistically significant during the observed period.

Women had a very low rate of employment (Table 4), significantly lower than the total working age population (by 8.1 and 7.9 percentage points in 2000 and 2010 respectively), as opposed to men, who had a significantly higher rate of activity compared to the total working age population (8.8 and 8.6 percentage points in 2000 and 2010 respectively). During the same period the employment rate of men was 9 and 7.4 percentage points higher than the rate of employment of the total population and that of women lower by 8.3 and 1.67 percentage points.

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[13] If ties are present, the minimum and maximum number of possible runs, their Z statistics, and one-tailed probabilities are displayed. For further information on this topic the reader is recommended to consult: Soldić (2004, p.178).

[14] For the rate of activity and employment the obtained p-values are smaller than 0.05 (5% significance), which is why the null hypothesis was rejected. This was not the case with the rate of unemployment where p-values are insufficient to reject the null hypothesis.

Table 4. Change of key indicators of the labour market in 2000 and 2010[15]

2000	AR	Difference between ARM and ART ARW and ART	ER	Difference between ERM and ERT ERW and ERT	UR	Difference between URM and URT URW and URT
Total	57		50.1		12.1	
Men	65.8	8.8	59.1	9	10.1	-2
Women	48.9	-8.1	41.8	-8.3	14.6	2.5
2010	AR	Difference between ARM and ART ARW and ART	ER	Difference between ERM and ERT ERW and ERT	UR	Difference between URM and URT URW and URT
Total	46.9		37.9		19.2	
Men	55.5	8.6	45.3	7.4	18.4	-0.8
Women	39	-7.9	36.23	-1.67	20.2	1

Source: Author's calculation, Survey on Labour Force, 2010. Bulletin 533, ARS 2009. Bulletin 517, SORS

In the analysis of the unemployment rate it may again be observed that men were in a better position because their rate of unemployment in 2000 was 2.5 percentage points lower, and in 2010 0.8 percentage points lower than the unemployment rate of the total population of working age. Women, however, had a rate of unemployment in 2000 which was 2.5 percentage points higher and 1 percentage point higher in 2010. These results are not surprising, because the differences obtained between the rates of the indicators observed for the entire population of working age and the indicators based on gender alone confirm the conclusions stated previously.

The paper continues by making a comparison of the calculated gap (Huber, Brückner, Köllő, Traistaru & Mickiewicz, 2002, p.7), rate of activity, employment, and unemployment[16] for Serbia (Table 5), with the same indicators for selected

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15   Total activity rate (ART), men's activity rate (ARM), women's activity rate (ARW), total employment rate (ERT), men's employment rate (ERM), women's employment rate (ERW), total unemployment rate (URT), men's unemployment rate (URM), women's unemployment rate (URW).

16   The gap of rate of activity, employment, and unemployment is calculated when these rates for women are set in relation to the same rates for men.

countries[17]. It is assumed that in the absence of discrimination all these rates should be relatively close to the value of one.

**Table 5.** Gender inequality in the labour market in Serbia 2000-2010

Year	Activity gender gap	Employment gender gap	Unemployment gender gap
2000	0.74	0.71	1.45
2001	0.72	0.69	1.38
2002	0.73	0.70	1.29
2003	0.70	0.68	1.14
2004	0.73	0.66	1.52
2005	0.71	0.63	1.56
2006	0.71	0.65	1.38
2007	0.72	0.67	1.33
2008	0.72	0.69	1.33
2009	0.72	0.69	1.20
2010	0.70	0.69	1.10

Source: author's calculation, Labour Force Survey 2009 and 2010, SORS

It was determined by calculating the activity rate gap that Serbia lags a full 10 percentage points (0.1) behind the other countries (Figure 2). Only in Greece was the situation comparable to that in Serbia.

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[17] It is logical that the countries selected were mostly those in transition and particulalry neighbours in the geographic sense.

Figure 2. Activity rate gap for selected countries during the period 2000-2010
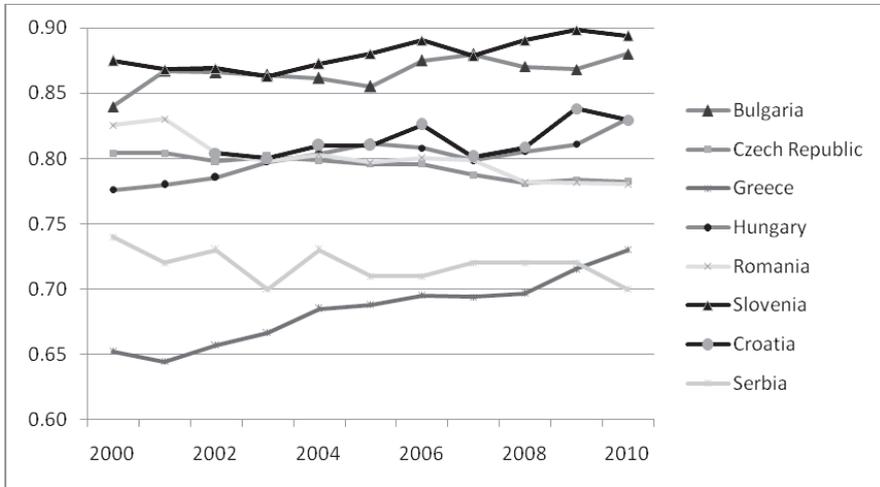
Source: author's calculation, Labour Force Survey 2009 and 2010, SORS; Eurostat

The situation with the gender employment gap is similar (Figure 3). In this case Bulgaria and Slovenia are ahead of all others with a ratio of about 0.9. Hungary and Croatia follow, while Greece, the Czech Republic, and Serbia lag behind with a ratio below 0.8 (Serbia below 0.7) throughout the period.

Figure 3. Gender employment gap for selected countries
in the period 2000-2010
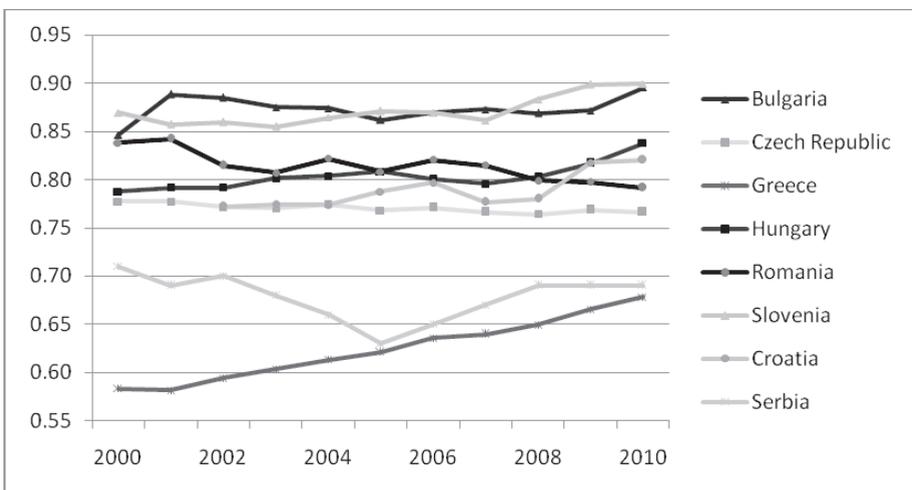
Source: author's calculation, Labour Force Survey 2009 and 2010, SORS; Eurostat

Differences exist only in relation to the gender unemployment gap (Figure 4). It is interesting that in Hungary, Slovenia, Bulgaria, and Romania it reaches a value below one, which means that the rate of men's unemployment exceeds the same in women. This is yet another argument corroborating the thesis that a ratio equal to one cannot be taken as an ideal value because conditions differ in various countries, so it is possible that, in the absence of discrimination, the relation will not be one to one. The other type of extreme is Greece with a ratio of about 1.6 and the Czech Republic with 1.3, while in this case Serbia and Croatia are comparable (the ratio varies between 1.3 and 1.1 throughout the observed period).

Although the gap showed a downward trend after 2000 (with the exception of the year 2004), from 2007 Serbia was continuously closer to the indicator value of one. It should be borne in mind, however, that this ratio has probably decreased as a result of the crisis. As noted earlier, the relative improvement of the position of women in this case is not a consequence of actual improvement in their position but of the fact that the jobs traditionally done by women were characterized by smaller fluctuations (positions in education, teachers in kindergartens, primary schools, and high schools, jobs related to the provision of health care, social services, and technical maintenance).

Figure 4. Unemployment rate gap for selected countries during the period 2000-2010
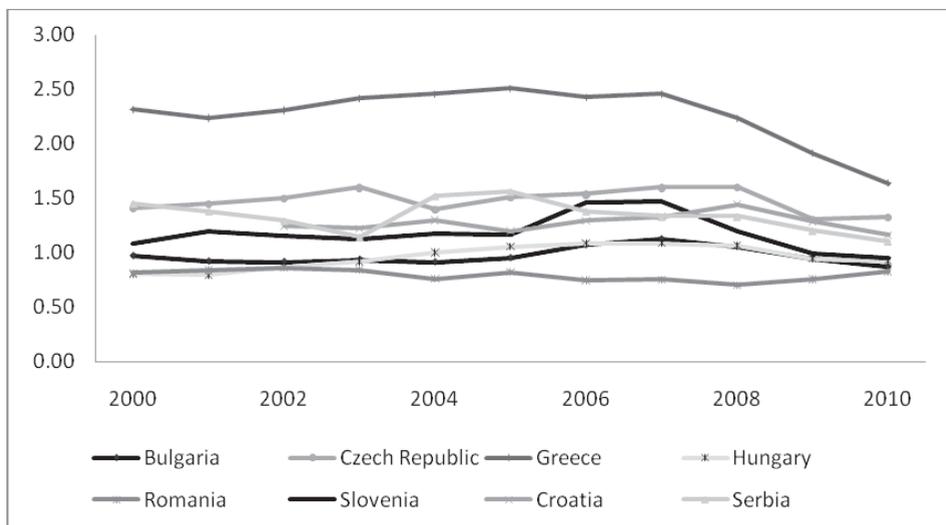
Source: author's calculation, Labour Force Survey 2009 and 2010, SORS; Eurostat

Another way to compare the situation in Serbia with the other countries is to use the Gender Inequality Index (GII). The GII is a composite measure which reflects inequality in achievements between women and men in three dimensions: reproductive health, empowerment, and position in the labour market. The GII varies from 0 (men and women in equal position) to 1 (difference in position between men and women in all dimensions observed). A higher GII value indicates a worse position of women and greater gender inequality.

The health care dimension is measured by two indicators: maternal mortality and the fertility rate of adolescents. The empowerment dimension is measured by two indicators: participation in the parliament and participation in the middle and higher levels of education. The employment dimension is measured by the participation of women in the labour market. The GII calculation is carried out in several phases of calculating the geometric, arithmetic, and harmonic means of the relevant indicators (hdr.undp.org/en/media/HDR).

The main indicators used in the calculation of GII are:

- *MMR*[18]- The maternal mortality ratio is the number of women dying during pregnancy and childbirth, per 100,000 live births.
- *LFPR*[19]- Labour market participation rate.
- *AFR*[20] - Adolescent fertility rate.
- *PR*[21] - Proportion of parliamentary seats held by each sex.
- *SE*[22] - Achievement at secondary and higher education levels.

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[18] *MMR* - the maternal mortality ratiois the number of women who die during pregnancy and childbirth, per 100,000 live births. *MMR* is truncated symmetrically at 10 (minimum) and 1,000 (maximum). The maximum of 1,000 is based on the standard assumption that countries where the maternal mortality ratio exceeds 1,000 do not differ in their ability to create conditions and support for maternal health. Similarly, it is assumed that countries with 1–10 deaths per 100,000 births are essentially performing at the same level (www.undp.org.np/publication/html/.../HDR_2010_EN_TechNotes.pdf).

[19] *LFPR* -labour force participation rate is the proportion of the population aged 15 and older that is economically active (www.undp.org.np/publication/html/.../HDR_2010_EN_TechNotes.pdf)..

[20] *AFR* - adolescent fertility rate is the number of births per 1,000 women aged 15-19 (www.undp.org.np/publication/html/HDR_2010_EN_TechNotes.pdf).

[21] *PR* - the female parliamentary representation of countries reporting 0% is coded as 0.1% because the geometric mean cannot have zero values and because these countries do have some kind of political influence by women (www.undp.org.np/publication/html/HDR_2010_EN_TechNotes.pdf).

[22] *SE* - Gender differences in attainment persist at all levels of education but are not always consistent with employment patterns and outcomes of higher education (Barro & Lee, 2010).

The problem in determining GII for Serbia is the inability of continuous monitoring of some basic indicators necessary for the calculation (Table 7). The aim of this paper is therefore to determine an approximate value of GII on the basis of the available data for 2008 and 2009, to compare it with the GII index for the neighbouring countries or certain EU member countries, and thus arrive at an approximate picture of the situation in Serbia in comparison with the selected countries. On the basis of the data available for 2008, the top ten countries ranked by attained level of GII (Table 6) are as follows:

Table 6. Gender Inequality Index

Country	Rank	Value	Country	Rank	Value
Netherlands	1	0.174	Belgium	6	0.236
Denmark	2	0.209	Germany	7	0.240
Sweden	3	0.212	Finland	8	0.248
Switzerland	4	0.228	Italy	9	0.251
Norway	5	0.234	Singapore	10	0.255

Source: http://hdr.undp.org/en/media/HDR_2010_EN_Table4_reprint.pdf

Using a complex statistical procedure combining different measures of central tendencies (arithmetic, harmonic, and geometric mean) the GII is obtained through several stages (Seth, 2009):

$$G_F = \sqrt[3]{\sqrt{\left(\frac{1}{MMR} \cdot \frac{1}{AFR}\right) \cdot \sqrt{(PR_F \cdot SE_F)} \cdot LFPR_F}} \qquad (1)$$

$$G_M = \sqrt[3]{1 \cdot \sqrt{(PR_M \cdot SE_M)} \cdot LFPR_M} \qquad (2)$$

$$HARM(G_F, G_M) = \left[\frac{(G_F)^{-1} + (G_M)^{-1}}{2}\right]^{-1} \qquad (3)$$

$$G_{\overline{F},\overline{M}} = \sqrt[3]{\overline{H} \cdot \overline{E} \cdot \overline{L}} \qquad (4)$$

where:
$\overline{H}$ - arithmetic mean of health[23]
$\overline{E}$ - arithmetic mean of empowerment
$\overline{L}$ - arithmetic mean of labour market participation rate

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23   Health should not be interpreted as an average of corresponding female and male indices but as half the distance from the norms established for the reproductive health indicators—fewer maternal deaths and fewer adolescent pregnancies (*www.undp.org.np/publication/html/.../HDR_2010_EN_TechNotes.pdf*).

These mean values were obtained on the basis of formulas:

$$\overline{H} = \left(\sqrt{\frac{1}{MMR} \cdot \frac{1}{AFR}} + 1 \right) \bigg/ 2 \tag{5}$$

$$\overline{E} = \left(\sqrt{PR_F \cdot SE_F} + \sqrt{PR_M \cdot SE_M} \right) \bigg/ 2 \tag{6}$$

$$\overline{L} = \frac{LFPR_F + LFPR_M}{2} \tag{7}$$

$$GII = 1 - \frac{HARM(G_F, G_M)}{G_{\overline{F},\overline{M}}} \tag{8}$$

Table 7. Basic data for estimation of GII for Serbia

	Reproductive health (2008)		Empowerment		Labour market (2009)
	Maternal mortality ratio	Adolescent fertility rate	Parliament representation	Attainment at secondary and higher education[24]	Labour market participation rate[25]
Female	8	21	0.26	0.46	0.528
Male	na*	na*	0.74	0.54	0.687
(F+M)/2	$\left(\sqrt{\frac{1}{8} \cdot \frac{1}{21}} + 1 \right)/2 = 0.51$		$\left(\sqrt{0.026 \cdot 0.46} + \sqrt{0.74 \cdot 0.54} \right)/2 = 0.49$		$(0.528 + 0.687)/2 = 0.61$

* na – not applicable

Source: Trends in Maternal Mortality: 1990-2008. Estimates Developed by WHO, UNICEF, UNFPA and the World Bank. Source Trends in Maternal Mortality: 1990-2008. Estimates Developed by WHO, UNICEF, UNFPA and the World Bank; Statistical Office of the Republic of Serbia (2010), Statistički godišnjak Srbije 2009.

Using the collected data for GII estimation (Table 7), the following results were obtained:

$$G_F = \sqrt[3]{\sqrt{\left(\frac{1}{8} \cdot \frac{1}{21} \right)} \cdot \sqrt{(0.26 \cdot 0.46)} \cdot 0.528} = 0.241 \tag{9}$$

$$G_M = \sqrt[3]{1 \cdot \sqrt{(0.74 \cdot 0.54)} \cdot 0.687} = 0.757 \tag{10}$$

$$HARM(G_F, G_M) = \left[\frac{1}{2} \cdot \left(\frac{1}{0.241} + \frac{1}{0.757} \right) \right]^{-1} = 0.366 \tag{11}$$

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24 Gender differences in attainment persist at all levels of education but are not always consistent with employment patterns and outcomes of higher education (http://hdr.undp.org/en/media/HDR_2010_EN_TechNotes.pdf).

25 Labour force participation rate is the proportion of the population aged 15 and older that is economically active.

$$G_{\overline{F},\overline{M}} = \sqrt[3]{0.51 \cdot 0.49 \cdot 0.61} = 0.534 \tag{12}$$

$$GII = 1 - \frac{0.366}{0.534} = 0.315 \tag{13}$$

From analysis of the data necessary for estimating the GII for Serbia (Table 7), it was determined that the approximate GII value is 0.315. The countries closest to Serbia in GII rate are Latvia (rank 22, GII = 0.316), Greece (rank 23, GII = 0.317), and Luxembourg (rank 24, GII = 0.318). Although GII = 0.315 compared to the data of these countries indicates an approximate rank of 21, it should be borne in mind that this represents only an approximate GII value obtained using available data and that there are other countries for which no official GII data exists in the UNDP statistical databases. These include Belarus, Montenegro, Liechtenstein, the Former Yugoslav Republic of Macedonia, and Uzbekistan.

6. IN LIEU OF A CONCLUSION

In order to more closely approach the European concept of gender equality, the analysis of the position of women in the Serbian labour market should become one of the priority tasks of analysis. In this way the obtained results will represent the basis for making political decisions and adopting development strategies and new laws which are fundamental to reconciling national with adopted international and EU legislation. Increasing the competitiveness of unemployed women in the labour market isa priority in promoting gender equality, improving the position of women in society, and realizing the policy of changes for equality in all segments of society.

The position of women in the labour market is just one of the factors which must be considered in adopting legal documents on gender equality and drafting the National Strategy for the Improvement of the Position of Women and the Promotion of Gender Equality. These guarantee equality to women and men and the principle of equal opportunities. Institutional mechanisms for attaining equality between men and women are not possible without adequate strategic documents and laws which contribute to accelerating the social progress of women by removing political, social, economic, and cultural obstacles to establishing true equality between women and men.

The establishment of an adequate institutional mechanism is the primary condition needed to begin implementing documents adopted so far that consider resolving the problem of general inequality and the elimination of

discrimination against women, in order to improve the position of women in all spheres of public and political life and in the labour market. The mechanisms for their implementation include specific anti-discrimination regulations and an institutional structure aimed at promoting, upgrading, and securing the equal participation of women and men, monitoring the implementation of regulations and a ban on discrimination, and also initiating and adopting measures of affirmative action to upgrade the position of women. In order to achieve the primary goals set by the National Strategy for the Improvement of the Position of Women and implementation of the Law on Gender Equality which pertain to an increase in the employment and participation of women (particularly those with low or inadequate levels of skill), continuous activity in the future is required. Active intervention in the labour market should be aimed at those women who have lost the motivation to take part in continuing education and improvement.

In order to strengthen social cohesion, it is necessary to to take steps which are aimed particularly at those categories and social groups in society which experience particular difficulty in entering the labour market. These social groups require special attention in order to provide equal opportunity in employment, improvement and advancement, as well as better harmonization of family and professional obligations. The adoption of new anti-discrimination legislation such as the Law on Banning Discrimination (2009) provides the conditions for pursuing a policy of equal opportunities in exercising the rights for persons of different gender. In addition to this, the adoption of the National Strategy for the Improvement of the Position of Women and the Promotion of Gender Equality for the period 2009-2015 has confirmed the state policy aimed at eliminating discrimination against women, improving their position and integratingthe principle of gender equality in all spheres of activity of the institutions of the system. This strategic document is also the first step in reconciling national legislation with international standards and in meeting obligations in the process of European integration.

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