

Impact of Continuing Education on Stable Employment and Wages of Men and Women in Serbia

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ABSTRACT

This paper examines whether continuing education and training contribute to overall job security and to narrowing the gender wage gap, thereby mitigating the potential effects of employer discrimination. Data from the Serbian Survey on Income and Living Conditions are used, focusing on 2020 and estimating wage regressions. The main results show that participation in continuing education and training has a positive effect on wages and contributes to reducing the wage gap, especially for individuals who were previously unemployed and participated in some form of additional training. This paper contributes to understanding the importance of training and its impact on employment stability and workers' wages in the post-transition economy. The findings presented in this paper are advisory to both policymakers and management. In general, it can be stated that trained employees are better suited to do tasks and, especially if they are satisfied with the knowledge acquired in the company, contribute to a stable environment that makes it easier for them to meet the demands of competition. On the other hand, this implies the empirically confirmed assumption that competition may be negatively correlated with employer discrimination. However, employee participation in continuing education and training in Serbia is still below the optimal level.

Keywords: *employees, employment, Serbia, training, wage differences*

JEL Classification: J31, M53

INTRODUCTION

The extent and structure of gender discrepancies in the labor market are usually studied in terms of paid work in the main job. Analysis of this practice is important in the modern organizational environment because it can have far-reaching economic and social consequences for the formation of the overall labor supply and active inclusion. Although there is a general trend toward wage convergence, owing to the better observed characteristics of women, gender differences in wages remain substantial. One of the explanations is based on the finding that, in parallel with the improvement in observed characteristics (including educational attainment and years of work experience), women have also improved their unobserved characteristics (Blau and Kahn, 2003). This claim is due to the fact that wage models do not account for investments in improving personal qualifications and skills. In other words, due to the limitations of available microdata, relevant explanatory variables that measure investment in personal development over working life cannot be accounted for in the empirical model (Brown, Moon and Zoloth, 1980). A low female employment rate is positively correlated with the gender wage gap (Fortin, Bell and

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Böhm, 2017). Moreover, the higher the proportion of female employees in the firm, the lower the wage gap is (Fanfani, 2022).

Existing trends in the Serbian labor market speak to the need for such an analysis. The unexplained gender wage gap persists in the Serbian labor market (Vladisavljević, Avlijaš and Vujić, 2015), although it is smaller than in most European countries (Hedija, 2017). Greater flexibility led to an increase in non-standard forms of employment and further contributed to widening wage gaps in the labor market, with fixed-term contracts predominating (Albanese and Gallo, 2020). Moreover, gender gaps in employment have remained constant over the years, reflecting a slow absolute increase in female employment. Investment in education and training remains moderate, resulting in low relative workforce participation in lifelong learning. Considering the increasingly demanding global demand for skills (European Commission, 2022), the participation rate of the adult population of Serbia in some form of education or training is significantly lower compared to the EU-27 average - 19.8% versus 45.1% (Statistical Office of the Republic of Serbia, 2018). Regarding the intention of enterprises to carry out some form of continuing vocational education and training, the difference between Serbia and the EU-27 is much smaller. In Serbia, 49.2% of companies carry out some form of continuing vocational training, compared to 67.4% in the EU-27 (Statistical Office of the Republic of Serbia, 2022b).

The strategic framework for employment policy in Serbia for the period 2021-2026 is based on improving the position of women in the labor market, reducing gender inequalities, and strengthening the educational structure of the workforce (Government of the Republic of Serbia, 2021). In addition, it is suggested that global indicators of the quality of human capital and the quality of employment should be included in monitoring the achievement of the goals of this strategy (Ognjenović, Kuzmanov and Pavlović, 2021). To illustrate, the gender employment gap has widened to 15.2 percentage points, while the gap between male and female labor force participation rates increased to 15.9 percentage points in 2021. This slight widening of the gender gap in the labor market can be partly attributed to the impact of the COVID-19 pandemic. At the same time, the gender gap in employment and labor force participation in the EU-27 was 11.5% and 12.1%, respectively, in 2021, but decreased slightly compared to 2020. According to the 2018 Structure of Earnings Survey, the gender pay gap in Serbia and the EU-27 was 9.6% and 14.4%, respectively (Statistical Office of the Republic of Serbia, 2020; Eurostat, 2022).

Analyses of European labor markets show that training programs are an effective tool that contributes significantly to overall employment stability (Zweimüller and Winter-Ebmer, 1996; Doerr, Fitzenberger, Kruppe, Paul and Strittmatter, 2017). On the other hand, international experience often shows ambiguous results. Social support measures for women (e.g., parental leave) may lead to greater participation of women in on-the-job training after their return to work. On the other hand, they may also discourage employers from investing in on-the-job training for women, thereby promoting discrimination against women (Blau and Kahn, 2003). Those who have higher educational attainment, who are more committed to fulfilling job tasks, and younger employees have a higher probability of entering a firm-provided training as evidenced in numerous studies (Picchio and van Ours, 2013; Filippetti and Iammarino 2019; Barrenechea-Méndez, Ortín-Ángel and Rodes, 2022). Thus, the main research question in this paper is whether continuing education and training (CET) contribute to mainstream job security and reduce the gender wage gap, thereby mitigating the potential effects of employer discrimination. This hypothesis is examined using data from the Survey on Income and Living Conditions (SILC), focusing on the year 2020. This year was also chosen because the survey microdata includes a variable that measures monthly wages (independent of total annual income from work).

The remainder of the paper is organized as follows. The next section contains a current literature review on the topic studied in this paper. This is followed by a section of the paper that discusses the methodology and explains the data. The main findings are presented in a separate section, followed by discussions and conclusions of the paper.

LITERATURE REVIEW

The empirical literature suggests that there is a positive relationship between employment stability (including workers' wages) and the provision of training. This training can be provided by firms or initiated by workers through the offering of training providers outside the firm. The literature addressing workplace learning does not clearly delineate the terms used to explain motivation to learn and participate in training, making it difficult to measure their effects and interdependencies in empirical studies (Kochoian et al., 2022). Continuing education cannot be studied separately from digitization. The effects of digitization on the labor market are usually studied from a global perspective. They do not differ significantly when observed only in an isolated labor market, such as a post-transition economy. Janeska and Lozanoska (2021) found that the impact of digitization on the North Macedonian labor market can be observed against the background of the changing employment structure. That is, the changes in the labor market are reflected in the economic sectors, occupations, job profiles and qualifications. When examining the impact of digitalization on the Serbian labor market, Bradić-Martinović and Banović (2018) found that women need to improve their digital skills to catch up with their counterparts.

In different contexts and countries, there is empirical evidence of the positive effects of job-related training on employability, job retention, wages, and career advancement. Table 1 provides an overview of the selected literature on this topic. Gender wage differentials may be due to monopsonistic characteristics or the tight structure of the labor market, but also to women's preference for more flexible working conditions. This is evident from a study published by Fanfani (2022), which examined taste-based discrimination among manufacturing employers in an Italian industrial region. Examining wage differentials in the two European countries and Canada, Fortin et al. (2017) found that the increase in wages in the top percentile of the wage distribution may be associated with the increase in the unexplained portion of the gender wage gap.

Differences in students' propensity to compete while still in education may be related to later gender differences in labor market outcomes (Blázquez et al., 2018; Lüthi and Wolter, 2021) and women's aspirations for top corporate positions (Hoyer et al., 2020). Similarly, the adoption of professional values during the education of young practitioners early in their careers may be reflected in their subsequent success in the labor market (Jackson et al., 2022).

Participation in job-related training and employment stability are positively related, and this relationship may also contribute to sustained wage growth. It is also important to note that higher levels of education trigger further participation in all types of continuing education. Kramer and Tamm (2018) have empirically confirmed a positive relationship between education and continuing training on German data of adults over the life course. On-the-job training can be used as a companion strategy in recruiting workers by offering the same level of training for the same job and then using trainees' skills for selection purposes (Barrenechea-Méndez et al., 2022). Cairó and Cajner (2018) also show that complementarity between education level and job-related training can lower separation rates, but has no effect on job matching rates. However, studies can be found that show that job-related training or another type of training can significantly improve employability and job stability (Mamaqi et al., 2012; Picchio and van Ours, 2013). Studies using spatial or sector-specific data may show some degree of inconsistency with the original hypothesis with respect to several other socioeconomic factors (Filippetti et al., 2019).

Table 1. Summary of relevant literature

Author	State	Method	Results
Barrenechea-Méndez et al. (2022)	Spain	Cross-sectional data; OLS and ordered probit	(+) relationship between on-the-job training and selection
Blázquez et al. (2018)	15 EU countries and Japan	Cross-sectional data; Multinomial logit and OLS	(+) relationship between cognitive competencies of university students and wages
Cairó & Cajner (2018)	U.S.	Cross-sectional data; Search and matching model	Education and job-related training reduce unemployment duration and employment volatility (labor market volatility)
Doerr (2022)	Germany	The German Federal Employment Agency's data on training vouchers provided to job returners; Propensity score matching	(+) relationship between training vouchers and (re)employment and wages of women returning to work
Fanfani (2022)	Italy	Matched employer-employee data; 2-way FE regression	(+) relationship between the gender gap in firms' wage policies and taste-based discrimination
Filippetti et al. (2019)	Italy	Panel data from the Survey on Labor Participation and Unemployment; Probit and 2-step control function	(+) relationship between training and employment stability, the differences by region
Fortin et al. (2017)	Canada, Sweden, and the UK	Administrative data on wages and LFS; Counterfactual analysis using reweighting estimator and Oaxaca-Blinder	An increase in top wages reveals a growing share of the unexplained gender gap
Gay & Borus (1980)	U.S.	Longitudinal data from four employment and training programmes; Limited dependent variable models and maximum likelihood	Insignificant relationship between participation in sponsored training and job placement in the long-run
Hoyer et al. (2020)	The Netherlands	Self-administered 3-round experiments with university students; Probit and OLS	The importance of gender differences in competitiveness is reflected in the lower participation of women in top positions
Jackson et al. (2022)	Australia	Self-administered survey of owners and business and HR managers; Analysis of variance (ANOVA)	Job-related training strongly correlates with young trainees' adoption of job-related values and employment stability
Kramer & Tamm (2018)	Germany	National Education Panel Study; OLS and instrumental variable estimator	(+) relationship between education and participation in training
Lüthi & Wolter (2021)	Switzerland	Matched survey data of students with administrative records of	Gender differences in competitive behaviour in class are significantly

Author	State	Method	Results
		apprentices; Binary and multinomial probit	associated with later outcomes in real life and the labor market
Mamaqi et al. (2012)	Spain	Cross-sectional data; Binary logit model	(+) relationship between employment stability and continuing training
Picchio & van Ours (2013)	The Netherlands	Longitudinal data from the European Community Household Panel (ECHP); Dynamic unobserved effects probit	(+) relationship between on-the-job training and employability
Schmidt (2009)	U.S. and Canada	The Job Training and Job Satisfaction Survey; Analysis of Variance (ANOVA)	Temporary workers' satisfaction with on-the-job training differs by type of job, status, and tenure
Zweimüller & Winter-Ebmer (1996)	Austria	Administrative data on unemployed, men; Bivariate probit	(+) relationship between participation in training programmes and employment stability

Source: The author based on collected papers.

Empirical studies pointing to the importance of training for the unemployed also cannot be ignored, whether it is training in the context of European labor market policy (Zweimüller and Winter-Ebmer, 1996) or institutionally supported training in the US labor market (Gay and Borus, 1980), whose role is to contribute to reduced volatility in the labor market or to facilitate job placement. Using the Austrian labor market as an example, Doerr (2022) has shown that training can improve the reemployment and wages of women returning to work. Considering that temporary workers also play an important role in the functioning of companies, it is important for HR departments hiring these workers to obtain feedback on their satisfaction with on-the-job training (Schmidt, 2009).

STATISTICAL FACTS

Prior to the pandemic COVID-19, Serbia was well on its way to reducing the gender wage gap, and a legal framework was adopted that made this possible (Ognjenović, 2021). However, the wage gap remains significant (Table 2). According to Eurostat's methodologically standardised Structure of Earnings Survey, the unadjusted gender wage gap in Serbia increased slightly before the COVID-19 pandemic (Statistical Office of the Republic of Serbia, 2020). This may be influenced to some extent by a slight increase in the gap between men's and women's wages in the private sector, a redistribution of working hours in favour of more working hours for men, and the type of employment contract. Although the gender wage gap in Serbia is smaller than the EU-27 average of 14.4% in 2018, it is still larger than in some former transition countries in Central and Eastern Europe (CEE) (Eurostat, 2022).

Table 2. The gender wage gap in Serbia, in %

Country Year	2014	2018
Serbia	8.7	9.6

Note: This table depicts the unadjusted gender wage gap extracted from Eurostat's Structure of Earnings Survey that excludes public administration, defence, and compulsory social security and includes full-time and part-time jobs.

Source: Eurostat, 2022.

As Figure 1 shows, the largest wage gaps between men and women remain in the two former Baltic transition countries (Estonia and Latvia), the two former CEE transition countries (the Czech Republic and Slovakia), and the two old EU member states (Austria and Germany). These differences are due not only to the institutional framework, which is uniform across the EU, but also to sociocultural factors, which vary from country to country, and most importantly, full-time and part-time jobs are included. Women working part-time usually have lower wages, contributing to a wider pay gap. For example, Austria and Germany, where one of the largest unadjusted gender wage gaps is identified, have more women engaged in part-time jobs. Figure 1 depicts the gender wage gap for both full-time and part-time employees. Any further analysis of the unadjusted gender wage gap across EU countries would require taking into account the differences in the distribution of working hours of employees. However, data on the gender wage gap by working hours are not available for all countries.

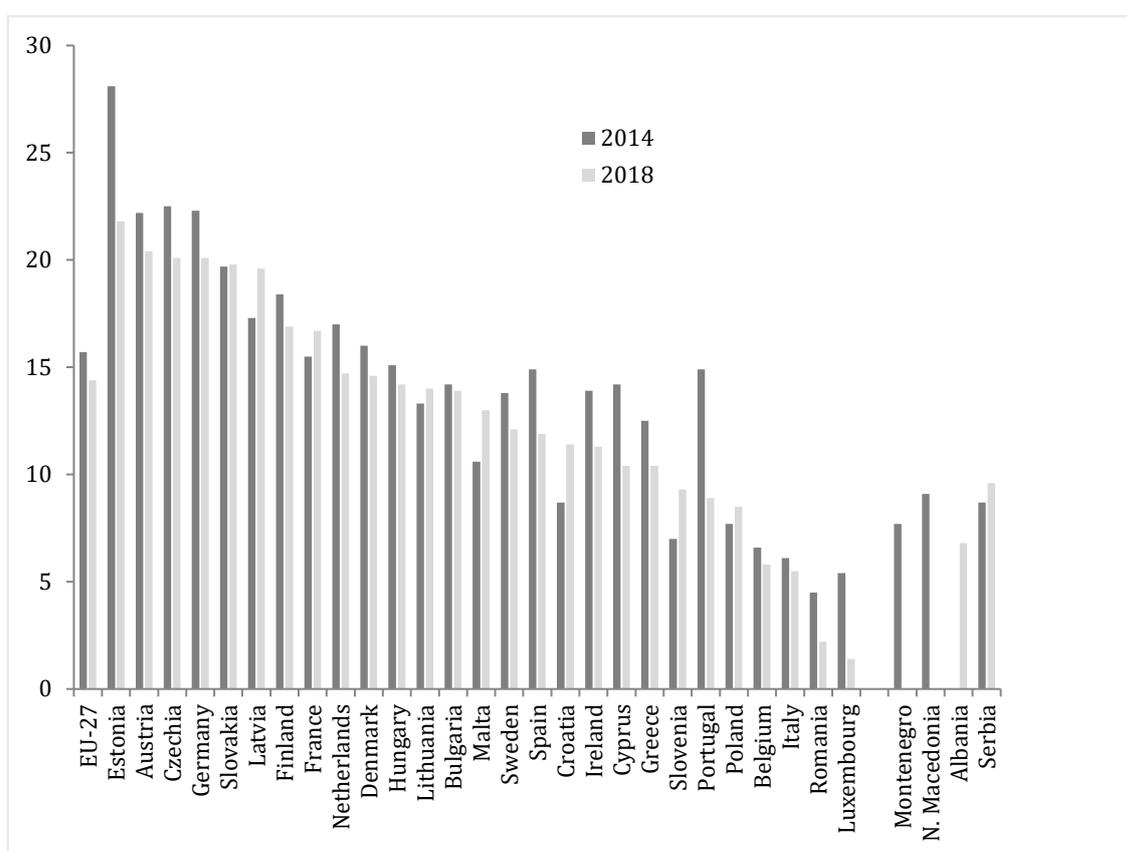


Figure 1. The unadjusted gender wage gap, in %, in Europe according to the Eurostat's Structure of Earnings Survey

Source: Eurostat, 2022.

Source: Eurostat, 2022.

The gender wage gap is widest in Serbia compared to other countries in the process of accession, but at the same time, it is smaller than in some neighboring countries that are already members of the EU. According to the share of part-time employees, Serbia is more similar to countries, such as Montenegro and Macedonia, with which it is compared. When only salaried workers are considered, the differences among employees according to the share of part-time jobs are small. The share of part-time employees in Serbia does not exceed four percent and is more than twice as high as in these two countries. The unadjusted gender wage gap for Serbia, shown

in Table 2, is more in line with the pay gap of full-time employees, which was 9.9% in 2018 (Eurostat, 2022).

When low-skilled women drop out of the labor force or engage in part-time employment or employment with reduced benefits, this further increases their financial vulnerability (Doerr, 2022). This has practical implications for public policy, which may be reflected in women's subsequent position in the labor market or their recognition by the pension and social security systems as potential benefit recipients.

Measures to support the most affected sectors of the economy, including those in which women are overrepresented, aim to maintain balanced employment and prevent job loss due to a greater risk of contagion. Previous findings show that the gender wage gap is likely to be correlated with the economic sector (Hedija, 2017; Fanfani, 2022), while education forms a negative relationship with the gender wage gap (Ognjenović, 2021). Narrowing down the discriminatory patterns in wage determination requires further attention. This will be explored in the following sections.

DATA AND METHODOLOGY

Additional variables will expand the human capital portion ($x'\beta$) of the wage model (1) to perform this empirical exercise and assess its impact on reducing gender inequality in the labor market. Thus, the first set of variables includes age (age and age squared), education (education dummies), and work experience (experience and experience squared), the second set ($z'\gamma$) includes all other socioeconomic (marital status, number of preschool children, health status) and work-related characteristics (permanent contract, managerial position, region, ownership, industry), while ($w'\delta$) includes dichotomous variables, such as female and continuing education dummies, and their interaction term ε represents an error term in the wage regression. The mathematical notation of the wage model can be expressed in the following form:

$$y = \alpha + x'\beta + z'\gamma + w'\delta + \varepsilon \quad (1)$$

In applying this methodological approach, we first need to examine whether the variable “continuing education and training” has a statistically significant effect on the gender wage gap by estimating the wage model (1), which includes a female dummy as a proxy for the gender wage gap. This variable refers to employees pursuing further education and participating in training while working without specifying the form of this training. To examine whether training affects employment stability, we may compare the employment tenure of those who participated in training and those who did not, as well as total work experience. However, only the total work experience variable is available in the data sample. The high correlation between earnings and work experience of those previously unemployed and who participated in additional training may indicate the validity of this relationship. In conducting this experiment based on the SILC data, it is important to keep in mind that the percentage of participants in additional education and training is significantly lower than when analysing data from the Continuing Vocational Training Survey for the simple reason that the research is conducted on other sample units. This survey refers to professional development training that companies provide to their employees (Statistical Office of the Republic of Serbia, 2022b). These variables indicate whether someone found a job and was previously unemployed and whether they participated in additional education and training. According to the proposed strategy for empirical estimation, it can be assumed that further education and training are observable characteristics that can affect gender inequalities in wages and contribute to employment security. The latest data from the Survey on Income and Living Conditions in Serbia (Statistical Office of the Republic of Serbia, 2022a) are used to empirically explain the theoretical relationship in the estimated model and draw valid conclusions for policy recommendations. The sample includes the population older than 17 years.

The sample includes 4,168 observations, of which 45.2% are women. The dependent variable is the average monthly net wage divided by the number of hours worked in the same month. A

logarithmic transformation was applied to the average hourly wage thus obtained so that the dependent variable can be expressed in terms of hourly wage rates. The average hourly wage rate of men is 5.550, while the standard deviation (SD) is 0.420, and that of women is 5.446 (SD = 0.391). The dispersion of the average hourly wage rate of women is smaller than that of men. The interquartile rank of the average hourly wage rate of women is 0.511, and that of men is 0.542.

The descriptive statistics, including mean, standard deviation, minimum and maximum values, of the dependent and explanatory variables included in the empirical wage model are presented in Table 3. Except for average hourly wage, age, and working experience are continuous variables, while all other variables are dichotomous variables. For the categorical variables of education level, urbanization level, business size, and economic sector, the categories of low education level, sparsely populated area, microenterprise, and macro sector of agriculture were excluded from the econometric modelling.

The average work experience is 16 years (17 for men and 15 for women), while the average respondent is 41 years old (about the same age for both sexes). This indicates that in Serbia, on average, a person does not enter the labor force until after the age of 25. Given that only 19.7% of respondents have a university degree, this would be more consistent with the finding that non-standard forms of employment, especially among young people, or late entry into employment, are represented to a significant extent.

Table 3. Descriptive statistics of the sample

Variable	Mean	S.D.	Min.	Max.
Socioeconomic characteristics				
Average hourly net wage in log	5.512	0.409	3.904	8.286
Age in years	41.407	11.491	18	77
Experience in years	16.220	11.114	0	45
Education				
Low educated	0.075	0.264	0	1
Medium educated	0.727	0.445	0	1
High educated	0.197	0.197	0	1
Marital status and children				
Marriage	0.635	0.481	0	1
Presence of children	0.223	0.417	0	1
Gender				
Female	0.452	0.498	0	1
Health status				
Poor health	0.019	0.136	0	1
Job-related characteristics				
Type of employment				
Permanently employed	0.802	0.398	0	1
Responsibility level				
Managerial position	0.143	0.350	0	1
Region				
Serbia-North region	0.453	0.498	0	1
Degree of urbanization				
Thinly populated area	0.312	0.464	0	1
Intermediate populated area	0.295	0.456	0	1
Densely populated area	0.393	0.488	0	1
Firm size				
Micro firms	0.327	0.469	0	1
Small-sized companies	0.472	0.499	0	1
Medium and large-sized companies	0.201	0.401	0	1
Ownership				
Privately owned	0.635	0.481	0	1

Variable	Mean	S.D.	Min.	Max.
Economic sector				
Agricultural sector	0.015	0.123	0	1
Manufacturing & construction sector	0.025	0.025	0	1
Services sector	0.956	0.205	0	1
Continuing education				
Continuing education and training	0.015	0.122	0	1
Previous employment status				
Unemployed	0.075	0.264	0	1
No. of observations	4168			

Source: The author based this on SILC 2020, Statistical Office of the Republic of Serbia (2022a).

The proportion of workers who participated in additional education and training is low - only 1.5%, as estimated from a complete sample. However, the participation rates for men and women differ, showing that women are more likely to participate in training than men. The participation rate for the latter is 1.3%. and for the former 1.7%. To some extent, this may be related to the larger proportion of women who were previously unemployed and found a job in the last twelve months. The data show that the corresponding rates for women and men are 8.1% and 7.1%. Some other studies show that women are more likely to participate in continuing education than men, and this is not only a characteristic of the Serbian labor market. In the EU countries, women with high education, those employed in the services sector, and those who occupy positions in the public sector are more inclined toward participation in continuing education (Picchio and van Ours, 2013; Doerr, 2022). When it comes to mothers with small children and part-time workers, Picchio and van Ours (2013) found a low probability of their participation in further education, explaining this result by the fact that income from work is a less significant source of their total income.

RESULTS AND DISCUSSION

The gender wage gap is positively correlated with labor force participation and unemployment rates, as shown in numerous empirical studies for advanced economies (Blau and Kahn, 2003; Fortin, Bell and Böhm, 2017). Low employment is the trigger for the existence of the wage gap. The labor force participation and employment rates of men and women in Serbia have not changed significantly in recent years. The only slight widening of the gap can be partly attributed to the impact of the pandemic. According to the Labor Force Survey of the Statistical Office of the Republic of Serbia for 2021, the labor force participation rates for the population aged 15 and older were 62.9% and 47.0%, and the employment rates were 56.5% and 41.3% for men and women, respectively. Many observable and unobservable factors can cause gender gaps to widen for men and women. Some of these differences relate to participation in additional education and training and observing their impact on employment stability and potential discrepancies in wages between men and women.

Table 4 provides the main characteristics of participants in additional education and training and nonparticipants for comparison. As can be seen, those who practice participation in continuing education are younger (the average age of participants is almost 28 years, while that of nonparticipants is 42 years). The average age difference between the participants and those who did not participate in continuing education is almost 14 years and is statistically significant ($p < 0.001$). Accordingly, participants are less experienced (they have an average of four years of professional experience) and are better educated (25.4% of participants with a high level of education compared to 19.7% of nonparticipants), while people with a low level of education have almost no chance of participating in additional education and training, according to SILC data. This is consistent with previous findings indicating a high correlation between educational attainment and participation in CET (Kramer and Tamm, 2018). The participation rate of women is

predominant among participants (52.4%), while there is no obvious difference in participation in CET depending on previous employment status. However, the revealed differences are not statistically significant at conventional levels.

Table 4. Characteristics of wage earners by participation in CET

Variable	Nonparticipants	Participants	Difference
Age in years	41.614	27.905	13.709***
Experience in years	16.406	4.127	12.279***
Education			
Low educated	0.076	-	-
Medium educated	0.727	0.746	-0.019
High educated	0.197	0.254	-0.057
Previous employment status			
Unemployed	0.075	0.079	-0.004
Gender			
Female	0.450	0.524	-0.074
No. of observations	4105	63	

Note: $p < 0.001$ ***; $p < 0.01$ **; $p < 0.05$ *; $p < 0.10$ †. Differences between means of categorical variables are tested using z-test.

Source: The author based this on SILC 2020, Statistical Office of the Republic of Serbia (2022a).

Table 5 shows the distribution of actual values of average hourly wages, measured in log units, as a function of socioeconomic characteristics for the entire sample of men and women and for those who were previously unemployed and found a job within the last twelve months.

Table 5. Log values of the average hourly net wage for men and women by main personal characteristics

Variable	All			Unemployed		
	Men	Women	Differ.	Men	Women	Differ.
Age						
Age [18-29]	5.458	5.427	0.031	5.354	5.349	0.005
Age [30-54]	5.573	5.465	0.108***	5.410	5.290	0.120†
Age 55 and more	5.575	5.524	0.051	5.244	5.444	-0.200
Experience						
Experience [0-5]	5.450	5.421	0.029	5.354	5.322	0.032
Experience [6-15]	5.540	5.422	0.118***	5.460	5.326	0.134
Experience [16-25]	5.588	5.522	0.066**	5.154	5.443	-0.289
Experience [26-35]	5.609	5.521	0.088**	5.377	5.196	0.181
Experience [36-45]	5.606	5.504	0.102†	5.682	-	-
Education						
Low educated	5.390	5.197	0.193***	5.161	5.220	-0.059
Medium educated	5.506	5.372	0.134***	5.358	5.279	0.079†
High educated	5.837	5.813	0.024	5.614	5.619	-0.005
No. of observations	2286	1882		162	152	

Note: $p < 0.001$ ***; $p < 0.01$ **; $p < 0.05$ *; $p < 0.10$ †.

Source: The author based this on SILC 2020, Statistical Office of the Republic of Serbia (2022a).

Comparing the average hourly wages of young workers at the beginning of their careers (ages 18-29), prime-age workers (ages 30-54), and workers over age 55 for the entire sample and for those who were previously unemployed, both distributions show that the wages of those who

remain employed (employees who have not experienced a break in employment in the last year) are higher on average. Men also earn higher wages than their female counterparts, with the only exception being older workers who have recently found a job, which shows that women earn higher wages on average. However, this result may be due to a small number of sampling units, which translates into low dispersion in the data.

Total work experience in the sample ranges from zero to 45 years. The distribution of work experience includes the newly employed (with no previous work experience) up to five years of total work experience and continuously shows the intervals within the range of ten years between the lower and upper limits of the interval. For the entire sample, men have higher wages than women on average across all intervals of work experience. The wage gap is smallest for workers with fewer years of work experience. It increases proportionally as they reach higher levels of work experience, confirming the statistical significance of revealed differences. However, for workers who have replaced their current employment status with their previous unemployment status, the difference in actual wages is smaller, and for a given level of work experience (between 16 and 25 years), women earn higher wages on average. the resulting difference in wages is not statistically significant.

In the distribution of wages by educational attainment for the entire sample, women cannot match the wages earned by men with similar educational attainment. However, this difference is smallest for those with high levels of education, but it is not statistically significant. Women with low levels of education who were previously unemployed can achieve higher wage premiums than men. The wage gap between men and women who were previously unemployed is also much smaller for individuals with a medium level of education. In contrast, highly educated women are at a slight advantage since they are paid more relative to men. However, the revealed difference in pay is not statistically significant.

Table 6 summarizes the results of estimating the wage models. The modeling strategy was to estimate the models to a full sample of workers and to those who left unemployment within the last twelve months. The main research hypothesis is to examine the impact of participation in continuing education and training on wages and, indirectly, how the presence of this variable in the wage model affects wage differentials between men and women. The importance of the gender wage gap in the wage model is captured by the dichotomous variable that measures the proportion of women in the sample of employees.

Table 6. The estimates of the regression model

Variable	All		Unemployed	
	Estimate	Std. error	Estimate	Std. error
Socioeconomic characteristics				
Age	0.006	0.005	0.020	0.013
Age^2	-0.000**	0.000	-0.000	0.000
Experience	0.009***	0.002	0.008	0.008
Experience^2	-0.000	0.000	-0.000	0.000
Education				
Medium educated	0.106***	0.022	0.108#	0.066
High educated	0.411***	0.026	0.392***	0.108
Marital status and children				
Marriage	0.010	0.013	-0.052	0.051
Presence of children	0.012	0.014	0.005	0.059
Gender				
Female	-0.095***	0.011	-0.042	0.043
Health status				
Poor health	-0.127***	0.040	-0.190	0.123
Job-related characteristics				
Type of employment				

Variable	All		Unemployed	
	Estimate	Std. error	Estimate	Std. error
Permanently employed	0.032**	0.015	0.007	0.045
Responsibility level				
Managerial position	0.192***	0.017	0.180	0.205
Region				
Serbia-North	0.125***	0.011	0.098**	0.048
Degree of urbanization				
Intermediate populated area	-0.031**	0.014	0.078	0.065
Densely populated area	-0.029**	0.013	0.078	0.053
Firm size				
Small-sized companies	0.106***	0.013	0.102*	0.052
Medium and large-sized companies	0.139***	0.014	0.175***	0.050
Ownership				
Privately owned	-0.111***	0.012	-0.030	0.055
Economic sector				
Manufacturing & construction sector	0.375***	0.052	1.005*	0.491
Services sector	0.150***	0.040	0.205*	0.089
Continuing education				
Continuing education and training	0.184***	0.057	0.236***	0.069
Intercept	4.995***	0.097	4.489***	0.254
Model fit statistics				
F-statistics (p)	92.12 (0.00)		5.14 (0.00)	
R ²	0.309		0.208	
No. of observations	4168		314	

Note: $p < 0.001$ ***; $p < 0.01$ **; $p < 0.05$ *; $p < 0.10$ †. Excluded categories are low education, sparsely populated area, microenterprise, and macro sector of agriculture.

Source: The author based this on SILC 2020, Statistical Office of the Republic of Serbia (2022a).

The variables capturing the level of human capital development significantly determine the wage distribution implying further that those are the leading factors in explaining the gender wage gap as it is previously proved in empirical studies (Vladislavljević, Avlijaš and Vujić, 2015; Ognjenović, 2021). Both the wage-age and wage-experience profiles emerge, as theoretically expected, as indicative of the depreciation of human capital due to aging. It is well known that age is a proxy for total work experience when the data do not include a variable on work experience because of a lack of continuity in work experience due to a high rate of undeclared work or termination of employment for other reasons. Therefore, these two variables may be highly correlated. However, estimating the empirical model with alternate inclusion of the two variables does not affect the precision of estimates of other variables in the model, so both variables are retained. Education, especially that acquired at institutions of higher learning, generates a high wage premium. For those who have been unemployed, prior work experience does not make a significant difference in the wage premium, while an educational degree still makes a significant wage premium.

Other personal characteristics of workers have very small effects on wages and are not statistically significant. Previous research shows that family situation has a strong influence on a person's decision to actively participate in the labor market (Vladislavljević, Avlijaš and Vujić, 2015). Marriage can also have a positive impact on wages; in particular, it has been empirically confirmed that men earn a significant wage premium if they have a wife or partner (Ognjenović, 2021). Workers living in families with preschool-aged children can expect positive effects on wages, but the results are mixed and do not always show statistically significant wage gains.

Similar results, showing no significant impact on wages, are obtained for a subsample of previously unemployed individuals.

When job-related characteristics are the focus of analysis, permanent employment has the largest and statistically significant impact on wages, although the share of atypical forms of employment is increasing. The responsibility level associated with a managerial position in a firm has a statistically significant impact on wages. The leadership position rejects nearly one-fifth of higher wages, both for all employees and those employed in the last twelve months. It is interesting to note, however, that the percentage of wage growth that comes with a position of responsibility in the company accounts for only half of the potential wage growth of employees with higher education. This finding does not change when only previously unemployed individuals are considered. Health problems lead to a 13% decline in average hourly wages, while for those who have been employed in the past 12 months, poor health lowers hourly wages by 19% on average; however, these effects are not statistically significant at conventional levels.

Employer characteristics are an important factor in examining the gender wage gap as workers' human capital characteristics are. For example, Fanfani (2022) examined gender discrimination in the workplace based on employer tastes in an industrial sector of a highly developed area in Europe. The author found that employer discrimination and women's preference for a more flexible form of employment were significant determinants of gender wage differentials in large manufacturing firms. Results were derived from combining data on employee and employer characteristics. Workers, both the entire sample and those who were previously unemployed, in firms in the northern areas of Serbia can expect higher wages on average than workers in the rest of Serbia. In addition, medium and large firms, as well as small firms, paid higher wages than micro firms, so workers in these firms can expect significant wage increases regardless of whether they were affected by unemployment in the past year. Despite the fact that wages in the service sector are higher on average than in other sectors of the economy, it is an interesting finding that private firms operating in manufacturing and construction have higher wage gains. This result is not so surprising if it is related to the fact that the regional distribution, ownership, and size of the company significantly determine the level of the average wage in the sample of data analyzed. The estimate of the dichotomous variable manufacturing and construction may be inaccurate because it is based on a small fraction of the sample of previously unemployed individuals. Regression estimates did not change significantly when this variable was excluded.

The research hypothesis investigating the impact of continuing education and training on workers' wages was tested and confirmed using the estimated models. Indeed, all workers in the sample can expect slightly less than one-fifth higher average hourly wages if they continue their education ($\hat{\delta} = 0.184$; $p < 0.001$), while those who were previously unemployed earn more than one-fifth higher average hourly wages ($\hat{\delta} = 0.236$; $p < 0.001$). It is just not known whether it is general training or training for a specific job. It is certainly an encouraging result that additional training generally has a positive effect on average wages, but it has an even more pronounced effect on the wages of workers who were unemployed in the previous period. The increase in wages is indirectly related to the stability of employment. Thus, through the relationship between participation in additional education and training and wages, the effect on employment security can be confirmed and mediated.

When analysing the wage model, it is also important to consider that self-selection into employment may play an important role in calculating the value of the coefficients. The aim of this study was to show the positive role of additional education and training on workers' wages, and any further study on this topic would require a more precise definition of the variable "continuing education and training". All estimates of the Tobit model are available on request from the author.

The inclusion of a dichotomous variable corresponding to the proportion of women in the sample shows that this part of the labor force earns on average 0.095 lower log hourly wages than their male counterparts, while the estimated wage gap is twice as small in the sample of previously unemployed individuals; however, the estimate is not statistically significant. Although women

make up less than half of the sample of formerly unemployed individuals, the inclusion of the interaction term between the dummy variable "female" and "continuing education and training" suggests an additional positive effect of further education on women's wages. This means that a significant part of the total effect of the variable "continuing education and training" is due to the increase in women's wages due to participation in education.

CONCLUSION

This paper examines whether continuing education and training contribute to overall job security and to narrowing the gender wage gap, thereby mitigating the potential effects of employer discrimination. Data from the Serbian Survey on Income and Living Conditions are used, focusing on 2020 and estimating wage regressions. The main results show that participation in continuing education and training positively impacts wages and contributes to reducing the wage gap, especially for individuals who were previously unemployed and participated in some form of additional training. It was shown that all workers in the sample could expect to earn slightly less than one-fifth of a higher average hourly wage if they continued their education, while those previously unemployed make more than one-fifth of a higher average hourly wage.

Furthermore, some specific results also show that each additional month of participation in training increases women's wages in a way that contributes to narrowing the gender wage gap, with an estimated contribution of 0.08 percentage points. Ognjenović (2021) further found that the difference in educational attainment by gender helps reduce the gender wage gap by almost four percent. Vladislavljević, Avlijaš and Vujić (2015) previously reached similar conclusions for a different country sample. The gender wage gap is calculated using the wage model as the difference in the adjusted values of men's and women's hourly net wages. Again, this leads to a generalized conclusion because it is not known what type of additional education is involved, as this is not apparent from the SILC data. It can only be assumed that it is job-related training. Therefore, it is necessary to consider the results concerning the level of education, which will still be the subject of future research. Any further examination of the impact of participation in continuing education and training on the gender wage gap would require additional analysis, including a more significant sample of participants. Since their share in the data used for the analysis in this paper is small, it remains for future research. This will provide the answer to the question of why the companies provide training and how they select employees to be trained.

This paper contributes to understanding the importance of training and its impact on employment stability and workers' wages in the post-transition economy. Empirical evidence shows that the effects of additional education and training on employment and earnings are positive, as seen in the work of Zweimüller and Winter-Ebmer (1996), Doerr et al. (2017), Cairó and Cajner (2018), Doerr (2022) and others. The results presented in this paper are relevant for both policymakers and management. In general, it can be stated that trained employees are better suited to work tasks and, especially if they are satisfied with the knowledge acquired in the company, contribute to a stable environment that makes it easier for them to meet the demands of competition. On the other hand, this implies the empirically confirmed assumption that competition may be negatively correlated with employer discrimination. However, employee participation in training is still below optimal levels, as all data sources used in this study indicate the below-average involvement of employees in Serbia in additional education and training.

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Note: The author dedicates this work to her cat Mićko (2007-2022).

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