What lies behind wage differences between males and females in Serbia?

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Motivation

- Gender pay gap is used as an indicator of women access to economic opportunities

- Low female activity and employment rates

- Women are the most discriminated in the labour market after Roma people (European Commission, 2016)

- Serbia was at the 22nd place according to the Gender equality index comparing with EU 28 countries in 2016 (Babović, 2018)
  - Difference between Serbia and EU28 is mostly pronounced in domains of power, money and time use

Literature review

Authors	Period	Data	Methodology	Dependent variable	Unadjusted gap	Adjusted gap (unexplained part)
Krstić & Reilly, (2000)	1995–1998	LFS	Juhn, Murphy and Pierce decomposition	Hourly wage	10.1% in 1995 14,8% in 1998	10,7% in 1995 16,1% in 1998
Blunch, (2010)	2010	UNDP Social Inclusion Survey	Blinder–Oaxaca decomposition	Monthly wage	12,4%	20%
Kecmanovic & Barrett, (2011)	2001–2005	LFS	Blinder–Oaxaca decomposition	Hourly wage	14,4% in 2001 5,4% in 2005	17,2% in 2001 10,5% in 2005
Blunch & Sulla, (2011)	October 2008- October 2009	LFS	Mincer wage equation, OLS method	Monthly wage	-	17,5% in 2008 13,3% in 2009
Reva, (2012)	April 2008- October 2009	LFS	Blinder–Oaxaca decomposition	Monthly wage	9,2% in 2008 4,6% in 2009	15,6% in 2008 11,7% in 2009
Avlijaš, Ivanović, Vladisavljević, & Vujić, (2013)	2008–2011	LFS	Blinder–Oaxaca decomposition	Hourly wage	3,3%	11%
Žarković-Rakić & Vladisavljević, (2016)	2013	SILC	Mincer wage equation, OLS method	Hourly wage	4,5%	13,8%
Žarković-Rakić et al., (2018)	2014- 2015	LFS	Blinder–Oaxaca decomposition	Monthly wage	10,8% in 2014 10,5% in 2015	14,5% in 2014 13,2% in 2015

Data

- Survey of Income and Living Conditions (SILC) data in 2014 and 2015
  - SILC is conducted by SORS and is comparable with EU-SILC methodology
- Data on individual and households characteristics
  - Wages, hours worked, employment characteristics, socio-demographic characteristics of household members, etc.
- The sample for wages consists of employees aged 18-64

Methodology
Oaxaca-Blinder decomposition

$$R = E(Y_m) - E(Y_f) = E(X_m)'\beta_m - E(X_f)'\beta_f$$

$$R = [E(X_m) - E(X_f)]'\beta^* + [E(X_m)'(\beta_m - \beta^*) + E(X_f)'(\beta^* - \beta_f)]$$

$$Q = [E(X_m) - E(X_f)]'\beta^*$$

$$U = [E(X_m)'(\beta_m - \beta^*) + E(X_f)'(\beta^* - \beta_f)]$$

$$R = Q + U$$

Y is log hourly net wage

X is vector of explanatory variables

β is vector of coefficients

m stands for males and f for females

β^* is non-discriminatory vector

R difference in expected males and females' wages

Q explained part of the difference

U is unxplained part of the difference

Methodology
Gender pay gap and selection effects

- Bourguignon, Fournier, & Gurgand (2007) methodology
  - Estimate gender pay gap taking into account selection effects
  - Multinomial probit is used to estimate selection equation instead of probit in Heckman approach
  - *Selmlog* command in STATA
  - Adjusted gender pay gap corrected for selection is estimated coefficient for gender variable by using selmlog procedure

$y_1 = x\beta_1 + u_1$
$y_j^* = z\gamma_j + \eta_j, j = 1, 2, 3$
y_1 is outcome equation i.e. wage equaion
y_j^* is selection equation i.e. labour market status defined as employees (1), self-employed (2) and unemployed/inactive (3)

Results
Oaxaca-Blinder decomposition

	2014		2015	
Log male wage	5.191***	(0.014)	5.188***	(0.015)
Log female wage	5.160***	(0.015)	5.131***	(0.015)
Difference in log wages	0.031	(0.021)	0.057***	(0.021)
Explained part	-0.076***	(0.015)	-0.070***	(0.015)
Unexplained part	0.107***	(0.016)	0.127***	(0.017)

Results
Oaxaca-Blinder decomposition

Explained part decomposition				
	2014		**2015**	
Education	-0.023***	(0.005)	-0.024***	(0.005)
Work experience	0.002	(0.002)	0.005**	(0.002)
Occupation	-0.034***	(0.010)	-0.032***	(0.011)
Region	-0.008**	(0.004)	-0.006**	(0.003)
Degree of urbanisation	-0.006***	(0.002)	-0.006***	(0.002)
Sector of economic activity	0.007**	(0.004)	0.015***	(0.004)
Firm size	0.004**	(0.002)	0.002	(0.002)
Firm ownership sector	-0.010***	(0.003)	-0.018***	(0.004)
Contract type	-0.006**	(0.003)	-0.004**	(0.002)
Part-time/full time	-0.002	(0.003)	-0.001	(0.002)

Results
Oaxaca-Blinder decomposition

Unexplained part decomposition				
	2014		**2015**	
Education	-0.017	(0.012)	-0.013	(0.015)
Work experience	0.057	(0.043)	0.031	(0.044)
Occupation	-0.010	(0.024)	0.122***	(0.045)
Region	0.000	(0.002)	0.001	(0.003)
Degree of urbanisation	0.006	(0.017)	0.001	(0.019)
Sector of economic activity	0.063**	(0.031)	0.035	(0.035)
Firm size	-0.001	(0.005)	0.001	(0.004)
Firm ownership sector	0.018	(0.036)	0.109***	(0.026)
Contract type	-0.048	(0.053)	0.036	(0.064)
Part-time/full time	-0.007*	(0.004)	0.001	(0.004)
Constant	0.045	(0.088)	-0.196*	(0.102)
N	3,593		3,476	

Notes: Negative values reduce gender pay gap, whereas positive values increase gender pay gap. Robust standard errors (S.E.). *** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' calculus

Results
Oaxaca-Blinder decomposition

- Variables that increased explained part of the gap in 2014 and 2015 were:
  - Education
  - Occupation
  - Region
  - Degree of urbanisation
  - Firm ownership sector
  - Contract type
- Variables that reduced explained part of the gap were:
  - Work experience (2015)
  - Sector of economic activity (2014 & 2015)
  - Firm size (2014)

Results
Oaxaca-Blinder decomposition

- Sector of economic activity increased unexplained part in 2014

- Part time/full time reduced unexplained part in 2014

- Occupation and firm ownership sector increased the unexplained part in 2015

- Constant was significant in 2015

Results
Selmlog procedure

- Selection variables were not significant in 2014

- Selection into employment and inactivity were significant in 2015

- Adjusted gender pay gap amounted to 9.9% in 2014 and 10.1% in 2015
  - Selection explained part of the gender pay gap in 2015

Conclusions

- Oaxaca-Blinder decomposition technique is used to estimate gender pay gap in Serbia in 2014 and 2015
- Explained part of the gap is negative
  - Characteristics of employed women are better than employed men
- Unexplained part of the gap amounted to 10.7% in 2014 and 12.7% in 2015
  - Also include unobservables
- Wage differences between men and women in Serbia is the consequence of both difference in characteristics and discrimination
- Gender pay gap corrected for selection effect remained unchanged in 2014
  - It slightly reduced in 2015
- Gender pay gap persists in Serbia