PAGE
policy analysis on growth and employment

Gender pay gap in times of austerity

RESEARCH PROPOSAL

Presented to

Partnership for Economic Policy (PEP)

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Before you begin

Please consult the following webpages/documents regarding PEP's expectations in terms of:

- Specific policy issues to be addressed (and conditions to be met) by projects supported under this call
- Scientific content of eligible research project proposals
- PEP requirements in terms of policy engagement and research communication

Please note that :

- This template is mandatory for proposals of projects submitted under the PMMA and MPIA groups, i.e. that do not involve data collection
- Plagiarism is strictly forbidden – see note on "references and plagiarism" at the end of this document/template. PEP will be using a software program to detect cases of plagiarism.
- PEP encourages applicant research teams to submit proposals in English, but content (in text boxes below) may also be written in French or Spanish (and will be accepted given proper justification of language barrier).

There are three main areas/dimensions to all PEP-supported projects: research, capacity building and policy engagement/impact. The PEP proposal template is structured around these three dimensions. Each section must be completed with due care and attention, as they are reviewed individually and concurrently to assess the overall quality of a proposal.

SECTION I – RESEARCH

1.1. Abstract (100 to 250 words)

The abstract should state the main research question, the context and its relevance in terms of policy issues/needs in relation to PAGE thematic foci, complete with a brief description of the methodology(ies) and the data that will be used.

Responding to high fiscal deficit in the country, Serbian Government introduced a set of austerity measures at the beginning of 2015. The measures included a cut in the public wages which is more likely to hit female earnings and increase the gender wage gap that already stood at high 14%. Workforce downsizing, another component of the same fiscal consolidation program, that prompted transitions to retirement or to the private sector, are likely to further influence the size of the gander pay gap. Aim of our research project is to estimate the effects of the austerity measures on the size and distribution of the gender pay gap, as well as on the labour market transitions, using wage decomposition, quantile regression and panel data methods on Labour Force Survey (LFS) data from 2014 to 2016.

Our research findings are important for policy making process in Serbia for several reasons. First, it will show that gender sensitive policy making is still not a common practice, as austerity policies

have been drafted without any prior analysis about possible impact on existing gender inequalities. Second, our intention is to show that one of the most important provision of Law on Gender Equality that stresses the "right to equal pay for equal work or work of equal value by the employee" is being violated in practice.

1.2. Main research questions and contributions

Explain the focus (or key questions) of your research and its policy relevance.

Explain why you think this is an interesting research question and what the potential value added of your work might be (knowledge gaps). You might want to explain whether or not this question has been addressed before in this context (including key references), and if so, what do you wish to achieve (in addition) by examining the question again?

The gender gap in earnings is undoubtedly one of the most persistent labour market characteristic of modern economies (Albrecht, Björklund, & Vroman, 2003; Altonji & Blank, 1999; Antonczyk, et al., 2010; Blau, 1998; Blau & Kahn, 1992, 1996, 1997, 2000, 2003; Karamessini and Rubery, 2013; Kassenboehmer & Sinning, 2014; Perugini & Selezneva, 2015). In spite of all efforts of the European Union (EU) to achieve the goal of equal pay, statistics show a persisting gender pay gap of 16.1% on average for the EU 28 Member States[1].

In Serbia, the gender pay gap increased from 7% in 2010 to 11.5% in 2014 (Žarković-Rakić & Vladisavljević, 2016). Although the gap is lower compared to the EU-28 average, unlike in western economies, where the gap is explained by better labour market characteristics of men, such as higher frequency of better-paid occupations, more working experience or working longer hours (Echrenberg & Smith, 2010), in Serbia, employed women have better labour market characteristics than employed men: higher percentage has tertiary education and they are more often find in better paid occupations than man (Avlijaš et al, 2013; Vladisavljević et al, 2015). Thus, when adjusted for these characteristics the gap is higher and it amounts to almost 14% according to the latest available data (Žarković-Rakić & Vladisavljević, 2016).

Fiscal deficit in Serbia in 2014 stood at 6.6% of GDP, being the single largest in Europe, which is why as of the January 2015 the government imposed the fiscal consolidation program. The main pillars of the program were cut in pension and public wage bill, since the pension bill was amounting to 13% of GDP (5 pp higher than the CEE average) and the wage bill was exceeding 10% of the GDP (2 pp higher than the CEE average). The program implied reduction of public wages exceeding the minimum wage by 10%. The same formula was applied to the entire public sector and the state-owned enterprises employees (the SOEs are obliged to pay into the central budget the amount of savings generated through cut in wages every month). According to fiscal consolidation programme, salaries in the public sector will be frozen until 2017.

Given that 44.5% of women work in the public sector, compared to 37.7% of men (SORS, 2015), we expect that through a cut in public sector wages their average earnings would be, overall, more

[1] http://ec.europa.eu/eurostat/statistics-explained/index.php/Gender_pay_gap_statistics

affected by the fiscal consolidation than average male earnings and that this will boost already high and increasing gender wage gap.

But besides this direct, first round effect of wage cuts on the gender pay gap, austerity measures could influence the gap via other mechanisms as well. First of all, as a result of the reduction in wages, public sector could become less attractive to workers and they might decide to move to the private sector, or to unemployment or even inactivity. Given large informal sector in Serbia (23% of employed), there might be some transitions to this sector as well. Labour market transitions may have implications for the structure of employees and in that way a second round effect on the gender wage gap. Previous research shows that men have greater flexibility and mobility so they could be more prone to decide to look for a better paid jobs in the private sector (Felfe, 2012; Bertrand, 2011). On the other hand, due to austerity measures in Serbia, women near the retirement age (60 years) have been urged to leave the public sector, even though according to the law they have a right to retire at the age of 65, similar to man.[2] Given that these women are with the longest years of service in the public sector and thus having the highest wages, we could expect this to influence the size of the gander pay gap as well.

Secondly, austerity policies in the form of penalised access to early retirement and postponement of retirement age are likely to reduce the reliance on grandparents in taking care of the children and increase the burden on women in taking care of the household. As previous research shows, Serbia is among countries that relies heavily on informal care arrangement in the form of grandparents support (Žarković-Rakić and Vladisavljević, 2016). The share of children between the age of 3 and the mandatory school age cared for through formal arrangements is 30 percentage points below the Barcelona target, while the same share for under-3-year-olds is 17 percentage points below the target.[3]Given women's role as primary care givers there is a higher probability that they will be the ones to leave the job or shift to part time employment when care services are in short supply. Furthermore, less flexibility of female labour supply could reduce their bargaining power vis-à-vis the employer and increase the probability of discriminatory practices. It could also reduce the capacity of women to attain high-paid jobs (in high-paid sectors/occupations). Thus, the first aim of our project proposal is to estimate the impact of public sector wage cuts and subsequent labour market transitions on the overall size of the gender pay gap.

The second aim of our research is to investigate into more details the changes in the size of the gender pay gap at different parts of the wage distribution, as well as the changes in the gap across different sectors and occupations. Previous studies for Serbia, based on the Labour Force Survey data, showed that the unadjusted gender pay gap in the public sector is much lower than in the private sector. However, when accounted for the differences in the labour market characteristics gender pay gaps are almost the same across the two sectors (Vladisavljević et al 2015; Žarković-Rakić & Vladisavljević, 2016). Furthermore, the gap has been the highest for the low-paid jobs (such as

[2] Reduction of the public sector workforce (excluding state owned enterprises) by 5% each year in the 2015-2017 period are part of the same austerity package. However, during 2015 the government didn't not reach a 5% target given that mainly employees close to retirement age left the public sector.

[3] According to the Barcelona targets, set up in 2002 at the Barcelona Summit by the European Commission, at least 90 percent of children between 3 years of age and the mandatory school age and at least 33 percent of children under 3 years of age should be cared for through formal arrangements such as nurseries and preschool institutions.

service and sales workers, craft and trades workers and plant and machine operators), as well as in industry and traditional services (Avlijaš et al, 2013). Finally, the gender pay gap varies significantly across the wage distributions, and the trends are different in the public and private sectors. While in the private sector the gender pay gap is the highest at the top of the wage distribution (so called "glass-ceiling" effect), in the public sector the gap is equal at all parts of the wage distribution. The effects of the fiscal consolidation are expected to be more pronounced in the middle of the wage distribution given that lower wages are exempted from the wage cuts, while for the higher wages the 10% cut practically replaced the 'solidarity tax' that was previously in place (affecting only those earnings above the average wages).

Recently, a group of feminist economist have argued that the gender equality in the Europe and USA are under the attack of the austerity measures: "austerity measures undermine women's progress towards equality in paid work and economic independence and may provoke an ideological backlash favouring a return to traditional gender roles and backward-looking gender contracts" (Karamessini & Rubery, 2013). Namely, besides public sector pay reduction and/or freeze, fiscal consolidation measures in the European Union have also been responsible for cuts in social expenditures going to welfare transfers and to a range of social services that support women access into the labour market. Furthermore, in the longer run, austerity is expected to have negative effects on access to services that support women as carers, thus pushing them to increase unpaid domestic labour given that they had already lost their jobs. Austerity episode, as Karamessini & Rubery (2013) further argue, is one of the latest examples that: " The policies in the EU are commonly being enacted without reference to the notion of gender mainstreaming, despite commitments to this principle by the EU from 1995 onwards".

In Serbia, newly formed government body, Public Policy Secretariat, has drafted a *Regulation on Public Policy Management, Policy and Regulatory Impact Assessment, and Content of Individual Public Policy Documents*. This document obliges government bodies to conduct a preliminary gender equality test for each policy option before its implementation. The policy option that creates a gap of at least 20% in favour/to the detriment of women or men shall require a full gender equality impact analysis. Regulation is expected to be enacted this fall. By promoting our findings, we will stress the importance of gender sensitive policy making, that is, show what are the consequences of policies that are implemented without considering gender implications.

Furthermore, our research will prove to be policy relevant in addressing the Law on Gender Equality. The law stresses the "right to equal pay for equal work or work of equal value by the employee", and this research will, by providing latest estimates of the size and distribution of the gender pay gap, show to all interested stakeholders (policy makers, other researchers, media) that these provisions are violated in practice.

Finally, the causes of the gender pay gap are complex and include "indirect discrimination, greater difficulties for women in balancing work and private life, segregation in the labour market, and stereotypes that influence the evaluation and classification of occupations or the choice of education undertaken by men and women," (Foubert, 2010). Re-addressing the balance on the labour market between men and women and supporting policies of equal opportunities is important for economic and social development of Serbia. "The economic independence of women is a precondition for

greater influence on decision-making, better access to healthcare, better education and greater protection against potential violence," (Babović, 2008). The gender pay gap has to be addressed by informing all the stakeholders, including government, at different levels, as well as the non-government organisations, on the reasons behind persisting gender wage inequalities (Foubert, 2010). Stressing this through a dissemination phase of our project will be an additional value added of this research.

1.3. Methodology

Presentation of the specific techniques that will be used to answer the research questions and how exactly they will be used to do so. Explain whether you will use a particular technique normally used in other contexts or whether you intend to extend a particular method and how you will do so. Explain if these methods have already been used in the context you are interested in (including key references).

Empirical part of the research will start with the analysis of changes in the employment rates and the employees' occupational and sector structure by gender. We will also address changes in the gender wage gaps by occupations, activity sector and sector of ownership throughout the 2014-2016 period. This will be followed by the analysis of the gender wage gaps over the same set of years.

Unadjusted and adjusted gender wage[4] gap

The most important methodological concepts of the gender wage gap analysis are the unadjusted and the adjusted gender wage gap. The unadjusted gender wage gap is a simple difference between average hourly wages of woman and man, expressed as a percentage of male wages (Eurostat, 2015). However, this gap is partially the result of the gender differences in other workers' characteristics, such as education, work experience, occupation, etc. Using regression analysis, in which the log hourly wages $\ln(w_i)$ are regressed on gender F_i and other characteristics $\boldsymbol{X}_{ki}^{'}$, these differences are statistically controlled and this allows us to estimate an adjusted gender wage gap:

$$\mathrm{y_i} = \ln(w_i) = \alpha + \beta F_i + \boldsymbol{X}_{ki}^{'}\boldsymbol{\theta}_k + \varepsilon_i \qquad (1).$$

The coefficient β represents the adjusted gender wage gap, $\boldsymbol{\theta}_k$ are the returns to characteristics $\boldsymbol{X}_{ki}^{'}$, while ε_i is the error term. In all regression specifications, the dependent variable is, prior to logarithmic transformation, deflated with the Consumer Price Index (CPI), using Q1 2014 as baseline. The vector of characteristics $\boldsymbol{X}_{ki}^{'}$ includes the following variables: education, working experience, age, marital status, settlement and region, occupation, sector of activity, sector of ownership, size of the firm and type of contract (permanent vs. temporary; full time vs. part time).

Blinder-Oaxaca decomposition

[4] In the data, information on pay is available only for the wage employed. Therefore, we use the term gender wage gap instead of gender pay gap

In order to assess the gender wage gap in Serbia in the observed years, beside the wage equation (1), we will use the econometric methods of wage decomposition. The analysis will include Blinder-Oaxaca decomposition which is based on the separate earnings equations (equivalent to equation 1) for women and men (Blinder, 1973; Oaxaca, 1973). The main idea of the decomposition is summed up in equation (2): the unadjusted gap in earnings represents the sum of the explained and the unexplained part of the gap:

$$\underbrace{\bar{y}^M - \bar{y}^F}_{Unadjusted\ pay\ gap} = \underbrace{(\bar{\boldsymbol{X}}^M - \bar{\boldsymbol{X}}^F)'\hat{\boldsymbol{\theta}}_k^M}_{\substack{Explained\ part \\ of\ the\ gap}} + \underbrace{\bar{\boldsymbol{X}}^{F'}(\hat{\boldsymbol{\theta}}_k^M - \hat{\boldsymbol{\theta}}_k^F)}_{\substack{Adjusted\ pay\ gap \\ (Unexplained\ part)}} \quad (2)$$

where $\bar{\boldsymbol{X}}^F$ and $\bar{\boldsymbol{X}}^M$ represent vectors of average female and male workers' characteristics (education, work experience, etc.) and $\boldsymbol{\theta}_k^F$ и $\boldsymbol{\theta}_k^M$ returns to these characteristics from female and male earnings equations respectively.

The explained part of the gap is due to the different labour market characteristics (education, work experience, etc.) of employed men and women ($\bar{\boldsymbol{X}}^M - \bar{\boldsymbol{X}}^F$), which are weighted by the returns from the male earnings equation ($\hat{\boldsymbol{\theta}}_k^M$)[5]. When the Blinder-Oaxaca BO decomposition was developed, employed men had better labour market characteristics then employed women in the western economies (Altonji & Blank, 1999), so the unadjusted gender wage gap could be partially explained by the better characteristics of men. In the literature, explained part of the gap is also called the *quantities* or the *endowments effect*.

Unexplained part of the gap is equivalent to adjusted gender wage gap. The equation 2 shows that it is the result of the differences in (wage) returns to characteristics between the genders $\hat{\boldsymbol{\theta}}_k^M - \hat{\boldsymbol{\theta}}_k^F$ (weighted by the female characteristics $\bar{\boldsymbol{X}}^{F'}$[3]). In the literature, the unexplained part of the gap is also referred to as the *prices* or the *coefficients effect*.

Beside the estimation of the explained and unexplained part of the gap, Blinder-Oaxaca decomposition enables us to isolate the effect of each labour market characteristic on both parts of the gap. Therefore, it is possible, for example, to assess which part of the gap is due to differences in the level of education, in work experience, and so on (Jann, 2008).

To account for the differences in the selection effects, we will apply the Neuman-Oaxaca extension of the Blinder-Oaxaca decomposition (Neuman & Oaxaca, 2004). Neuman and Oaxaca extend the Blinder-Oaxaca decomposition approach by replacing Mincer wage equations with the selectivity corrected (Heckman) wage equations. This results in the extension of the twofold Blinder-Oaxaca decomposition (2) with the effects of the differences in selection bias:

$$\underbrace{\bar{y}_i^M - \bar{y}_i^F}_{Unadjusted\ wage\ gap} = \underbrace{(\bar{\boldsymbol{X}}_i^M - \bar{\boldsymbol{X}}_i^F)'\hat{\boldsymbol{\theta}}_k^M}_{Explained\ gap} + \underbrace{\bar{\boldsymbol{X}}_i^{F'}(\hat{\boldsymbol{\theta}}_k^M - \hat{\boldsymbol{\theta}}_k^F)}_{Unexplained\ gap} + \underbrace{(\hat{\theta}_\lambda^M \hat{\lambda}_i^M - \hat{\theta}_\lambda^F \hat{\lambda}_i^F)}_{Selection}.$$

In the above equation $\hat{\theta}_\lambda^M$ and $\hat{\theta}_\lambda^F$ are the estimates of the selection bias effects for men and women

[5] The choice of weights can be different and it depends on the researcher's choice (Jann, 2008).

respectively, while $\hat{\lambda}_i^M$ and $\hat{\lambda}_i^F$, are inverse Mills ratio's (IMR), calculated using the first-stage probit from Heckman wage equations, separately for men and women. Beside variables that are to be included in the wage equation (education, age and its square, marital status, settlement and region) the first stage probit (selection) equation will include the following selection variables: the number of children and elderly, their share compared to the overall number of household members (dependency ratio), household head identifier and regional unemployment rates. The relevance of these selection instruments will be analyzed through sensitivity checks in order to investigate endogeneity and strength of the instruments. Previous research for Serbia indicates that these variables are sufficient to enable selection equation identification (Anić et al, 2016; Žarković-Rakić et al, 2016).

Finally, in order to investigate the gender differences at different parts of the wage distribution, we use Machado and Mata (2005) decomposition, and estimation approach proposed by Melly (2007), which can be considered as a generalization of the Blinder-Oaxaca method. The difference in wages at the τ th quantile between male and female employees ($\hat{Q}_y^M(\tau)$ and $\hat{Q}_y^F(\tau)$) can be decomposed as:

$$\hat{Q}_y^M(\tau) - \hat{Q}_y^F(\tau) = \underbrace{(\hat{Q}_{\theta^F X^M}(\tau) - \hat{Q}_y^F(\tau))}_{Differences\ in\ characteristics} + \underbrace{(\hat{Q}_y^M(\tau) - \hat{Q}_{\theta^F X^M}(\tau))}_{Differences\ in\ coefficients}$$

The first term on the right hand side is due to the differences in the characteristics between the male and female workers earning wages at the τ th quantile of the male and female wage distributions. The second term on the right hand side, as before in the Blinder-Oaxaca decomposition, is the part that cannot be explained by the differences in characteristics, which is the result of the differences in the returns.

Beside the Blinder-Oaxaca decomposition and its extensions, the analysis will include JMP (Juhn, Murphy & Pierce, 1993), DFL decomposition (DiNardo, Fortin & Lemieux 1996) and Nopo decomposition (Nopo, 2008). JMP and DFL differ from the Blinder-Oaxaca decomposition, in that they explicitly take into account the distributions of the male and female wages. As we already mentioned, the austerity measures hit wages differently at different parts of the wage distribution, so these methods are particularly convenient for addressing our research question. On the other hand, Nopo decomposition applies matching approach to the calculation of the gap (Nopo, 2008) and represents a way to perform a robustness check for other methods.

By using the above mentioned methods, we will first estimate unadjusted and adjusted gender wage gaps for each year separately, as well as for ownership sectors (public vs. private).

Estimating the changes in the gaps

In order to asses changes in the adjusted gap, we will pool the data from different years and extend the wage equation (1) to include the time effects T_t and the interaction of time and gender $T_t F_i$:

$$y_{it} = \ln(w_{it}) = \alpha + \beta F_i + \gamma_t T_t + \delta_t T_t F_i + \boldsymbol{X}'_{kti}\boldsymbol{\theta}_k + \varepsilon_{it} \qquad (3)$$

The coefficient β represents the adjusted gender wage gap in 2014, vector γ represents the wages' time trend, while vector $\boldsymbol{\delta}$ is the estimation of the changes in the gender wage gap. The expression ε_{it} includes cluster standard errors, accounting for the same individuals in different periods. We will also adapt the above mentioned decomposition methods to study the changes in the gaps, following the previous research of the gap changes (e.g. Antonczyk, et. al, 2010; Karamessini & Rubery, 2013; Kassenboehmer & Sinning, 2014). This will enable us to decompose the changes of the gender wage gap into the changes in gender differences in characteristics and returns.

LFS data are collected on a quarterly basis and the rotating panel is based on the 2-2-2 system, in which each family is: first selected into the sample for two waves, then for the two waves it is out of the sample, and then once again two times selected into the sample. However, as only about 50% of the households remain in the sample for the same quarter of two consecutive years, the sample for the panel analysis is considerably reduced compared to the overall sample. Our initial estimates for 2014 and 2015 show that only 22% of the sample remains in the data due to attrition.

We will use the panel data to: to apply the panel data econometric techniques to corroborate the results of the cross-section analysis. The application of the panel data methods is especially useful in dealing with the selection and potential endogeneity problems (Fortin et al, 2011). The estimation of the model (3) due to the application of the FE panel data model would be changed to

$$y_{it} = \ln(w_{it}) = \alpha_i + \delta_t T_t F_i + \boldsymbol{X}'_{kti}\boldsymbol{\theta}_k + \varepsilon_{it} \qquad (3a)^6$$

Where α_i are individual fixed effects, vector $\boldsymbol{\delta}$ presents estimation of the changes in the gender wage gap in 2015 and 2016, while ε_{it} it an independent and identically distributed stochastic term. The estimation of the model will be based on the panel fixed effects model. We will additionally apply the model proposed by Bargain and Kwenda (2014) which combines propensity score matching techniques with the fixed effects panel methods, to check the assumption of the linearity of the individual characteristics' effects.

However, due to considerable sample reduction, and our interest in the effects of the time-invariant factors (such as education, working experience, age, marital status, settlement and urban) we use this methodology only as additional to the cross-section analysis.

The effects of the labour market transitions on the gender pay gap

Additional advantage of the panel data set is the fact that it enables us to assess the labour market transitions of the workers between the years and possible effects of the transition on the gender wage gap. In order to take into account the unobserved time-varying individual effects from the analysis of the transitions and their effects on wages we will use the endogenous switching regression (ESR) models. ESR models enable us to calculate the expected wages if the sector of the

[6] Model could be revised after the LFS data for 2016 are collected, as we currently do not know the full structure of the panel data.

worker is switched (i.e. what would be the public-sector workers' wages if they move to the private sector and vice versa).

1.4. Data requirements and sources

This is a critical part of the proposal. The key issue is to explain the reason for the use of the particular data. You must establish that they are ideal for the question you wish to address and that you have or will have access to these data before your project begins. Please consult the "Guide for designing a research project proposals" for more detail.

To calculate the descriptive statistics and perform the econometric analyses we will use micro-databases from the Labour Force Survey. The survey, conducted by the Republic Statistical Office of Serbia (SORS), provides nationally and regionally representative data on the labour market in Serbia, and represents the essential instrument for the comparative assessment of labour market indicators in Serbia and the European Union. Data include weights, calculated by SORS, which are used to correct descriptive statistics and econometric estimates for the likelihood that the household is selected to the sample from the population of Serbian households.

We will use the LFS data from 2014, 2015 and 2016, so that we can investigate the impact of the austerity measures implemented at the beginning of 2015. The analysis of the data from 2014 serves as a bench-mark for the changes that occurred at the beginning of 2015. The analysis of the data for 2015 will show the first round (short-term) effects of the austerity measures, while the analysis of the data from 2016 will serve to estimate the second round (mid-term) effects of the austerity measures on the gender wage gap.

LFS is the only data which includes all the information necessary to perform the analysis described in the methodology section: wages, demographic and other workers characteristics (gender, age, education, etc), job characteristics (hours worked, occupation, sectors of activity and ownership, etc) as well as the regional and household identifiers.

The sample for each quarter consists of five rotating groups which are independent subsamples and each subsample is representative of the whole population. Each of the subsamples rotates based on the 2-2-2 system, in which each subsample is: firstly selected into the sample for two waves, than is out of the sample for the two waves, and then once again two times selected into the sample. This enables the possibility to analyze the LFS data in the form of a panel.

The complete data for 2016 will be available in March 2017. For years 2014 and 2015, we have analyzed the data in detail. There are 11,762 individuals found in four waves (maximum according to 2-2-2 rotation plan), out of which 4,052 were employed at the time they first entered the rotation panel. This amounts to total of 47,048 observations (4*11,762), which makes 22.5% of the total sample for both years (208,916). Each subsample within the whole sample is representative of the whole population so the attrition should, although not random, be relatively consistent.

Due to relatively large attrition, we think that the main estimates of the gender gaps from 2014-2016 should be done on the pooled data rather than on the panel sample. The panel data structure will serve as additional way to analyze the data and will provide additional check of how unobserved effects accounted by the panel data impact the gap. Furthermore, the panel analysis enables us to investigate how the inter-sectoral movements (informal-formal; public-private etc) affect the gender wage gap.

SECTION II – CAPACITY BUILDING

2.1. List of team members

For all team members, please indicate the age sex, as well as relevant/prior training and experience in the issues and research techniques involved (start with team/project leader).

Note that PEP favors gender-balanced teams, composed of one senior (or experienced) researcher supervising a group of junior researchers, including **at least 50% female researchers,** all contributing substantively to the research project. PEP also seeks gender balance in team leaders and thus positively encourages female-led research teams. (Each listed member must post an up-to-date CV in their profile on the PEP website – refer to "How to submit a proposal")

Name	**Age**	**Sex** (M,F)	**Training and experience**
Jelena Zarkovic Rakic	37	F	PhD in Economics (public economics) 12 years in teaching Active researcher for 7 years, with focus on tax and benefits impact on inequality, poverty and labour market incentives with focus on labor market and social policy issues Consultant for World Bank since 2009 (on short-term basis) Training for government analysts on the use of micro-simulation methods in ex-ante policy evaluation
Marko Vladisavljevic	33	M	MSc in Economics, PhD student Active researcher for 6 years, with focus on gender inequality, labor market, econometric analysis and poverty Consultant for World Bank since 2013 (on short-term basis) 2 years of teaching experience

Ivana Prokic	24	F	BA in Economics Active researcher for 1 year, focusing on data management and econometric analysis
Ivana Poljak	23	F	BA in Economics Active researcher for 6 months, focusing on gender inequality

2.2. Expected capacity building

Describe the research capacities that team members (and potentially their affiliated institutions) are expected to build through their participation in this project.

This is an important aspect in the evaluation of proposals and should be presented with detail. What techniques, literature, theories, tools, etc. will the team and their institutions learn (acquire in practice) or deepen their knowledge of? How will these skills help team members in their **career development**? What are the current state of knowledge of each team members in regard to the project you are proposing?

Name	Benchmark and expected capacity building
Jelena Zarkovic Rakic	Good knowledge of legal and regulatory framework on gender equality. Jelena expects to establish new contacts with experts and policy makers focused on gender equality issues.
Marko Vladisavljević	Good knowledge of econometric techniques investigating the gender wage gap. Marko seeks an opportunity to expand his knowledge to the more advanced econometric analysis of the gender inequality. As the topic of Marko's PhD thesis is the public sector wage premium, which is also investigated via decomposition techniques, the work on this project will also improve the quality of his PhD thesis.
Ivana Protić	Good knowledge of data analysis. Ivana wants to improve her writing and academic skills, and become familiar with new econometric techniques.
Ivana Poljak	Good knowledge of the state of gender inequality in Serbia. Ivana wants to improve her writing skills, gain competencies in transferring research results to policy recommendations.

Add comments and describe institutional capacity building if applicable.

As in other post-socialist countries, the level of research in social sciences in Serbia is not entirely satisfying. Social sciences have been influenced by the ruling communist ideology and for decades detached from mainstream thinking. Also, research findings have not been used in public policy

making. Our think tank, FREN, aims to contribute to the increase in the overall level and quality of research in economics in the country, with particular focus on labor market and social welfare issues. Most of our projects contribute to the evidence based policy making and this proposed research will be one of that kind. With pursuing it we hope to increase the visibility of our think tank among stakeholders (policy makers, other think tanks and researchers and the media) in the area of gender issues. We expect to become more competent in translating our research findings into easily understandable messages to the stakeholders.

Indicate which specific tasks each team member would carry out in executing the project.

- Note that one of the team members must be clearly identified as responsible for coordinating and reporting on the design/implementation of the projects' policy engagement and communication strategy (see section III below). To achieve a more balanced task distribution, PEP advises to select a member other than the project leader.

Name	**Task and contribution to the project**
Jelena Zarkovic Rakic	Project leader. Tasks: coordinating work, literature overview, relevance of the research project for the current social and labour market policies, writing up of results and feedback, leading dissemination activities.
Marko Vladisavljevic	Senior researcher. Tasks: econometric data analysis, writing up of results and feedback, literature overview (econometrics).
Ivana Prokic	Junior researcher. Tasks: data analysis, overview of policy literature on the gender pay gap and relevant country responses.
Ivana Poljak	Junior researcher. Tasks: relevance of the research project for the current social and labour market policies and for the gender equality agenda, especially women's economic empowerment, responsible for coordinating and reporting on the design/implementation of the projects' policy engagement and communication strategy.

2.3. **List of past, current or pending projects in related areas involving team members**

Name of funding institution, title of project, list of team members involved

Name of funding institution	**Title of project**	**Team members involved**
World bank	Women's access to economic opportunities in Serbia	Jelena Žarković-Rakić Marko Vladisavljević
European Commission	Achieving effective policy	Jelena Žarković-Rakić

	monitoring and evaluation through evidence supplied by the civil society	
Government of Serbia, Social Inclusion and Poverty Reduction Strategy Unit	Evaluation of the Package of Services for Youth and Active Employment Policy Measures Aimed at Youth	Jelena Žarković-Rakić Ivana Poljak
Justice Department of the European Commission	Network of experts in the field of gender equality	Marko Vladisavljević
Government of Serbia, Social Inclusion and Poverty Reduction Strategy Unit	Policy Impact Analysis - from inactivity to employment: Opportunities for Raising Activity and Employment in Serbia	Jelena Žarković-Rakić Marko Vladisavljević
Swiss Agency for Development and Cooperation, Regional Research Promotion Program	Gender pay gap in the Western Balkan Countries: Evidence from Serbia, Montenegro and Macedonia	Marko Vladisavljević
UN Women	Gender Impact Analysis of Selected Support Measures for Entrepreneurship in Serbia	Marko Vladisavljević

SECTION III – POLICY ENGAGEMENT

3.1. Policy context and needs

Describe the specific policy issues or needs that your research aims to address; how your potential outcomes and findings **may be used in policy making**? Please be as precise as possible, indicating specific current or prospective policies and the specific contributions your research would make.

Also, justify **timing** of your research in terms of policy and socioeconomic **needs** and **context** – e.g. reference to existing, planned or potential policies at the national, regional or local level; specific political context; international examples of similar policy problem or solution, etc.

In 2014 the Government set up the Coordination Body for Gender Equality, which is chaired by the deputy prime minister and consists of two ministers and the secretary general of the government.

The entity examines all relevant issues and coordinates the work of the whole public administration in the gender equality sphere. By assigning it to the Deputy Prime Minister, the government intended to signal that it pays particular attention to the gender equality topic.

Recent policy initiatives of the Coordination Body include adoption of the new National Strategy for Gender Equality for the 2016-2020, which has three main objectives: 1) to promote culture of gender equality; 2) to increase equality of women and men by applying policies and measures of equal opportunities; 3) to apply systemic gender mainstreaming in decision making, implementation and monitoring of public policies.

The Coordination Body will be in charge of the overall monitoring of the implementation of the activities included in the strategy. Findings from our research will provide independent assessment of the gender pay gap and in that regard specifically contribute to goals 1 and 2.

In the "Serbia Progress Report," the European Commission (EC 2014b) emphasized that, although entities exist in Serbia that are responsible for implementation and the associated legislation on antidiscrimination and gender equality, effective implementation remains a major challenge. Our research intends to confirm this conclusion regarding the policy of equal pay included in the existing Law on Gender Equality. This is an important message for the Coordination Body that announced the drafting of the new Law on Gender Equality as reiterating the article on equal pay would not bring much change unless obstacles to the implementation of that provision in practice are not further discussed and challenged.

3.2. Consultations to date

List all (past) consultations with potential research users (e.g. policy makers or stakeholders) that have helped define your research question, and/or informed you of the specific policy context described above. Include a list of names, institutions and email addresses (add rows when needed).

Name	Title	Institution	Email
Jasna Atanasijevic	Director	Public Policy Secretariat	jasna.atanasijevic@rsjp.gov.rs
María Eugenia Dávalos P.	Senior Economist	World Bank Group, Poverty and Equity Department	mdavalos@worldbank.org
Milana Lazic	National Expert for Gender Equality	Coordination Body for Gender Equality	milanalazic@gmail.com
Marija Babovic	Program Director	SeCons think tank	bmarija63@gmail.com
Milana Rikanovic	Project Officer	UN Women Serbia	milana.rikanovic@unwomen.org

3.3. Identify target audiences

Identify potential users of your research findings, including policy makers, advisors and other key stakeholders. Provide a list of institutions and, whenever possible, specific individuals to be targeted for effective policy influence. Please also indicate whether you have already made contacts within the institutions (add rows when needed).

Name	Title	Institution	Email
Jasna Atanasijevic	Director	Public Policy Secretariat	jasna.atanasijevic@rsjp.gov.rs
María Eugenia Dávalos P.	Senior Economist	World Bank Group, Poverty and Equity Department	mdavalos@worldbank.org
Milana Lazic	National Expert for Gender Equality	Coordination Body for Gender Equality	milanalazic@gmail.com
Branka Draskovic	Special Advisor for Gender Equality	Deputy Prime Minister of the Republic of Serbia Office for Gender Equality	bdraskovic@fefa.edu.rs
Marija Babovic	Program Director	SeCons think tank	bmarija63@gmail.com
Milana Rikanovic	Project Officer	UN Women Serbia	milana.rikanovic@unwomen.org
Gordana Stevanović	Deputy Ombudsman for gender equality	Ombudsman of Republic of Serbia	rodnaravnopravnost@zastitnik.rs
Ivan Sekulović	Manager	Government of Serbia, Social Inclusion and Poverty Reduction Strategy Unit	ivan.sekulovic@gov.rs
Ljiljana Dzuver	Assistant minister	Minister of Labour, Employment,	ljiljana.dzuver@minrzs.gov.rs

		Veteran and Social Policy	

3.4. Define outreach and engagement strategy

How, from proposal design to the dissemination of your research results, will you consult and communicate with these users to both gather their inputs and keep them informed of your project, in order to increase chances of research uptake? You can refer to PEP requirements in terms of policy engagement and research communication to have a better idea of what is expected in terms of grantees' initiatives in this area

FREN, think tank where we all work, is well known for its analysis in the labour market and social policy sphere. We completed several projects focused on gender topic and presented our findings to a range of stakeholders. Since 2014 we have been cooperating with the World Bank not only in terms of performing analysis for them regarding gender equality, but also through taking part in number of round tables and meetings when this topic was discussed. We intend to share with them results of our research, invite their representatives at the final project conference and present our findings when asked to participate at the round tables they organize.

Last year, when we presented findings from our research *Women's access to economic opportunities in Serbia,* contacts with the Coordination Body for Gender Equality, central government body that consider all matters and coordinate the work of public authorities with respect to gender equality in Serbia, have been established and we have been invited at the number of events that they organized. We will keep them informed about our project through direct contact with their experts, Ms Milana Lazic i Mrs Branka Draskovic, and we will also invite them at our final project conference. Similarly, we will use every other opportunity when invited to attend the events that the Coordination Body organizes, to present our research results.

Ms Babovic is an established expert in gender issues that has provided valuable advice to us during earlier projects dealing with similar topics. We intend to keep her informed about our project through its various phases.

We have done number of projects related to the labour market and social policy issues for the SIPRU team and the Ministry for Labour and Social Affaires and one for the UN Women. We have established excellent relations with representatives from these institutions and plan to inform them about our research results as well as to invite them to the final project conference.

3.5. Outline your preliminary dissemination strategy

Identify potential and relevant communication channels (e.g. direct stakeholder meetings, conferences, media/press, web platforms, etc.) through which you will be able, or attempt, to communicate and disseminate your research and research findings.

Name	Title	Institution	Email
Jasna Atanasijevic	Director	Public Policy Secretariat	jasna.atanasijevic@rsjp.gov.rs
María Eugenia Dávalos P.	Senior Economist	World Bank Group, Poverty and Equity Department	mdavalos@worldbank.org
Milana Lazic	National Expert for Gender Equality	Coordination Body for Gender Equality	milanalazic@gmail.com
Branka Draskovic	Special Advisor for Gender Equality	Coordination Body for Gender Equality	bdraskovic@fefa.edu.rs
Marija Babovic	Program Director	SeCons think tank	bmarija63@gmail.com
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Gordana Stevanović	Deputy Ombudsman for gender equality	Ombudsman of Republic of Serbia	rodnaravnopravnost@zastitnik.rs
Ivan Sekulović	Manager	Government of Serbia, Social Inclusion and Poverty Reduction Strategy Unit	ivan.sekulovic@gov.rs
Ljiljana Dzuver	Assistant minister	Minister of Labour, Employment, Veteran and Social Policy	ljiljana.dzuver@minrzs.gov.rs

Outline your preliminary dissemination strategy. Note that PEP expects grantees to disseminate information about their research work and (expected) outcomes throughout the project cycle, and not only after publication.

The findings of this research will be promoted through:

[1] Workshop aimed at creating a platform for debate with key stake-holders in labour market policy making and implementation.

[2] Meetings with stakeholders

[3] FREN website
[4] Working paper and policy brief
[5] Writing up articles for newspapers and writing up blogs
[6] Final project conference
[7] International conferences
[8] Peer–reviewed economic journals

SECTION IV – OTHER CONSIDERATIONS

4.1. Describe any ethical, social, gender or environmental issues or risks that should be noted in relation to your proposed research project.

There are no ethical, social or environmental issues related to this project. The gender balance is ensured in the team. Other risks (e.g. data collection, literature, policy reach, etc.) have been mitigated as data and literature have been provided, while policymaking institutions informed and their interest obtained.

However, full data for 2016 will be available in march 2017. We have a standing agreement with the Republican Statistical Office for the data from LFS and have already acquired the data from 2014 and 2015.

4.2. References and plagiarism:

Applicants should be very careful to avoid any appearance of plagiarism. Any text of three or more consecutive words that is borrowed from another source should be carefully contained between quotation marks with a reference to the source (including page number) immediately following the quotation. It is essential that we be able to distinguish what you have written yourself from what you have borrowed from elsewhere.

Note also that copying large extracts (such as several paragraphs) from other texts is not a good practice, and is usually unacceptable. For a fuller description of plagiarism, please refer, for example, to the following website:

- http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism

PEP will be using a software program to detect cases of plagiarism.

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