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APPLYING MULTIPLE REGRESSION TO DISTINGUISH THE NATURE AND INTENSITY OF LABOR MARKET, POPULATION AND HOUSEHOLD EFFECTS ON GPG ACROSS WORLD ECONOMIES

Abstract:

The aim of the article is to verify and expand knowledge about the existence and nature of the influence of the labor market, the population and the family on the differences in the remuneration of women and men. For age across world economies, negative values outweighed positive values for the NAIRU of women (40 to 44 years) with upper secondary and post-secondary non-tertiary education. For the ownership of economic activity, positive values prevailed over negative ones for the NAIRU indicator of women (30 to 34 years old) with upper secondary and post-secondary non-tertiary education. For the type of employment agreements, the average positive values outweighed the negative ones for the indicator tax rate for people with low income. Our econometric analysis also found a statistically insignificant effect that foreign and domestic research does not mention.

Keywords:

the pay gap between men and women, minimum wage, labour cost index by NACE, inactive population, NEET, NAIRU

JEL Classification: C01, E24, I30

1. Introduction

Macpherson and Hirsch (1995) find that in Sweden, women are paid lower wages in predominantly female occupations because of the skill-related characteristics of their occupation and the ratio of women to total employment in the worker occupation. These occupations also have a greater number of part-time workers and shorter working hours. Fransen, Plantenga and Vlasblom (2012) report that in Dutch sectors still one third of the Gender pay gap (hereinafter GPG) is explained by higher wages in male-dominated sectors than in female-dominated sectors. Women are also less and less represented in higher positions. Waldfogel (1995) reports that the difference between mothers and non-mothers is 22 p.p. in Great Britain. At age 33, more than 50% of the difference is due to marital status (married men are paid more and women with children less). Another 32% of GPG is explained by family status (women with family responsibilities spend more time outside the labor market than other women or men). Smith (2010) finds that the low GPG in EU member states with a low female employment rate (Italy and Malta) are the result of a "selection effect", where women with a higher education with a strong connection to the labor market dominate with a low share of working women. From the material of Desvaux et al. (2007) it follows that it is necessary to rebuild the profiles of top managers in order to reach leadership positions in business through different career paths than is currently the case.

According to Miller et al. (2016), the UK GPG of 19.2% represents a significant productivity loss. Women are better educated and better qualified than ever before, yet their skills are not being fully utilized. Elborgh-Woytek and his team (2013), analyzing world economies, concludes that the reduction of GPG leads to an increase in the employment of women, to an increase in productivity and GDP. Female labor force participation (FLFP) remains lower than men, women make up the majority of unpaid work and, if women are employed in paid work, they are overrepresented in the informal sector and among the poor. Woetzel et al. (2015) in the McKinsey Global Institute (hereinafter MGI) report estimates an increase in global GDP by 2025 due to the achievement of women's equality. Staszewska et al. (2015) state that women's work is vital for sustainable development and for the well-being of society. Without the subsidy it provides, the world economy would not function. Yet it is undervalued and largely invisible. Blau (1996) suggests, based on a comparison of the GPG between the US and Sweden, that policies that change the wage structure, such as promoting centralized wage determination or setting relatively high minimum wages, are an alternative approach to improving women's wage levels.

The analysis of world economies by Samans and Zahidi (2016) shows that the Gender Gap Index is understood as a framework for capturing the size of gender disparities and monitoring their progress over time. It shows that, on average the 144 countries included in the report have closed 96% of the gap in health outcomes between women and men and more than 95% of the gap in education. According to Vohlídalová (2017), one of the areas that people in the Czech Republic consider to be the most equal in terms of chances for women and men is receiving extraordinary benefits and receiving extraordinary remuneration for work done. One area in which, according to the public, women and men do not have equal chances is obtaining a leadership position.

The aim of this article is to assess the presence and nature of the influence of selected indicators of the labor market, population and family on GPG across world economies, to estimate the intensity of their influence on individual segments of selected areas. The second part provides an overview of the results of international theoretical and empirical analyzes and the Czech professional public. The third part characterizes the data sources and the method of analysis. In the fourth part, empirical testing was carried out. The last part summarizes the conclusions from the analysis and comparison with international research, the domestic professional public and strategic documents of the Czech Republic.

2. Overview of the results of international research, the conclusions of the domestic professional public and measures of strategic documents in the area of the influence of selected indicators on GPG

2.1 Conclusions of foreign research on the issue of GPG

Olivetti and Petrongolo (2005) find that the differences in GPG in the US and the UK are much larger than in other European countries and especially in Ireland, France and southern Europe. Rokicka and Ruzik (2010) confirmed the existence of GPG in the formal (registered) and informal (unregistered) labor market in Poland. The size and characteristics of the GPG vary depending on the level of earnings. Meurs, Pailhé and Ponthieux (2010) point out that in France, for the subgroup of men and women between the ages of 39 and 49, it is necessary to take into account the gender wage gap due to career breaks and childless women. Polachek and Xiang (2009) show that GPG across OECD countries is positively associated with fertility rates, the age gap between husband and wife at first marriage, and the upper marginal tax rate, all of which negatively affect women's lifetime labor market participation. Nicodemo (2009) analyzes the pay gap between husband and wife in Mediterranean countries with a strong family tradition. Women who receive low wages are usually less educated with high fertility rates. Family policy (childcare, parental leave and equal opportunities, wage setting institutions or cultural traditions) can then influence GPG. Boll et al. (2016) argue that across EU countries, marriage is more rewarding for employed men than for women.

Smith, Smith and Verner (2010) analyze the GPG of CEOs, vice-chairmen and potential executives in the largest Danish private companies. During the period under review, the GPG of senior managers and potential senior managers decreased from 35% to 31%. Hirsch, König and Möller (2009) show that denser labor markets are more competitive and limit employers' ability to discriminate against women. Oostendorp (2004) found that GPG by occupation decreases with growth in GDP per capita in 80 countries; the impact of trade and foreign direct investment on GPG in low-skilled occupations narrows significantly.

Šilingiene and Radvila (2014) show that the gender wage gap is one of the most important economic and social problems of the Baltic countries. According to Planteng and Remery (2006) the persistence of GPG requires policies aimed both at increasing women's participation in the labor market and at institutional factors (wage formation systems and the overall level of wage inequality). Rubery, Grimshaw and Figueiredo (2005) state that the European Employment Strategy includes a commitment to substantially reduce GPG in EU member states.

2.2 Opinions of the professional public on the issue of GPG in the Czech Republic

Rentaprozivot (2016) claims that the reason for the differences in the Czech Republic is the division into female and male occupations. Purely female occupations are destined to have lower salaries (e.g. in healthcare, education, care services). Platy.cz (2014) states that women are paid the most fairly in Central Bohemia and Karlovy Vary. Novinky.cz (2018) states that in the Czech Republic a woman is often judged for not staying at home.

The Gender Information Center NORA (2017) included the implementation of gender audits, competence mapping courses, which help socially disadvantaged persons (single mothers, persons with lower education) to improve their position on the labor market, among the activities to reduce wage inequality. The Gender Information Center NORA (2016) presents that greater salary/wage transparency leads to a reduction in GPG in European countries. The Czech Republic should put into practice the Commission's Recommendation of March 7, 2014 on strengthening the principle of equal pay for men and women through transparency, and labor inspectorates as control bodies of the state should effectively control and sanction unequal pay practices. According to MoneyMag.cz (2017), women who graduate from

university in the developed countries of the world in 2020 could be the first generation to eliminate the gender pay gap during their professional careers.

2.3 Issues and measures resulting from domestic strategic materials for GPG policy in the Czech Republic

The Office of the Government of the Czech Republic (2014) in the Government Strategy for Gender Equality in the Czech Republic for the years 2014 – 2020 states that the support of gender equality contributes to strengthening justice in society. In the area of balanced representation of women and men in decision-making positions, it was found that there is no institutional framework for achieving a more balanced representation of women and men in decision-making positions. In the area of gender equality on the labor market and in business, low employment of women in specific age categories and groups (e.g. seniors or single mothers) was found. In the field of reconciling work, private and family life, among the identified problems is the low capacity and quality of facilities providing services in the field of education and care for children and dependent persons. The Office of the Government of the Czech Republic (2018) stated in the 2017 Report on the equality of women and men that the representation of women in the Chamber of Deputies increased in 2017. In the field of gender equality in the labor market, the employment rate of women and the number of women entrepreneurs are increasing. However, the gap in average wages between women and men remains a major challenge, which remains one of the highest in the EU. In the area of reconciling work and personal life, the availability of care services for children up to the age of three remains low, the challenge is also the low use of flexible forms of work and part-time work, education and research stagnate in the long term.

The action plan for the prevention of domestic and gender-based violence for the years 2015 – 2018 (Office of the Government of the Czech Republic, 2015) stated that the costs of solving domestic violence cost the state budget of the Czech Republic more than CZK 1.3 billion every year. The action plan for balanced representation of women and men in decision-making positions for the years 2016 – 2018 (Office of the Government of the Czech Republic, 2016) mentions, for example, the lack of institutional mechanisms. Specifically, there is a lack of gender-sensitive data mapping the relationship between the availability of flexible forms of work, educational attainment or salary differences. To support the transparency of remuneration processes in connection with the international day of equal remuneration (Equal Pay Day), the Office of the Government of the Czech Republic (2018a) in the Updated measures Priorities and procedures of the government in the promotion of equality between women and men for the year 2018 proposes the publication of average salaries broken down by individual salary classes, gender and entitlement and non-entitlement components of salary on the Internet of the Ministry of the given department. It also proposes the inclusion of control of compliance with the right to equal pay in the annual program of control actions of the State Office of Labor Inspection for 2019.

3. Description of used data sources and methods of analysis

The time series of the GPG, which are expressed as a % of the average gross hourly earnings of men1, were **the explanatory variables** when examining the influence of selected indicators on GPG, its character and intensity across world economies (Eurostat, 20182). This indicator is published by Eurostat from three points of view. The first view presents its breakdown by age - ***Gender pay gap in unadjusted form by age*** - % (hereinafter GPG by age). The second view of GPG divides by type of ownership of

[1] The indicator measures the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The indicator has been defined as unadjusted, because it gives an overall picture of gender inequalities in terms of pay and measures a concept which is broader than the concept of equal pay for equal work. All employees working in firms with ten or more employees, without restrictions for age and hours worked, are included.

[2] Data were downloaded in March 2018.

economic activity - ***Gender pay gap in unadjusted form by type of ownership of the economic activity in %*** (hereinafter GPG by ownership of economic activity). The third area of looking at GPG is the type of employment agreement - ***Gender pay gap in unadjusted form by working time in %*** (hereinafter GPG according to employment agreement).

Among **the explanatory (numerical) variables** are the following indicators of the labor market, population and family published by Eurostat: ***Monthly minimum wages*** - % (hereinafter minimum wage), which is expressed in purchasing power parity; Tax rate - % (hereinafter tax rate); tax rate for people with low income: ***Tax rate on low wage earners: Tax wedge on labor costs*** - % (hereinafter tax burden on low incomes); ***Labor cost index by NACE*** - % (hereinafter labor cost index); ***Inactive population by sex, age and educational attainment level*** - % (hereinafter inactive population); ***Long working hours in main job by sex, age, professional status and occupation*** - % (hereinafter length of working hours); ***Job tenure by sex, age, professional status and occupation*** - % (hereinafter duration of work); ***Young people aged 15-24 neither in employment nor in education and training by sex*** - % (hereinafter NEET); ***Active population by sex, age and educational attainment level*** - % (hereinafter active population); ***Number of private households by household composition, number of children and age of youngest child*** - % (hereinafter household composition); ***Percentage of employed adults working at home by sex, age groups, number of children and age of youngest child*** - % (hereafter employed at home); ***LMP expenditure by type of action*** - % (hereinafter LMP expenditure); ***Number of persons by working status within households and household composition*** - % (hereafter working in the household) and ***Number of adults by working status within households, number of children and age of youngest chil***d - % (further working adults).

The following other main indicators were then obtained from Eurostat data: the unemployment rate by occupation was calculated3 from the indicators ***Previous occupations of the unemployed, by sex*** - in 1000 persons and ***Employment by sex, occupation and educational attainment level*** – in 1000 persons; ***Unemployment by sex, age and type of employment sought*** - in 1000 persons and ***Employment by sex, age, professional status and full-time/part-time*** - in 1000 persons. The following labor market indicators were also fully taken from Eurostat: unemployment rates by sex, age and NUTS 2 regions - % and ***Unemployment rates by sex, age and educational attainment level*** - %. From the calculated and adopted unemployment rates, the values of the non-accelerating inflation rate (hereinafter NAIRU)4 were calculated with the help of the HP filter5. Specifically, it was the NAIRU by occupation, type of contract, regions and by sex, age and educational attainment. We apply the NAIRU to the analysis, as this concept shows the long-term potential of the labor market. In addition to these numerical variables, time series of categorical variables were compiled: time, ownership, tenure, age and country.

The analysis covered the following countries: Belgium (BE), Bulgaria (BU), Czech Republic (CZR), Denmark (DE), Germany (GE), Ireland (IR), Greece (GR), Spain (SP), France (FR), Croatia (CR), Italy (IT), Cyprus (CY), Latvia (LA), Lithuania (LI), Luxembourg (LU), Hungary

[3] The formula has the following: $u = \frac{U}{E+U}.100.$ The variable *u* represents the unemployment rate in %, *U* represents the number of unemployed persons in their previous job, or the number of unemployed persons and *E* stands for the number of employed persons.

[4] According to Tobin (1997), Non-Accelerating inflation rate of unemployment is the rate of unemployment at which the effects of rising inflation from markets with excess demand balance the effects of falling inflation from markets with excess supply.

[5] Fabiani and Mestre (2000) base trend and cycle identification on filtering methods such as the Hodrick-Prescott filter. According to the authors, univariate tools are easy to implement.

(HU), Malta (MA), Netherlands (NE), Austria (AU), Poland (PO), Portugal (POR), Romania (RO), Slovenia (Slove), Slovakia (Slova), Finland (FI), Sweden (SW), United Kingdom (UK) a Turkey (TU).

All used time series were tested with the ADF test (EViews, 2013), which confirmed their stationarity. We use linear regression to assess the intensity and nature of the influence of selected labor market, population and family indicators on GPG. We then extract the influence of selected specifics of labor market, population and family indicators on GPG according to age, ownership of economic activity and type of employment agreement by defining **categorical variables** in interaction with these explanatory variables. In this way, we can specifically determine the influence of the labor market, population and family on GPG, for example by age or ownership, but also by the type of employment agreement together with the country.

Cleaned R^2 is applied to select the most appropriate model to approximate the analyzed data. The Jarque Ber test (EViews, 2013) is used to test the normality of the residuals. The Breusch-Godfrey test is applied to test autocorrelation of residuals (EViews, 2013). The Wald test (EViews, 2013) is used to test for heteroskedasticity of residuals. The Variable Inflation Factor (EViews, 2013) is used in the analysis to measure the carrying capacity of multicollinearity. The failure of residual normality tests due to fluctuations in the development of some segments of the explained variable and interannual changes calculated from them in the case of a large number of observations allows us to assume the validity of the central limit theorem, which states that t tests are asymptotically valid.

The influence of selected labor market, population and family indicators on GPG is investigated using the Method of Least Squares. The determined value of the regression coefficient then indicates the intensity of the influence of the selected indicators on the GPG and its character. In the case of a positive sign, the text speaks of a positive influence, and in the case of a negative sign, of a negative influence. In the event that the categorical variable in the interaction with the selected indicator is not statistically significant in the model, we speak of the lack of evidence of its influence on GPG.

A positive value of the regression coefficient means that GPG grows with the growth of the selected indicator. A negative value of the regression coefficient means that the GPG indicator decreases with the growth of the selected indicator. Regression coefficients in the interval from 0.01 to 0.49 in our analysis indicate a very weak sensitivity of GPG to the development of the selected indicator of the labor market, population and family, in the interval from 0.50 to 0.99 weak sensitivity, in the interval from 1.00 to 1.49 indicate medium, in the interval from 1.50 to 1.99 strong sensitivity, and in the interval from 2.00 to 2.50 locate very strong sensitivity of the GPG to changes in the labor market, population and family indicators.

4. Overview of results from empirical testing of the influence of labor market, population and family indicators on GPG across world economies and in the Czech Republic

In this part, we analyze the nature and intensity of the influence of labor market, population and family indicators on GPG from the point of view of age, type of ownership of economic activity and type of employment agreements. We divide the values of the modified regression coefficient obtained by regression analysis into three groups. The first group will summarize all proven positive values of regression coefficients of categorical variables of age, ownership of economic activity and type of employment agreement in interaction with selected areas of the labor market, population and family. The second group will summarize all proven negative values of regression coefficients of categorical variables of age, citizenship and level of human development in the country of birth in interaction with selected areas of the

labor market, population and family. In the third group, no statistically significant influence of the selected area of the labor market, population and family on GPG was confirmed in terms of age, ownership of economic activity and type of employment agreement.

In the following section, we will present an overview of the summary results from the in-depth analysis of the influence of selected indicators on GPG for the world economy and CZR, which is represented by Tables 1 to 3. First, in part A, the average positive values of the regression coefficient across individual world economies and CZR are compared. Part B then deals with a comparison of the average negative values of this regression coefficient. Section C provides an overview of the total number of unproven effects.

4.1 Development of the influence of labor market, population and family indicators on GPG by age

In the area of GPG by age, the best models were with the following indicators: length of employment of male managers aged 15 to 64 (Delka_PD_M_Manaz); duration of work of employed women (aged 25 and over) less than 1 year in the profession of technician and related professionals (Trvani_PD_Z_Tech_Mene1; percentage of women working at home (aged 15 to 64) with 1 child aged 6 to 11 (DomaPrac_Z_6_11); NAIRU of men operating machines and related trades (NAIRU_M_Operation); NAIRU of women (20 to 64 years old) in NUTS 8 (NAIRU_Z_NUTS8); NAIRU of women (35 to 39 years old) with less than primary and lower secondary education (NAIRU_Z_ZAKLAD_35_39) and NAIRU of women (40 to 44 years) with upper secondary and post-secondary non-tertiary education (NAIRU_Z_VYSSI_40_44).

Table 1

Influence of labor market, population and family indicators on GPG by age in world economies and in CZR

	World economies			CZR		
Indicator	Positiv RK	Negative RK	Frequency of unproven effect	Positiv RK	Negative RK	Frequency of unproven effect
In total						
Delka_PD_M_Manaz	0,15	-0,06	31	0,05	-0,01	
Trvani_PD_Z_Tech_Mene1	0,20	-0,18	34	0,24	-0,10	
DomaPrac_Z_6_11	0,13	-0,14	38	0,09	-0,02	3
NAIRU_M_Provoz	0,34	-0,21	54	0,44	-0,07	
NAIRU_Z_NUTS8	0,31	-0,42	34	0,18	-0,12	
NAIRU_Z_ZAKLAD_35_39	0,13	-0,10	34	0,07	-0,002	
NAIRU_Z_VYSSI_40_44	0,23	-0,44	45	0,14	-0,24	1

Source: Own calculation based on Eurostat data.

A. **The largest statistically significant positive value of the regression coefficient across world economies** was found for the NAIRU *indicator of men operating machines and related trades*, which showed on average a very weak intensity (+0.34). At the age of 45-54 we are talking about NE with medium intensity (+1.48), AU and GE with weak intensity (+0.73 and +0.72 respectively), at the age of over 65 about NE and AU with medium or weak (+1.12, respectively +0.97). In the case of *the NAIRU indicator of women (20 to 64 years) in NUTS 8*, the positive value of the regression coefficient was +0.31 and also confirmed a very weak intensity of influence. At the age of more than 65, it was AU (+0.87), or o IT (+0.59) with weak and at the age of 55-64 it was AU (+1.05) with medium and DE (+0.73) with weak intensity. The *NAIRU indicator of women (40 to 44 years old) with upper secondary and post-secondary non-tertiary education* was also very weak (+0.23). In terms of age groups, it was mainly the age of 55-64 (+0.29) and over 65 (+0.27). At the age of 55-64 it was AU (+0.44) and GE (+0.39), at the age of more than 65 it was AU (+0.36) and RO (+0.35). In the case of

the indicator of the duration of work of employed women (aged 25 and over) less than 1 year in the profession of technician and related professionals, the positive value of the regression coefficient was already only 0.20. From the point of view of the individual age groups, it was mainly a very weak effect at the age of over 65 (+0.32), where it was mainly CY (+1.00) with medium intensity, POR (+0.68), SP (+ 0.64) and IT (+0.60) with a weak influence.

In the CZR, the largest statistically significant positive value of the regression coefficient was mapped for the *NAIRU indicator of male operators of machinery and related trades*, which on average showed a very weak intensity (+0.44). From the point of view of the individual age groups, it was mainly the age of 35-44 years, or 45-54 (+0.70 and +0.50) with a weak and over 65 (+0.47) with a very weak influence. In the case of *the indicator of the duration of work of employed women (aged 25 and over) less than 1 year in the profession of technician and related professionals*, it was also a very weak intensity (+0.24). From the point of view of individual age groups, it was mainly the age of 35-44 (+0.32) and 45-54, respectively. over 65 years (both +0.20). In the case of the *NAIRU indicator of women (20 to 64 years) in NUTS 8*, it was also a very weak influence (+0.18). From the point of view of individual age groups, the highest values were found at the age of 35-44 (+0.25) and over 65 (+0.15).

B. We mapped **the highest statistically significant negative value** of the regression coefficient, which indicates the negative sensitivity of the GPG by age to changes in the selected indicator of the labor market, population and family, in the case of a very weak influence of the *NAIRU indicator of women (40 to 44 years) with higher secondary and post-secondary education non-tertiary education* (-0.44). From the point of view of individual age groups, it was mainly the age of less than 25 years with a weak (-0.90), 25-34 and 35-44 years with a very weak influence (-0.47 and -0.43, respectively). The same intensity was also found for the *NAIRU indicator of women (20 to 64 years) in NUTS 8* (-0.42). From the point of view of the individual age groups, it was primarily a weak influence in the age group of less than 25 years (-0.52) and 25-34 years (-0.50). We also include the NAIRU *indicator for men operating machinery and related trades* with a value of -0.21 (very weak influence). From the point of view of the individual age groups, it was mainly a very weak effect in the age of over 65 years (-0.49), in the age of less than 25 years and 35-44 years (both -0.21). In the case of the *indicator of the duration of work of employed women (aged 25 and over) less than 1 year in the profession of technician and related professionals*, a value of -0.18 was found, and thus a very weak effect. From the point of view of the individual age groups, it was mainly a very weak effect in the age of less than 25 years (-0.28) and more than 65 years (-0.19).

In the CZR, the largest statistically significant negative value of the regression coefficient was found for the *NAIRU indicator of women (40 to 44 years old) with upper secondary and post-secondary non-tertiary education* (-0.24), which spoke of a very weak influence. From the point of view of the individual age groups, it was mainly a very weak effect in the age group of 25-34 years (-0.47) and in the age group of 55-64 (-0.39). The same intensity was demonstrated in the case of the NAIRU indicator of women (20 to 64 years) in NUTS 8 (-0.12). From the point of view of individual age groups, it was mainly about the age of less than 25 years (-0.18). In the case of the *indicator of the duration of work of employed women (aged 25 and over) less than 1 year in the profession of technician and related professionals*, the very weak intensity had a value of 0.10. From the point of view of individual age groups, it was mainly about the age of less than 25 years (-0.17).

C. An unproven regression, i.e. a statistically insignificant effect, was detected across world economies mainly in the change of the *NAIRU indicator of men operating machinery and related trades* on the GPG (54 cases). From the point of view of individual age groups, it was mainly about the age of less than 25 years (15), 25-34 years (12) and 55-64 years (9). In the case of *the NAIRU indicator of women (40 to 44 years old) with upper secondary and post-secondary non-tertiary education*, there were 45 cases. From the point of view of

individual age groups, it was mainly 25-34 years old (15) and less than 25 years old (12). For the indicator of the *percentage of women working at home (aged 15 to 64) with 1 child aged 6 to 11*, there were 38 cases. From the point of view of individual age groups, it was mainly about the age of less than 25 years (10) and 25-34 years (9).

In the CZR, statistically insignificant values of the regression coefficient were mapped for the *indicator of the percentage of women working at home (aged 15 to 64) with 1 child aged 6 to 11* (3). From the point of view of individual age groups, it was less than 25 years old, 25-34 years old and 55-64 years old (1 case each time). *The NAIRU indicator of women (40 to 44 years old) with upper secondary and post-secondary non-tertiary education* was 1 case. From the point of view of individual age groups, it was only about the age of less than 25 years.

4.2 Development of the influence of labor market, population and family indicators on GPG according to the type of ownership of economic activity

In the GPG area, according to the type of ownership of the economic activity, the best models were with the following indicators: tax rate of one earning activity - husband with two children (VydelM_2D); tax rate for people with a low income (DanNizkyPrij); length of working time of an employed male as a service and sales worker aged 15 to 64 (PD_M_Servis); length of working time of an employed man (aged 25 and over) less than 1 year as a service and sales worker (Trv_PD_Servis_M1); NEET women (NEET_Z); percentage of working women employed at home with 2 children older than 12 (DomaPrac_Z_12_2); NAIRU of male artisans and related trades (NAIRU_Rem); NAIRU of women (20 to 64 years) in NUTS 1 (NAIRU_NUTS1), indicator of NAIRU of women (30 to 34 years) with upper secondary and post-secondary non-tertiary education (NAIRU_Vyssi_30_34).

Table 2

The influence of labor market, population and family indicators on GPG according to the type of ownership of economic activity in world economies and in CZR

	World economies			CZR		
Indicator	Positiv RK	Negative RK	Frequency of unproven effect	Positiv RK	Negative RK	Frequency of unproven effect
In total						
VydelM_2D	0,10	-0,11	7			1
DanNizkyPrij	0,02	-0,07	10	0,02		
PD_M_Servis	0,13	-0,08	10	0,10		
Trv_PD_Servis_M1	0,04	-0,06	5	0,06		
NEET_Z	0,15	-0,08	4	0,31		
DomaPrac_Z_12_2	0,10	-0,18	11	0,18		
NAIRU_Rem	0,22	-0,15	3	0,53		
NAIRU_NUTS1	0,26	-0,22	13	0,20		
NAIRU_Vyssi_30_34	0,17	-0,08	15			1

Source: Own calculation based on Eurostat data. The time series of private property data for CZR was not used.

A. The largest statistically significant positive value of the regression coefficient **across world economies** was found for the *NAIRU indicator of women (20 to 64 years) in NUTS 1* (+0.26), which showed only a very weak effect on GPG by type of ownership. From the point of view of individual types of ownership, it was primarily a very weak influence of private ownership (+0.29). In the case of the public, the value was 0.21. For the *NAIRU indicator of*

male craftsmen and related trades, the positive value of the regression coefficient was +0.22. From the point of view of individual types of ownership, it was mainly private (+0.24), public was +0.18. In private ownership, there was a weak influence in the UK (+0.58) and GE, or AU (both +0.56), for public it was UK (+0.54) and CZR (+0.53). In the case of the *NAIRU indicator of women (30 to 34 years old) with upper secondary and post-secondary non-tertiary education*, the positive value of the regression coefficient was only 0.17. In terms of type of ownership, it was mainly public (+0.17), in private it was +0.16. In public it was the result of developments in UK (+0.36) and AU (+0.19), in private ownership it was GE (+0.48) and a weak influence in AU (+0.53).

In the CZR, the largest statistically significant positive value of the regression coefficient was mapped for *the NAIRU indicator of male craftsmen and related trades* at 0.53, which represents weak intensity. Due to the incomplete time series for the private sector, it was only public ownership (+0.53). In the case of the *NEET indicator of women*, the value was +0.31 and thus a very weak influence (also only development in the public sector). In the case of the *NAIRU indicator of women (20 to 64 years) in NUTS 1*, a very weak influence was given with a value of 0.20.

B. We mapped the highest statistically significant negative value of the regression coefficient, which indicates a very weak negative sensitivity of the GPG by age to changes in the selected indicator of the labor market, population and family, in the case of the *NAIRU indicator of women (20 to 64 years) in NUTS 1*, where it was (-0.22). From the point of view of individual ownership, it was mainly public ownership (-0.29), private ownership (-0.17). In the public sector, it was mainly PO (-0.60) with a weak and BE (-0.20) with a very weak influence. In private then by RO (-0.60). Furthermore, there was a very weak influence of the indicator of the *percentage of working women employed at home with 2 children older than 12 years* (-0.18). From the point of view of individual types of ownership, it was mainly public ownership (-0.21), private -0.11. In public ownership, it was CY (-1.02) and IT (-0.81). We also include the *NAIRU indicators of male artisans and related trades* with a value of -0.15. From the point of view of individual ownership, it was mainly public (-0.19), private only -0.09. In public ownership, it was primarily a weak influence in MA (-0.88) and BE (-0.54), in private ownership it was MA (-0.14) and BE (-0.13).

No statistically significant negative values of the regression coefficient were mapped **in CZR**.

C. Unproven regression, i.e. a statistically insignificant effect across **world economies** was found mainly in the change of the *NAIRU indicator of women (30 to 34 years old) with higher secondary and post-secondary non-tertiary education* on GPG (15 cases). From the point of view of individual types of ownership, it was mainly public (14), private only 1 case. In the case of the *NAIRU indicator of women (20 to 64 years) in NUTS 1*, there were 13 cases. From the point of view of individual ownership, it was mainly public (-0.29), private -0.17. For the *indicator of the percentage of working women employed at home with 2 children older than 12 years*, there were 11 cases. From the point of view of individual ownership, it was mainly public (6), private 5 cases.

In the CZR, statistically insignificant values of the regression coefficient were mapped for the *indicator tax rate of one earning activity - husband with two children* (1). From the point of view of individual ownership, it was only public. The *NAIRU indicator of women (30 to 34 years old) with upper secondary and post-secondary non-tertiary education* was 1 case (again only. From the point of view of individual age groups, it was only public ownership.

4.3 Development of the influence of labor market, population and family indicators on GPG according to the type of employment agreements

In the area of GPG according to the type of employment agreements, the best models were with the following indicators: tax rate for people with low income (DS_NizkyPrijem) and indicator of the duration of working time of an employed woman (aged 25 and over) less than 2 years as a service and sales worker (Trvani_PD_Z_Sl_mene2).

Table 3

The influence of labor market, population and family indicators on GPG according to the type of employment agreements in world economies and in CZR

	World economies			CZR		
Indicator	Positiv RK	Negative RK	Frequency of unproven effect	Positiv RK	Negative RK	Frequency of unproven effect
In total						
DS_NizkyPrijem	0,22	-0,01	24			
Trvani_PD_Z_Sl_mene2	0,09	-0,21	20			
Part-time						
DS_NizkyPrijem	0,22	-0,01	10			
Trvani_PD_Z_Sl_mene2	0,11	-0,26	13			
Full-time						
DS_NizkyPrijem	0,22		14			
Trvani_PD_Z_Sl_mene2	0,08	-0,02	7			

Source: Own calculation based on Eurostat data. Data for the CZR have not been published by Eurostat.

A. The largest statistically significant positive value of the regression coefficient across **world economies** was found for the *indicator tax rate for persons with low income* (+0.22). In the case of part-time jobs, it was POR (+0.36), TU (+0.35) and CR (+0.30). For full-time employees, it was mainly GR (+0.32). In the case of the indicator of duration of working time of an employed woman (aged 25 and over) less than 2 years as a service and sales worker, the positive value of the regression coefficient was +0.09. From the point of view of individual types, it was mainly part-time (+0.11), full-time (+0.08). For part-time work, it was Slove (+0.24) and SP (+0.16), full-time mainly Slove (+0.17).

B. The highest statistically significant negative value of the regression coefficient, which indicates a very weak negative sensitivity of GPG according to age to changes in the selected indicator of the labor market, population and family, we first mapped in the case of the *indicator of duration of working hours of employed women (aged 25 and over) less than 2 years as a service and sales worker* (-0.21). From the point of view of individual types of agreements, it was primarily part-time (-0.26), full-time -0.02. Furthermore, the *tax rate for people with a low income* was also an indicator (-0.01). From the point of view of individual types of agreements, it was only part-time (-0.01).

C. Unproven regression, i.e. a statistically insignificant effect across world economies, was found mainly in the change of the *indicator tax rate for people with a low income on GPG* (24 cases). From the point of view of individual types of contracts, it was primarily full-time (14), part-time in 10 cases. In the case of the *indicator of the duration of working time of an employed woman (aged 25 and over) less than 2 years as a service and sales worker*, there were 20 cases.

Conclusions from the analysis

Among the essential findings of the comparison of our analysis with the conclusions of foreign research, or domestic professional public and strategic materials of the Czech Republic in the area of the influence of the labor market, population and family on GAP by age, type of ownership and type of employment agreements include:

1) **The overall conclusion of the empirical analysis** using the value of the regression coefficients of the influence of selected indicators of the labor market, population and family

on **GPG by age across world economies** first draws attention to the greatest prevalence of **statistically significant average positive values** *for the NAIRU indicator of men operating machinery and related trades* (very weak intensity +0.34) **above the average negative value** (very weak effect -0.21). From the point of view of the individual age groups, it was mainly a very weak intensity of the age group 45-54 (+0.39), over 65 (+0.37) and 55-64 (+0.36). Support for this conclusion could be the statement of MoneyMag.cz (2017), according to which women are much less likely to have a paid job.

In the case of *the indicator of the duration of work of employed women (aged 25 and over) less than 1 year in the profession of technician and related professionals*, the average positive value of the regression coefficient was already only 0.20, but the negative value was only -0.18. From the point of view of the individual age groups, this was primarily the result of a very weak positive effect in the over 65s (+0.32). According to the Gender Information Center NORA (2017), the reason for this development may be barriers in the form of actual or assumed care.

On the contrary, we mapped the prevalence of a **statistically significant average negative value over a positive** one mainly in the case of a very weak influence of *the NAIRU indicator of women (40 to 44 years) with higher secondary and post-secondary non-tertiary education* (-0.44 and +0.23, respectively). From the point of view of the individual age groups, it was mainly the result of a weak negative influence at the age of less than 25 years (-0.90) and a very weak negative influence at the age of 25-34 and 35-44 years (-0.47 and -0, 43. This may be the effect of the increase in the motivation of girls and women to work in IT positions, the setting of fair wage systems in companies (Novinek.cz, 2018). The same situation also occurred with *the NAIRU indicator of women (20 to 64 years) in NUTS* 8, where the very weak negative intensity of the average influence was 0.42 and the positive was only 0.31. In the case of a negative influence on GPG by age, it was mainly a weak influence at the age of less than 25 years (-0.52) and 25-34 years (-0.50) An explanation can be provided by the spatial oligopsony model, with which Hirsch, König and Möller (2009) show that denser labor markets are more competitive and limit employers' ability to discriminate against women.

In the **CZR, the largest increase in the statistically significant average positive value** of the regression coefficient was mapped for the *NAIRU indicator of male operators of machinery and related trades*, which showed a very weak intensity on average (+0.44). The average negative effect was only 0.07. From the point of view of the individual age groups, it was primarily a weak positive effect in the age group of 35-44 years, or 45-54 years (+0.70 and +0.50) and a very weak influence at the age of more than 65 (+0.47). Support for this conclusion could be the statement of MoneyMag.cz (2017), according to which women are much less likely to have a paid job. In the case of the *indicator of the duration of work of employed women (aged 25 and over) less than 1 year in the profession of technician and related professionals*, the very weak intensity of the average positive effect was 0.24 and negative 0.10. From the point of view of the individual age groups, it was mainly a positive effect at the age of 35-44 (+0.32) and 45-54, respectively. over 65 years (both +0.20). Smith (2010) sees the reason for the GPG's resistance to downward pressure due to rising inequality, the growth of part-time work and new remuneration systems. We also include the *NAIRU indicator of women (20 to 64 years) in NUTS 8* in this group, where on average a very weak positive effect (+0.18) and a very weak negative effect (-0.12) were found. From the point of view of individual age groups, the highest positive values were found at the age of 35-44 (+0.25) and over 65 (+0.15). According to Platy.cz (2014), the biggest differences in remuneration between women and men are in the Moravian-Silesian Region, where it is apparently a traditional concept of the role of women.

The only case where the **statistically significant average negative value of the regression coefficient exceeded the positive one was** *the NAIRU indicator of women (40*

to 44 years old) with upper secondary and post-secondary non-tertiary education, for which both a very weak average negative intensity (-0.24) and a very weak positive intensity of influence (+0.14). From the point of view of the individual age groups, it was mainly a very weak negative effect in the age group of 25-34 years (-0.47) and in the age group of 55-64 (-0.39). This may be a consequence of the growth of the motivation of girls and women to work in IT positions, the setting of fair wage systems in companies (Novinek.cz, 2018).

2) **The overall conclusion of the empirical analysis** of the influence of selected indicators of the labor market, population and family on the **GPG according to the type of ownership of economic activity across world economies** first draws attention to the greatest prevalence of **statistically significant average positive values over negative ones** for the *NAIRU indicator of women (30 to 34 years old) with higher secondary education and post-secondary non-tertiary education*, where the average positive value of the regression coefficient was 0.17 and the average negative value was only 0.08. From the point of view of the type of ownership, it was primarily a very weak positive effect of 0.17 in the public sector, and 0.16 in the private sector. Elborgh-Woytek et al. (2013) can explain this conclusion by the difference in income from self-employment, which women spend a shorter time on. For *the NAIRU indicator of male craftsmen and related trades*, the average positive value of the regression coefficient was +0.22 and negative -0.15. From the point of view of individual types of ownership, it was mainly a positive effect in private ownership (+0.24), in public ownership it was a value of +0.18. The material of Elborgh-Woytek and colleagues (2013) sees the explanation of this model estimate in the fact that in many countries discrimination on the labor market limits women's opportunities for paid work and the representation of women in higher positions and entrepreneurship remains low. For the *NAIRU indicator of women (20 to 64 years) in NUTS 1*, only a very weak average positive effect on GPG by ownership (+0.26) was shown, the negative effect was 0.22. From the point of view of individual types of ownership, it was mainly a very weak positive effect of private ownership (+0.29). In the case of public ownership, the positive value was 0.21. Platy.cz (2014) states that the biggest differences in remuneration are in Prague, where it is the influence of the salaries of senior managers of large companies.

The most striking case of the **increase of the statistically significant average negative value of the regression coefficient over the positive** was the *indicator of the percentage of working women employed at home with 2 children older than 12 years* (-0.18). The average positive value was only 0.10. From the point of view of individual types of ownership, it was mainly negative values in public ownership (-0.21), the negative effect in private was 0.11. It can be assumed that this was a consequence of the increased availability of childcare (Waldfogel, 1995).

No statistically significant negative values of the regression coefficient were mapped in CZR. **The largest statistically significant average positive values** of the regression coefficient were estimated for the *NAIRU indicator of male artisans and related trades* at 0.53, which represents weak intensity. Due to the incomplete time series for the private sector, it was only public ownership (+0.53). This result corresponded to the conclusion of MoneyMag.cz (2017), according to which women are much less likely to have a paid job. Female students are also less likely to choose a field of study with the possibility of high earnings. Women are also lagging behind men in adopting new technologies. In the case of the *NEET indicator of women*, the value was +0.31 and thus a very weak influence (also only development in the public sector). The reason could be, as claimed by Boll et al. (2016) that the employment rate of women in most European countries is lower than that of men, which discourages many women from working due to the prospect of low wages. In the case of the *NAIRU indicator of women (20 to 64 years) in NUTS 1*, a very weak influence was given with a value of 0.20. In this context, Platy.cz (2014) states that the biggest differences in remuneration are in Prague, where it is the influence of the salaries of senior managers of large companies.

3) **The overall conclusion of the empirical analysis** of the influence of selected indicators of the labor market, population and family **on the GPG according to the type of employment agreement across world economie**s (data for the CZR was not published by Eurostat) first draws attention to the predominance of a **statistically significant average positive value over a negative one** for the *indicator tax rate for persons with low income* (positive value was 0.22 and negative only 0.01). From the point of view of individual types of employment agreements, it was an equivalent level of positive influence of both agreements (+0.22). According to Miller and colleagues (2016), women are concentrated in part-time work, women disproportionately participate in unpaid care.

On the contrary, the case where the **statistically significant average negative value of the regression coefficient exceeded the positive** one was the *indicator of the duration of working time of an employed woman (aged 25 and over) less than 2 years as a service and sales worker*, where the negative impact was -0.21 and the positive impact was 0.09. From the point of view of the individual types of agreements, it was primarily a negative effect of part-time jobs of 0.26, while full-time jobs amounted to only -0.02. According to Miller et al. (2016), leading employers are aware of the need to change the approach to jobs.

However, our econometric analysis also revealed **several cases of statistically insignificant influence** of selected areas of the labor market, population and family on GPG from the point of view of age, ownership of economic activity and type of employment agreement. Specifically, the effect **on GPG from the point of view of age across world economies** was not confirmed, especially for the change in the *NAIRU indicator of male operators of machinery and related trades* (54) and in the **CZR** it was mainly an indicator of *the percentage of women working at home (aged 15 to 64) with 1 child in aged 6 to 11 years* (3). **The effect on GPG according to the type of ownership of economic activity** could not be demonstrated, especially when changing the *NAIRU indicator of women (30 to 34 years old) with higher secondary and post-secondary non-tertiary education* (15) and in the **CZR** it was, for example, the *indicator tax rate of one earning activity - husband with two by children* (1). **The influence on GPG according to the type of employment agreements** was not statistically significant **across world economies**, especially when the *indicator tax rate for people with low income on GPG changed* (24). Since none of the foreign research we have studied, nor the opinions of the domestic professional public, mention variants of indicators without influence on GPG, we refer only to the conclusions of the Office of the Government of the Czech Republic (2018). In the area of equality between women and men on the labor market, he emphasizes that the difference in average wages between women and men remains one of the highest in the EU. GPG then causes a persistently higher level of poverty risk for senior women. Despite partial public administration activities aimed at promoting equal pay, GPG is only decreasing very slowly.

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References

Blau, D.F. 1996. Where are we in the Economics of Gender? The Gender Pay Gap. NBER Working Paper Series 5664.

Boll, Ch.; Leppin, J.; Rossen, A.; Wolf, A. 2016. Impact Factors of the Gender Pay Gap in EU Countries. European Commission - Directorate-General for Justice, pp. 103-104.

Desvaux, G., Devillard-Hoellinger, S., Baumgarten, P. 2007. Women Matter, Gender diversity, a corporate performance driver. McKinsey & Company.

Elborgh-Woytek, K., Newiak, M., Kochhar, K., Fabrizio, S., Kpodar, K., Wingender, P., Clements, B., Schwartz, G. 2013. Women, Work, and the Economy: Macroeconomic Gains from Gender Equity. I M F Staff Discussion Note. SDM/13/10. Strategy, Policy.

Eurostat. Březen 2018. European Commission, Eurostat, Data, Database. http://ec.europa.eu/eurostat/data/database

EViews. 2013. EViews Version 7 Help Topics.

Fabiani, S.; Mestre, R. 2000. Alternative measures of the NAIRU in the euro area: estimates and assessment. ECB WP.

Fransen, F.; Plantenga, J.; Vlasblom, D.J. 2012. Why do women still earn less than men? Decomposing the Dutch gender pay gap, 1996-2006. HAL Id: hal-00719069.

Genderové informační centrum NORA. 2017. Nerovnosti v odměňování a důchodech mezi muži a ženami. http://gendernora.cz/.

Genderové informační centrum NORA. 2016. Sborník z mezinárodní konference k tématu nerovného odměňování žen a mužů. http://gendernora.cz/.

Hirsch, B.; König, M.; Möller, J. 2009. Is There a Gap in the Gap? Regional Differences in the Gender Pay Gap. IZA DP No. 4231, pp. 2.

Macpherson, A. D.; Hirsch, T. B. 1995. Wages and Gender Composition: Why do Women's Jobs Pay Less? Journal of Labor Economics, Vol. 13, No. 3 (Jul., 1995), pp. 426-471

Meurs, D.;Pailhé, A.; Ponthieux, S. 2010. Child-related Career Interruptions and the Gender Wage Gap in France. Annals of Economics and Statistics, No. 99/100, MEASURING DISCRIMINATIONS(JULY/DECEMBER 2010), pp. 15-46

Miller, H. M., Cadbury,R., Caulfield, M., Churchill, J., Crawley, A., Davies, M., Drummond, F., Howlett, B., McDonagh, S., Phillips, J., Shuker, G., Siddiq, T., Smith, C. 2016. Gender Pay Gap. Second Report of Session 2015–16. Report, together with formal minutes relating to the report. House of Commons Women and Equalities Committee. House of Commons, London SW1A 0AA, pp. 5-39. https://publications.parliament.uk/pa/cm201516/cmselect/cmwomeq/584/584.pdf

MoneyMag.cz. 2017. Odstranění rozdílu v odměňování žen a mužů potrvá desítky let. MoneyMag.cz.

Nicodemo, C. 2009. Gender Pay Gap and Quantile Regression in European Families. IZA DP No. 3978, pp. 2.

Novinky.cz. 2018. Rozdíly v odměňování mužů a žen se v Česku příliš nemění. Novinky.cz.

Olivetti, C.; Petrongolo, P. 2005. Unequal Pay or Unequal Employment? A Cross-Country Analysis of Gender Gaps. CEP Discussion Paper No 711, pp. 28.

Oostendorp, H. R. 2004. Globalization and the Gender Wage Gap. Amsterdam Institute for International Development, pp. 1.

Plantenga, J., Remery CH. 2006. The gender pay gap. Origins and policy responses. A comparative review of thirty European countries The co-ordinators' synthesis report prepared for the Equality Unit, European Commission. PP. 43-44.

Platy.cz. 2014. Rozdíl mezi platy mužů a žen v krajích – čtvrtina ve středních Čechách, třetina v Praze. Platy.cz.

Polachek, W. S.; Xiang J.J. 2009. The Gender Pay Gap Across Countries: A Human Capital Approach. Deutsches Institut für Wirtschaftsforschung, SOEPpapers om on Multidisciplinary Panel Data Research, pp. 3.

Rentaprozivot. 2016. Finanční rozdíly mezi mužem a ženou. https://www.rentaprozivot.cz/. Review Department and Fiscal Affairs Department, pp. 1-27. https://www.imf.org/external/pubs/ft/sdn/2013/sdn1310.pdf

Rokicka, M.; Ruzik, A. 2010. The Grnder Pay Gap in Informal Employment in Poland. CASE Network Studies & Analyses, No. 406. Center for Social and Economic Research (CASE), Warsaw, pp.

Rubery, J.; Grimshaw, D., Figueiredo, H. 2005. How to close the gender pay gap in Europe: towards the gender mainstreaming of pay policy. Industrial Relations Journal 36:3, pp. 184–213

Samans, R., Zahidi, S. 2016. The Global Gender Gap Report 2016. World Economic Forum. Geneva. http://www3.weforum.org/docs/GGGR16/WEF_Global_Gender_Gap_Report_2016.pdf

Smith, M. 2010. Analysis Note: The Gender Pay Gap in the EU – What policy responses? European Network of Experts on Employment and Gender Equality issues – Fondazione Giacomo Brodolini, pp. 7.

Smith, N.; Smith, V.; Verner M. 2010. The Gender Pay Gap in Top Corporate Jobs in Denmark: Glass Ceilings, Sticky Floors or Both? IZA DP No. 4848, pp. 2.

Staszewska. K., Jayasinghec, D.,Fry, L., Noble, R., Stares, K., Molina, N., Gerrard, L., Moussie, R. 2015. Close the gap! The cost of inequality in women's work. ActionAid UK. Registered charity no 274457. https://www.actionaid.org.uk/sites/default/files/publications/womens_rights_on-line_version_2.1.pdf

Šilingiene, V.; Radvila, G. 2014. Gender differences of wage trends in the Baltic States. 19th International Scientific Conference; Economics and Management 2014, ICEM 2014, 23-25, April 2014, Riga, Latvia. Procedia - Social and Behavioral Sciences 156 (2014) 98 – 101. doi: 10.1016/j.sbspro.2014.11.127

Tobin, J. 1997. Supply Constraints on Employment and Output: NAIRU versus Natural Rate. Cowles Foundation Paper 1150. Yale University, New Haven.

Úřad vlády ČR. 2018. Zpráva za rok 2017 o rovnosti žen a mužů. Úřad vlády České republiky. Strana 4-6.

Úřad vlády ČR. (2018a). Aktualizovaná opatření Priorit a postupů vlády při prosazování rovnosti žen a mužů na rok 2018. Příloha k usnesení vlády. Úřad vlády České republiky. Strana 1-7.

Úřad vlády ČR. 2016. Akční plán pro vyrovnané zastoupení žen a mužů v rozhodovacích pozicích na léta 2016 – 2018. Úřad vlády České republiky. Strana 33-40.

Úřad vlády ČR. 2015. Akční plán prevence domácího a genderově podmíněného násilí na léta 2015 – 2018. Úřad vlády České republiky. Norway grants. Strana 11.

Úřad vlády ČR. 2014. Vládní strategie pro rovnost žen a mužů v České republice na léta 2014 – 2020. Odbor lidských práv a ochrany menšin. Úřad vlády České republiky. Strana 4-18.

Vohlídalová, M. 2017. Genderové rozdíly v odměňování očima veřejnosti v České republice. Výzkumná zpráva z dotazníkového šetření realizovaného v rámci projektu: „Jak na rovnost v odměňování... aneb Pozor na nezamýšlené důsledky!". Sociologický ústav AV ČR, v.v.i., pp. 6-9.

Waldfogel, J. 1995. The Price of Motherhood: Family Status and Women's Pay in Young British Cohort. Oxford Economic Papers, New Series, Vol. 47, No. 4 (Oct., 1995), pp. 584-610

Woetzel, J., Madgavkar, A., Ellingrud, K., Labaye, E., Devillard, S., Kutcher, E., Manyika, J., Dobbs, R., Krishnan, M. 2015. The Power of Parity: How advancing women's equality can add $12 trillion to global growth. McKinsey Global Institute. pp. 1-43. https://www.mckinsey.com/global-themes/employment-and-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth