# THE ECONOMIC EFFECTS OF CLOSING THE GENDER GAP IN TRANSITION COUNTRIES: A CROSS-COUNTRY ANALYSIS

by

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Abstract

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The aim of this study is to explore the relationship between gender employment gap and economic growth in transition countries for the latest available data between 2000 and 2017, using 2SLS model, and estimate the potential economic gains from closing employment gap in terms of GDP per capita for 2017. The results show that 1 pp. higher employment gap on average has less GDP per worker by 4%. The economic effects estimation present potential benefits in GDP per capita from closing the employment gender gap from 6% in Mongolia to 45% in the Kyrgyz Republic. Gender differentials in employment rates can be explained to a considerable extent by maternity benefits, education gaps, and nondiscrimination laws. Therefore, to decrease employment gender gap and provide better analysis of gender gaps several policies are needed: concerning childcare benefits, availability of part-time employment on high-quality occupations, and better gender data collection.

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# GLOSSARY

**EU** - European Union

**GDP -** Gross Domestic Product

**ILO** – International Labour Organization

**LiTS** – Life in Transition Survey

**PP** - Percentage Points

**PwC** – PricewaterhousCoopers

**WDI** – World Development Indicators

**WEF** – World Economic Forum

**2SLS** – Two-Stage Least Squares

*Chapter 1*

# INTRODUCTION

The increased number of international institutions set one of their goals - gender equality, since women represent 50% of the world's population, and therefore they could comprise 50% of the potential labour force (World Bank 2001, United Nations 2015). But rather high gender discrimination limits the opportunities of women in the labour market, causes gender differences in human capital and the productivity trap. Therefore, countries do not make full use of the labor potential. Globally, if we simply suppose that women would earn as much as men, countries loss more than $160 trillion in wealth due to differences in earnings between men and women, which is $23,620 per person on average and twice the value of GDP globally in 141 countries (Wodon et. al 2018).

Despite rapid growth of GDP in the transition countries and remarkable progress in gender balance over recent years, gender inequality remains in the transition region. Even with the advantages in transition countries such as highly educated female labor force, relatively low fertility rates, there are core disadvantages as traditional views the in post-soviet countries, limited government support for childcare, which leads to the trade-off between working and upbringing children and existing barriers in starting one's own entrepreneurship relatively to men (Life in Transition Survey, 2016).

Three main factors lead to distinct gender partition on the labour market: gender differences in time use (mostly because of family care responsibilities), gender differences across occupations and types of jobs which lead to gaps in earnings and productivity(in the Soviet countries women used to work in public sector as teachers and nurses, while men run the farms and were conducted in military forces, in European countries there also exists a difference in choosing part-time or full-time job), gender discrimination in

hiring (primarily because of motherhood). These factors hinder women full employment and decision making at households. Thus, a great economic potential remains unattainable, and huge gender employment gap exists. The evidence for employment gap in 2017 is provided in Figure 1.

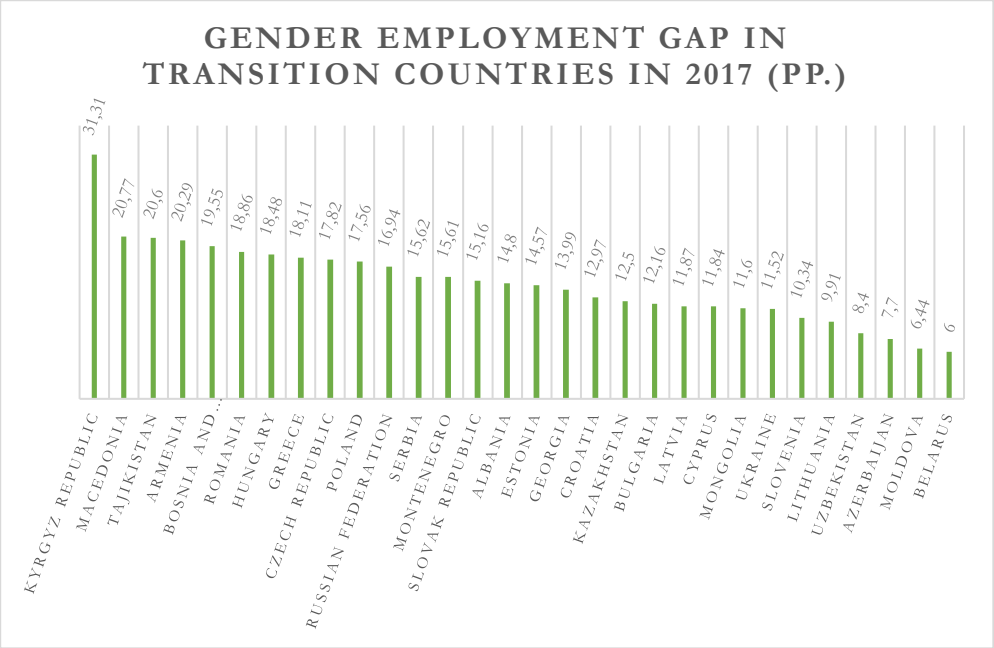

Figure 1. Gender employment gap in transition countries in 2017
Source: ILO

The aim of this study is to explore one part of the factors that induce gender inequality – gender inequality in employment and how it affects growth in transition countries for the latest available data between 2000 and 2017, using 2SLS model, and estimate the effects of closing employment gap on GDP per capita in 2017.

Findings of this paper justify the need for policy actions to arrange the gender-aggregated data, especially in the post-soviet countries, improve childcare facilities for men and encourage women vulnerability from low-quality to high-quality jobs with more flexible working hours. Overall this study will be

useful to design a national gender equality policy and help better understand the barriers of women's employment in the transition countries.

The remainder of the thesis is structured as follows. In Chapter 2 we discuss how recent is the gender inequality issue in the different labour dimensions. We focus on literature about education, gender indexes, measures in the labour market and economic effects from the gender employment gap. In Chapter 3 we describe the data used for transition countries. Chapter 4 provides a detailed discussion of the model specification and estimation process methodology. In Chapter 5 we present the estimation results. Finally, Chapter 6 contains conclusions and policy implications.

*Chapter 2*

# LITERATURE REVIEW

## 2.1. Labour market and economic growth.

The growing body of literature studies gender inequality as one of the development determinants in different dimensions and examines the dual relationship: the effect of the gender gap on economic development and vice versa. The theoretical evidence of this relationship was represented in a U-shaped relationship (Boserup, 1970).

Education is a primary issue considered in gender inequality papers (Klasen, 1999; Dollar & Gatti, 1999; Knowles & Lorgerlly, 1999) because gender gaps in education contribute to differences in productivity and earnings. In both developed and developing countries human capital as a present value of the labour force future earnings (Lange et al., 2018) is a main contributor to the gender employment and pay gaps (Blau & Kahn, 2000; Fosythe, 2000). In transition countries, the growing demand for skilled labour force over the last years required both men and women to stay longer time in education to attain higher qualification skills. According to LiTS (2016), the gender gap in educational attainment is insignificant in most regions except south-eastern Europe. It is supposed that in the former socialist countries women had better access to education. However, cultures with such social norms as early marriage and childbearing create the barriers for women education and further employment (Arkes & Lerman, 2009; Klepinger et al. 1995).

The other part of the growing literature investigates a lot of indexes combining different dimensions into one "gender equality index" (Ferrant, 2010; PwC "Women in Work Index", 2018; Hausmann & Tyson et. al, 2017; Aguirre & Hoteit et. al, 2012). These indexes analyze inputs of women empowerment on labour market such as education, work nondiscrimination policies, access to child care, entrepreneurial support. On the other hand,

there are such indicators that investigated the women's progress on the labour market as the female-to-male ratio of labour force participation, gender ratios among employees, managers, professional and technical workers, and estimation of the gender pay gap. Despite the relatively equal inputs (education, access-to-work policies) in the transition region it does not convert into equal labour market outputs (pay gap, employment gap, employment segregation). Overall all transition countries have a wide range in these indexes (WEF, 2018) from the first scores (Slovenia, Latvia, Lithuania) to very low ranks (Tajikistan, Armenia, Azerbaijan).

The first observed aspect restricting women from employment is unpaid work, such as childcare, taking care of elderly people, and home production, mostly in agricultural sectors (Becker, 1981; Hundley, 2000). Women, who are more productive than men, may be excluded from the labour market or work less because of family responsibilities, and as a consequence talent allocation becomes not optimal (Esteve-Volart, 2004). Even in OECD countries, women spend each day about 2.4 hours more than men on unpaid work (Sachs, 2007).

Consequently, from the previous factor of unpaid work, women more often choose to work part-time. The likelihood of full-time employment indicates that women are significantly less likely to be in full-time employment than men (LiTS, 2016). But on the other hand, the ability to work part-time is one of the main factors for women to return on the labour market after childbirth (Sachs, 2007). The crucial question here is about employment gender segregation. The women are more likely to work in the agriculture sector or in services, rather than in manufacturing because of flexible working schedule, female-owned firms tend to be small with low value-added, and all over the world women are concentrated in low-productivity and consequently in low-pay jobs (ILO, 2010b).

## 2.2. Economic effects of gender gap

Due to unpaid work, gender employment segregation, and as a result, the gender pay gap, we should underline another aspect of our research – economic effects of gender employment gap. The extensive literature on this topic is divided into the papers, which investigate the economic losses and others which analyze economic gains from closing the gender gap.

The total losses in human capital wealth for 141 countries are counted $160.2 trillion if we assumed that women would earn as much as men (Wodon et. al, 2018). On the micro level the total resource cost from low women's employment relatively to men in 2013 within European Union countries including 14 transition countries amounted to 2.8% of analyzed countries' GDP.

The other works show significant long-term benefits such as higher growth in GDP per capita, higher labour earnings, and budget savings. For instance, the potential GDP gains from increasing OECD female employment rates to Sweden's varies from 3% to 27% (PwC "Women in Work Index", 2018). Totally for Eurozone the potential increase in female employment rates will boost GDP between 14 and 45 per cent (Lofstrom, 2009).

But the results vary among countries. Overall, there are few empirical papers for transition countries with potential gains from decreasing the employment gap and future possible scenarios of development in the case of closing it.

The contribution of this study is the examination of employment gap, and the economic gains that transition countries may achieve if will close the gap.

In the next Chapter 3 we provide graphical evidence of the relationship between gender employment gap and GDP per capita and explain the determinants of gender inequality.

*Chapter 3*

# DATA DESCRIPTION AND GRAPHICAL EVIDENCE

## 3.1. Data description and sample construction

So as to analyze the research question, the cross-sectional macro-level data from such sources were collected: World Development Indicators, International Labor Organization, UNESCO Statistics, Eurostat, World Economic Forum Reports and National Statistics databases for different countries. The period is from 2000 to 2017, which covers three business cycles and does not have too many missing values in the sample. We have three groups of countries: Balkans, the post-soviet countries, and transition countries in the European Union, totally 30 countries. The list of countries is presented in Appendix A. Additionally, in graphs we add Germany and Italy as the comparative countries to benchmark the transition region against advanced market economies, and Turkey without inclusion into any group, because it has extremely different characteristics as a Moslem country, despite this, it is a transition country in Eastern Europe.

The balanced panel data set for 30 countries contains 540 observations. Nevertheless, the collected macro data is rather rough and far from ideal. Firstly, the problem of the missing data is serious, especially for the post-soviet and Balkans countries. Partially, it is collected from international resources such as WBI and ILO, then almost one third is scrapped from National Statistics databases, which mostly report the data in national currency, and without gender segregation (Kyrgyz Republic, Belarus, Tajikistan). Secondly, the data on the main dependent variable – employment gap – is biased because of the existing huge informal sector, where women are employed, and these data are not published. For instance, regarding Labour Force Survey 2017 the per cent of female employment in the informal sector in Armenia was 47.3%, in Mongolia – 46.3%, and in Serbia – 22.9%. Nevertheless, for countries which

have the missing values, we change them on the last available data. But for Belarus, Kyrgyz Republic and Tajikistan the most problematic variables were enrollment rates in education. That is why, we take only several time periods with the available data figured out from National Statistics Offices. The economic effects were estimated for 28 countries except for Tajikistan and Uzbekistan due to the gender-aggregated data absence on hourly wage and working hours.

### 3.2. Descriptive Statistics

In the researched relationship between GDP growth and gender employment gap we have two endogenous dependent variables. The first one is GDP per working-age population, measured in USD. The second one is the employment gap, measured as the difference between male and female employment rates in percentage points. Figure 2 represents the trend for average GDP per worker and employment gap in transition countries during the period from 2000 to 2017. Over the eighteen years GDP per worker permanently increased with two drops in 2009 and 2015. At the same time, the employment gap moves in a opposite direction. In 2007, the gender gap was particularly high in the transition countries. However, it decreased constantly over the time span 2007-2012, especially after 2008. Currently, the gap again tends to rise, and the reasons for such a trend is of significance for the research.

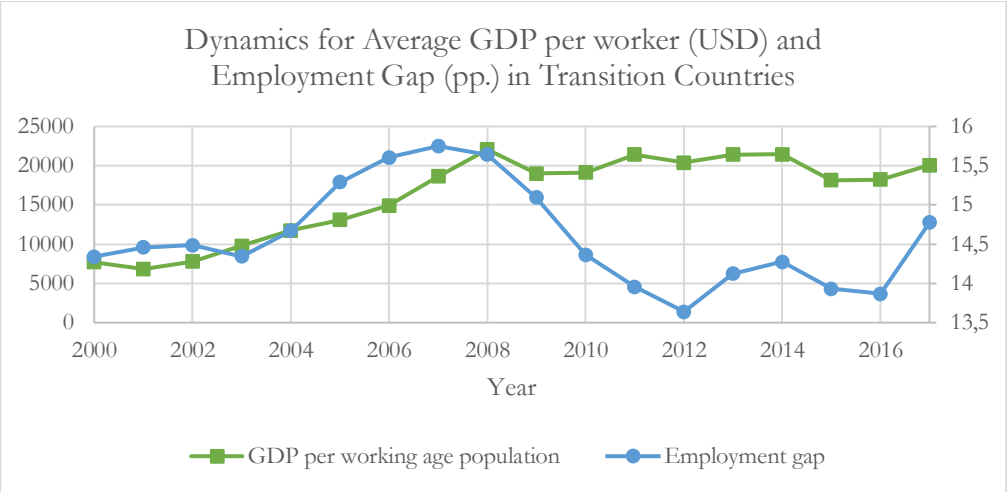


Figure 2. GDP per worker (USD) and Employment Gap (pp.) in Transition Countries from 2000 to 2017
Source: WDI, ILO.

In the Figure 3 we present the relationship between GDP per worker and Employment Gap between countries.

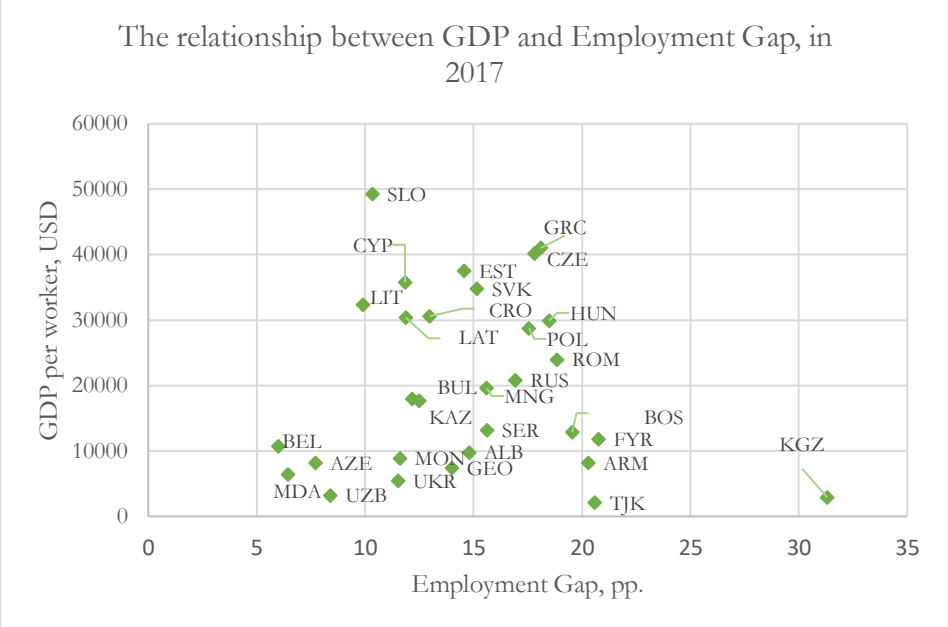


Figure 3. The relationship between GDP and Employment Gap in 2017, cross country analysis
Source: WDI, ILO.

From the Figure 3, we see different links between GDP and employment gap. One part of countries such as Kyrgyz Republic, Armenia, Tajikistan, and Macedonia have high employment gap and low GDP per worker. However, such countries as Moldova, Belarus, Azerbaijan, and Uzbekistan have low GDP, and low employment gaps. For the EU transition countries, the picture is more explicit – the average employment gap, and higher than average GDP per worker. Therefore, the endogenous relation between these two variables is concerned to research more detailed. Moreover, the difference in economic effects between countries would vary respectively to employment gap, and its effect on GDP per worker.

Variables and their descriptive statistics are shown in Table 1. The mean of the employment gap is 14.59 pp. The minimum gap equal -7 pp. in Belarus in 2015, which shows us that there are more employed women than men in that country. The highest gap is 31.31 pp. in the Kyrgyz Republic in 2017 that until now increase from 18.3 pp. in 2000. The mean of GDP per worker is 16196$, but it varies a lot, and has been skewed, that is why we have taken logs. The minimum GDP per worker was in Tajikistan in 2000, and the maximum was in 2008 in Greece. Concerning other exogenous variables, the high deviation exists for maternity leave benefits, female part-time employment and education gaps. This is explained by somewhat different growth in three groups of countries. While countries in the European Union developed in 2000-2010 with rapid growth, the post-soviet countries continued to develop in obsolete the "soviet" manner. The highest education gap is in upper-secondary attainment. In some countries more women are more likely to attain tertiary education while more men decide to work after secondary school.

Table 1. Descriptive Statistics

| Variable | Mean | SD | Min | Max |
|---|---|---|---|---|
| GDP per worker | 16136.5 | 13698.9 | 413.64 | 69960 |
| Employment gap | 14.58 | 6.38 | -7 | 31.31 |
| GDP in 2000 | 6370.72 | 6736.12 | 413.64 | 26692.33 |
| Investment rate | 25.36 | 6.88 | 9.14 | 58.15 |
| Population growth | 0.07 | 0.92 | -2.85 | 2.82 |
| Secondary attainment | 87.5 | 7.24 | 59.57 | 99.85 |
| Average growth rate in the world | 2.9 | 1.4 | -1.7 | 4.4 |
| Maternity leave benefits | 88.17 | 18.52 | 22 | 100 |
| Maternity paid days | 163 | 74 | 45 | 365 |
| Female part-time employment rate | 24.7 | 10.3 | 6.8 | 57.2 |
| Female unemployment rate | 11.9 | 7.9 | 0.4 | 38.43 |
| Dummy on nondiscrimination policy for hiring | 0.78 | 0.4 | 0 | 1 |
| Gap in primary education attainment | -2.76 | 2.16 | -8.24 | 1.03 |
| Gap in lower secondary education attainment | -1.7 | 5.89 | -14 | 18.54 |
| Gap in upper secondary education attainment | 7.77 | 5.98 | -8.46 | 22.77 |
| Gap in tertiary education attainment | -0.31 | 4.62 | -17.93 | 10.10 |

Source: WDI, ILO.

Principally, nondiscrimination policy for equal gender employment prevail in 78 per cent observations, that is positive indicator for state policies and affirm the importance of gender equality for the government.

The comparison of the employment gap between Balkans, transition countries in EU and the post-soviet countries with advanced market economies and Turkey is provided in Figure 4.

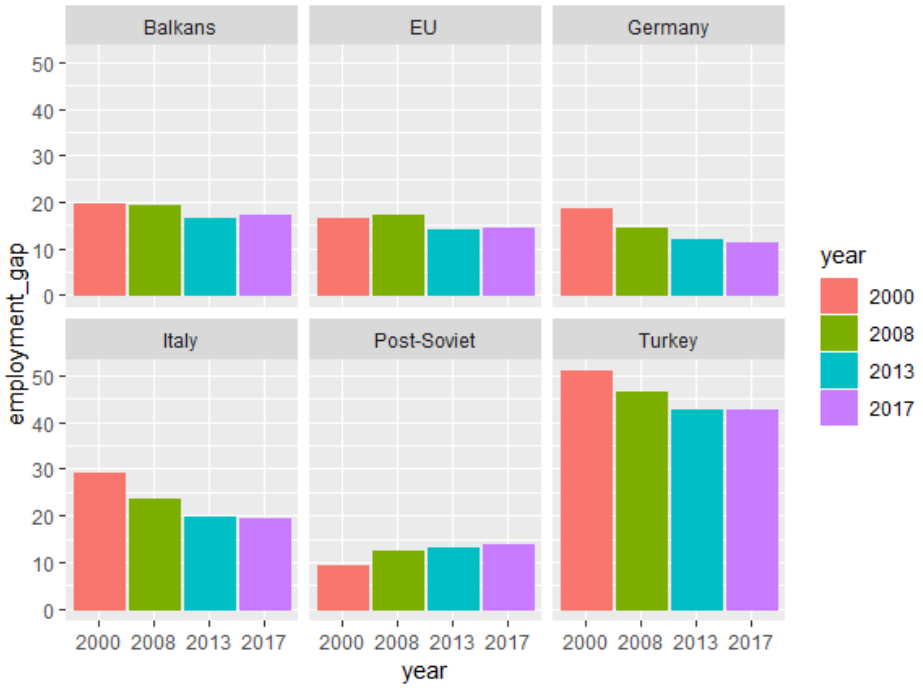


Figure 4. The Employment gap in transition groups of countries over the period
Source: ILO.

Over the last 18 years, the employment gap in developed countries (Germany and Italy) was constantly decreasing. The same tendency is observed for Turkey despite such a high difference between gender employment rates. At the same time, the gender employment gaps in Balkans and other transition economies in the EU over the period hold on the same level with small deviations. Moreover, the average employment gap in the post-soviet

countries increases from year to year. Thus, the question about gender employment gap in transition region is critical and should attract the attention for further policies. In other case, the slow growth would be expected, and the country will have great losses due to gender employment gap.

The next chapter provides the methodology of the model for the relationship between GDP per capita and gender employment gap, and the methodology of economic effects estimation from a closing gender employment gap.

*Chapter 4*

# METHODOLOGY

According to our literature review discussion in the previous chapter about relationship between gender inequality and the process of growth we choose widely accepted two-stage least squares model with heteroskedasticity-consistent standard errors introduced by Dollar & Gatti (1999). On the one hand, we will deal with the growth model including popular variables in the empirical growth literature (Barro, 1991; Mankiw et. al, 1992), explaining the employment gender gap by a set of instruments. Then we will estimate the economic costs of women unemployment and future economic effects of closing employment gap.

## 4.1. Growth model

There are different approaches to estimate the importance of capital, labor and human capital accumulation to the process of growth without referencing to gender inequality, starting from Barro (1991). In this study we will apply the augmented Solow model introduced by Mankiw, Romer & Weil (1992), which started from the Cobb-Douglas function including human-capital accumulation, so production at time *t* is given by:

$$Y_t = K_t^{\alpha} H_t^{\beta} (A_t L_t)^{1-\alpha-\beta} \qquad (4.1.1)$$

where: $Y$ – output, $K$ – capital, $H$ – the stock of human capital, $L$ – labor, $A$ – the level of technology.

The model assumes $sk$ –fraction of income that will be invested in physical capital, $sh$ - fraction will be invested in human capital, and $n$ – growth rate of

the effective units of labor. Then we define $y = Y/AL$ – the level of output per effective unit of level, $k = K/AL$ – the stock of capital per effective unit of labor, $h = H/AL$ – the stock of human capital per effective unit of labor. Substituting these terms into production terms and taking logs gives an equation above:

$$\ln y = \alpha + \frac{\alpha}{1-\alpha}\ln(sk) - \frac{\alpha}{1-\alpha}\ln(n) + \frac{\beta}{1-\alpha}\ln(h) + \varepsilon \qquad (4.1.2)$$

Subject to steady-state level of human capital:

$$h = \left(\frac{(sk)^{\alpha}(sh)^{1-\alpha}}{n}\right)^{1/(1-\alpha-\beta)} \qquad (4.1.3)$$

Adding the variable of gender inequality according to Dollar & Gatti (1999) our aim is to see the effect of employment gender gap on GDP per worker. Therefore, rewriting in terms of our regression the final equation is provided below:

$$\begin{aligned}\ln(GDP\ per\ working\ age\ person)_t \\ = \alpha_0 + \alpha_1 \ln(investment\ rate)_t \\ + \alpha_2 \ln(population\ growth)_t \\ + \alpha_3 \ln(secondary\ school\ attainment)_t \\ + \alpha_4 (employment\ gender\ gap)_t \\ + \alpha_5 \ln(average\ GDP\ growth)_t \\ + \alpha_6 \ln(GDP2000)_t + u_t\end{aligned} \qquad (4.1.4)$$

### 4.2. Explaining gender employment inequality

To explain gender inequality across the countries and over time, and discuss the possible effects on growth we will follow Dollar & Gatti (1999) and estimate the equation:

$$employment\ gender\ gap_{it} = \beta_0 + \beta_n Z_{it} + \varepsilon_{it} \quad (4.2.1)$$

where *employment gender gap* – is a dependent variable that means the difference between male employment rate and female employment rate in percentage points;

$Z_{it}$ - exogenous variables that affect gender inequality in employment, described in Table 2 below;

*i* - represents the country identifier;

*t* - represents the year identifier.

The list of exogeneous variables that affect gender inequality in employment is chosen from three sources that significantly proved our hypotheses that raising female employment to the male level will have a positive direct impact on GDP: Jaumotte, 2003; the Third Billion Index from PwC "Women and the world of work in 2012"; "PwC Women in Work Index", 2018. We conduct the check on multicollinearity and the correlation diagram showed us that gap in primary education is highly correlated with the gap in low-secondary education, that is why, we leave in our model only low-secondary gap, because the gap in primary education is high only in Bosnia and Herzegovina (20 pp.) while in other countries this gap varies between zero to 7 pp. The correlation matrix for chosen variables is provided in Figure 5.

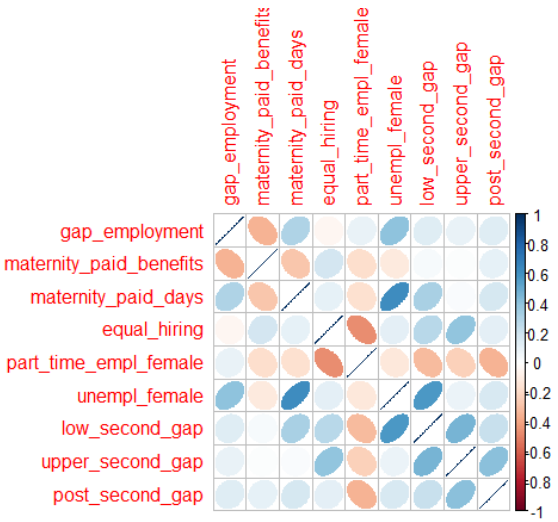


Figure 5. Correlation matrix of explanatory variables of the gender employment gap

Finally, all variables used in the construction of both models (4.1.4) and (4.2.1) are presented in Table 2.

The main expected effect is that the employment gender gap has significant negative effect on GDP per capita, controlling for such factors as education by gender, female working hours, maternity benefits and female unemployment rate.

Table 2. Variable description used for building the models

| Variable | Description | Expected effect |
|---|---|---|
| **Variables that explain employment gap** | | |
| Education gaps | The difference between male and female educational attainment level. Four educational attainment levels are considered as defined by ISCED 1997 classification: lower secondary education, upper secondary and post-secondary education. | **+** (Goldin, 2008, PwC, 2017) Closing the gap in education women will have the same human accumulation before entering labour market |
| Equal hiring dummy | As a proxy regarding nondiscrimination policy in hiring. Equal 1 if the law exists, 0 – otherwise. | **-** (Aguirre & Hoteit, 2012) If the law for employment gender policy is stated, the discrimination in hiring will be lower and gap reduces |
| Maternity leave benefits | The total percentage of wages covered by all sources (government, employer, social insurance) during paid maternity leave. | **-** (OECD,2012) Paid maternity leave leads to greater labor market attachment of women. |
| Maternity paid days | Length of the maternity leave period, during which employer should keep the job place for woman's returning. | **Ambiguous** (Jaumotte, 2003) There is optimal amount of days that have positive effect on women returning on labour market |
| Share of part-time in female employment | As a proxy for the flexibility of working-time arrangements. | **Ambiguous** (Jaumotte, 2003) |
| Unemployment female rate | The number of unemployed women as a percentage of the total number of women in the labour force. | **+** (Jaumotte, 2003) |
| **Variables for the growth model** | | |
| Investment rate | The ratio of total investment and GDP. | **+** (Mankiw et. al, 1992) |
| Population growth | The increase on the number of individuals in a population. | **+** (Mankiw et. al, 1992) |
| Secondary attainment | The percentage of people aged 20-24 who have successfully competed at least upper secondary education. | **+** (Mankiw et. al, 1992) |
| Average growth rate in the world | As a proxy to control for business cycle. | **Ambiguous** |

Source: WID, ILO, Eurostat, National Statistics. Two specification also include country specific fixed effects variables.

### 4.3. Approach to estimation economic effects of closing employment gender gap

Litereture review assumes that controlling other factors, increasing female employment rate to the male employment level will boost GDP by a similar amount (Klasen & Lamanna, 2007; Sachs, 2007), but in this research we consider two additional factors: part-time employment and productivity gap. Therefore, the relationship between employment and GDP for each respective country is determined by using the following equation from PwC report "Women and the world of work in 2012":

$$GDP\ per\ capita = GDP/H \times H/E \times E/WAP \times WAP/P \qquad (4.3.1)$$

where:

$GDP/H = GDP/hour\ worked$ – labor productivity;

$H/E = hour\ worked/employment$ – amount of work produced per person;

$E/WAP = employment/working\text{-}age\ population\ (15+)$ – employment rate;

$WAP/P = working\text{-}age\ population/population$ – age factor.

We assume scenario when labor market is characterized by gender balance, and "closed gender employment gap" means:

- The female employment rate becomes equal to that of men in each respective country.
- Women's part-time work declines to the level of men's in each respective country → average working hours increased.
- Women's productivity (assuming that the difference in current hourly wages are a measure of difference in productivity, which is a

reasonable simplification according to Lofstrom, 2008) becomes equal to that of men in each respective country.

Additionally, we have two assumptions:

- After increasing the total employment rate there will be a temporary drop in productivity (many women with limited experience will enter the market, and labor demand may be lower than the expected labor supply) – we assume 30% drop in productivity. That is why, if the difference is X$, we estimate that it will decrease to 0,3*X$.
- Some of women will enter the labor force to work part-time (30 hours on average). Firstly we decline the women part-time employment rate to the respective men`s level (for example Y%), and then estimate that Y% of women who will enter the market will work part-time (30 hours) while (100-Y)% will work full-time.

But since our definition of "closing gender gap" is the simplest one, our estimation results should be analyzed as the theoretical "ceiling" gains. Each of these steps (employment rates, productivity gaps, working hours difference) will boost GDP by a certain number and consequently women will produce half of the country's GDP.

The next chapter provides the empirical results of the model that estimates the effect of economic growth on the employment gap and vice versa. The second part provides the estimation of economic gains from closing the gender employment gap.

*Chapter 5*

# ESTIMATION RESULTS

This chapter present estimation results for the 2SLS model stated in Chapter 4. It is proceeding in the two steps: 1) showing the significant relationship between GDP per worker and employment gap; 2) estimating economic effects on GDP per capita of closing the gender gap in employment.

## 5.1. Growth model

The model is estimated for the full sample (540 observations) with a dummy for a group of countries. First stage OLS estimation shows us the effects of instruments on employment gender gap, and does it exist the difference between Balkans transition countries, and the post-soviet transition region. Two separate regressions for Balkans subsample (90 observations) and post-soviet subsample (216 observations) were additionally estimated. Second stage presents us the effect of employment gender gap on GDP per worker controlling by business cycle, investment rate, population growth, and human capital.

The results for the 2SLS model is shown in Table 3. Firstly, treating employment gender gap as endogenous variable into growth model we observe highly significant coefficient for employment gender gap. A 1 pp. higher employment gap is associated with 4% decrease in GDP per worker, holding all other variables constant. Partially for Balkans countries 1pp. gap would have effect of 9.5% decrease in GDP per worker. Secondary educational attainment is also significant both in the full sample and two subsamples. Considering that the education attainment controls for human capital, the education gender gaps also affect GDP per capita by lower productivity of less educated workers.

Table 3. Estimation results for growth model

| | **2SLS (full sample)** | **2SLS (Balkans subsample)** | **2SLS (Post-soviet subsample)** |
|---|---|---|---|
| **Dependent variable – GDP per worker** | | | |
| Employment gender gap | -0.04***<br>[0.0087] | -0.095***<br>[0.025] | -0.012<br>[0.0092] |
| Log(GDP in 2000) | 0.715***<br>[0.0485] | 1.01***<br>[0.2613] | 0.855***<br>[0.1315] |
| Log(Investment rate) | 0.334***<br>[0.0954] | 0.243<br>[0.209] | 0.466**<br>[0.16] |
| Log (Population growth) | 0.094*<br>[0.0362] | -1.029***<br>[0.1986] | 0.107*<br>[0.052] |
| Log (Secondary attainment) | 1.263**<br>[0.3836] | 1.19*<br>[0.732] | 2.237**<br>[0.7339] |
| Average growth rate in the world | -0.06**<br>[0.018] | -0.032<br>[0.0317] | -0.07*<br>[0.033] |
| Soviet | -0.49***<br>[0.125] | | |
| Balkans | 0.07<br>[0.0935] | | |
| Sample size<br>Adjusted $R^2$ | 540<br>0.7 | 90<br>0.33 | 216<br>0.48 |

Notes: base level of dummy for groups of countries is EU countries in transition region; Standard errors in parentheses. * if p-value < 0.05, ** if p-value < 0.01, *** p < 0.001.

For better understanding what are the determinants of employment gender gap, which influence GDP per capita the results of first stage estimation are presented in Table 4 for full sample and two subsamples.

Table 4. Estimation results for first-stage OLS estimation

| | **IV (full sample)** | **IV (Balkans subsample)** | **IV (Post-soviet subsample)** |
|---|---|---|---|
| **Endogenous variable – employment gender gap** | | | |
| Log (Maternity leave benefits) | -4.48***<br>[0.741] | -2.256<br>[2.238] | -8.26***<br>[1.087] |
| Maternity paid days | -0.003<br>[0.004] | 0.004<br>[0.0036] | 0.104*<br>[0.0434] |
| Female part-time employment | 0.003<br>[0.024] | -0.099*<br>[0.0437] | -0.046<br>[0.047] |
| Dummy on nondiscrimination policy for hiring | -2.85***<br>[0.655] | -5.7***<br>[1.07] | 0.6<br>[1.427] |
| Unemployment female rate | 0.15**<br>[0.039] | 0.115**<br>[0.035] | 0.57***<br>[0.131] |
| Gap in primary education attainment | 0.943***<br>[0.115] | 0.334**<br>[0.127] | 2.07***<br>[0.293] |
| Gap in lower secondary education attainment | 0.234***<br>[0.044] | 0.149**<br>[0.049] | 0.223<br>[0.142] |
| Gap in upper secondary education attainment | 0.276***<br>[0.054] | 0.2*<br>[0.088] | 0.286*<br>[0.119] |
| Gap in tertiary education attainment | 0.802**<br>[0.0643] | -0.233<br>[0.227] | 0.712*<br>[0.17] |
| Soviet | -6.28***<br>[0.5778] | | |
| Balkans | -1.47<br>[0.951] | | |
| Sample size<br>Adjusted $R^2$ | 540<br>0.484 | 90<br>0.617 | 216<br>0.584 |

Notes: base level of dummy for groups of countries is EU countries in transition region; Standard errors in parentheses. * if p-value < 0.05, ** if p-value < 0.01, *** p < 0.001.

From these results we conclude three main factors that mean for gender employment gap: 1) maternity benefits; 2) existence of nondiscrimination policy law in the respective country; 3) education gaps.

Holding all other variables constant, on average 1% increase in maternity benefits leads to 4.5 pp. the decrease in the employment gap. From the results of regressions on subsamples, we can conclude that for the Balkans countries childcare benefits and the amount of maternity paid days are not significant and do not influence the employment gap. While for the post-soviet countries, all other things equal, the increase of maternity leave benefits by 1% will close the employment gap by more than 8 pp. On the other hand, the increase in the maternity paid days by 10 days will increase the employment gap by 1.04 pp. Therefore, we should consider about optimal amount of days for maternity leave in the post-soviet countries.

The influence of education gender gaps on the gender employment gap is the most significant. The highest effect is obtained for the primary and tertiary education level.

The nondiscrimination policy about hiring now exists in 78% of countries in our full sample. From the estimation, we can consider that it is highly significant factor ($p<0.001$). Overall the existence of nondiscrimination policy decreases the gender employment gap by 2.85 pp. Such countries as Armenia, Belarus, Kyrgyz Republic, Mongolia in 2017 do not have such policy at all.

### 5.2. Estimation of economic effects

According to the supposed methodology in Chapter 4, we estimated potential gains in GDP per capita for 29 transition countries (except Tajikistan and Uzbekistan because of the lack of data) in 2017. We assume that female employment rate, productivity and working hours would be at the respective men's level in each country, and then calculate what it means in terms of GDP per capita. The results for an individual country are shown in Table 5.

Table 5. Potential increase in GDP per capita in the transition countries due to gender equality in the labour market (%)

| Country | Potential increase in GDP per capita (%) | The share of closing employment rate gap (%) |
|---|---|---|
| Kyrgyz Republic | 45 | 64 |
| Armenia | 36 | 49 |
| Georgia | 36 | 43 |
| Turkey | 32 | 40 |
| Azerbaijan | 30 | 25 |
| Kazakhstan | 28 | 37 |
| Estonia | 27 | 44 |
| Russian Federation | 27 | 53 |
| Post-soviet countries | 26 | 48 |
| Bosnia and Herzegovina | 25 | 86 |
| Greece | 24 | 80 |
| Czech Republic | 23 | 64 |
| Belarus | 23 | 30 |
| Hungary | 23 | 72 |
| Slovak Republic | 22 | 61 |
| Macedonia | 22 | 86 |
| Ukraine | 20 | 50 |
| Latvia | 20 | 55 |
| EU Transition countries | 19 | 68 |
| Romania | 19 | 90 |
| Balkan countries | 19 | 83 |
| Poland | 19 | 83 |
| Croatia | 17 | 80 |
| Serbia | 16 | 82 |
| Albania | 16 | 78 |
| Bulgaria | 16 | 66 |
| Cyprus | 16 | 60 |
| Lithuania | 15 | 59 |
| Montenegro | 14 | 81 |
| Moldova | 13 | 51 |
| Slovenia | 12 | 78 |
| Mongolia | 6 | 68 |

Source: author's calculations

In the first column, we showed that the potential GDP per capita increase alters from 6% (Mongolia) to 45% (Kyrgyz Republic) of the respective country's GDP per capita. On average GDP per capita for EU transition countries and Balkans will potentially gain 19% GDP per capita from gender equality, while the post-soviet countries may benefit 26% of GDP per capita if women work in the same terms as men. The second column shows us the relative significance of closing the gender gap in employment rates, and as expected this is mostly more than fifty per cent of a potential increase in GDP per capita. Longer working time and reducing female part-time employment rates would be attributable on average less than one-third of the potential GDP per capita increase.

The assumption of decreasing working hours does not significantly mean, because only Georgia and Belarus have low average total weekly working hours– 35 hours per week. In other countries men are more likely to work overtime, and even hypothetical decrease in female part time employment will not have great effect on total female employment. Flexible part-time possibilities is important aspect of policies, because on the one hand we should encourage more women to enter labor market, and for those who care about children or elderly people part-time would be the best option. But on the other hand, too high female part-time rate would decrease women productivity.

The highest effect of employment gap is in Balkans countries, more that 80%. When in 2017 the average gender productivity gap is 0.1$ per hour, gap in weekly working hours is no more than 1 hour, employment gap is on average 7.6 pp, that mean that women are less employed than men by 20%.

In EU transition countries the share of employment is lower – 68%. In these countries the pay gap is higher – 0.4$. The reason for this may be segregation of "men's jobs" and "women's jobs".

In post-soviet countries the employment share is only 48%. This could be explained by past trends in employment in Soviet Union. Mostly all women and men were employed at that time. Belarus even now has almost full employment

by labor market statistics and have low punishments for those who are unemployed. But the huge employment gap exists in countries with mostly Islamic religion, such as Kyrgyz Republic and Armenia. The strong traditional view on family responsibilities, early marriage age for women and the limit access to capital are key factors of this gap.

Overall, we can state that labour market in gender balance, in which women will be employed to the same level as men at present in the transition countries would theoretically boost their GDP per capita by between 6 to 45%, but we have to highlight main reasons for this gap in countries with different historical trends in labour market.

*Chapter 6*

# CONCLUSIONS AND POLICY RECOMMENDATIONS

The role played by women in the society should be considered for the increasing economic growth of the country. The potential benefits are not attainable because of gender inequality on labour market.

In the paper we present the evidence of significance of gender gap on labour market and its consequences on economic growth. This research estimates the relationship between gender employment gap and GDP per worker, using macro level data for 29 transition countries, covering the period from 2000 to 2017, and estimates potential economic gains in GDP per capita assuming closed gender employment gap.

The first finding is shown by regressions in 2SLS model, where we treat the employment gender gap as an endogenous variable and figure out the significant effect of employment gender gap on GDP per working-age person. A 1 pp. higher employment gap is associated with 4% decrease in GDP per capita for transition countries, and on average for Balkans countries subsample this affect is highly significant and counts for 9.5% decrease. That is why we should consider solutions how to close this gender inequality on labour markets. Partially, in the first stage regression of instrumental variables on employment gender gap, we observe three groups of factors that affect women employment: 1) maternity benefits; 2) existence of nondiscrimination policy law in the respective country; 3) education gaps.

The critical questions about maternity benefits are how much to pay and how many paid days to provide. Especially these benefits are important for the post-soviet countries, because 10% higher maternity benefits are associated with 0.8 pp. lower employment gender gap in this transition region. For these additional benefits, for instance, women could hire a nursemaid and quicker return on the labour market.

The nondiscrimination policy about equal gender treatment is also highly significant from the results and shows the importance of the policy goal to create opportunities under which both men and women can participate in family life, community life and the labour market on equal terms.

In the other part of estimations, we assume that the countries deal with this set of factors and female employment rate becomes equal to male employment rate, then we evaluate the potential economic effects in terms of GDP per capita for 2017 year. The results vary from from 6% (Mongolia) to 45% (Kyrgyz Republic) of the respective country's GDP per capita. On average GDP per capita for EU transition countries and Balkans will potentially gain 19% GDP per capita from gender equality, while the post-soviet countries may benefit 26% of GDP per capita if women work in the same terms as men.

In our modern world, women are primary caregivers in households as in transition countries too, particularly childcare. Because of this, women more often work part-time, in low-quality jobs or even do not work at all. So, the recommendation is to provide education trainings or discussions to break up stereotypes that women should take care of all domestic work. Specific solutions could be provided in the Moslem countries with strong cultural customs, to divide care work more equally between men and women.

The government should prevent shifting domestic care work to low-quality jobs, which is often filled by women. According to the gender pay inequality governments and non-government organizations should help women shift from low-paid vulnerable jobs (agricultural labour, unpaid family work) to permanent jobs with a career opportunity. As the raising average hourly wage for women in low-quality jobs will not lead to benefits, but rather to shift from low-quality to high-quality occupations.

In the best scenario, such working conditions should be created that women could enter the labour market and work mostly full-time with exception to maternity leave. But in transition countries, women due to responsibility before children, elderly people and the sick are unable to find any gainful even

part-time employment they would like and, as a result, completely leave outside the market. So, this problem has two sides, which should be considered. First, women's engaging in the full-time labour market should be emphasized by the advance support for family responsibilities as the maternity leave and access to childcare. Additionally, supported by non-discrimination policies to ensure that if women achieve the same education level as men, women will have the opportunity to have the same job. On the other hand, part-time jobs in high-quality occupations should be extended. As a result, women will have the option to choose how much to work and how much time to spend on family care responsibilities, but without discrimination in occupations.

To conduct into any aspect of women power or gender inequality, there is a need for detailed, updated gender data. In our sample of 28 countries, only those, who are members of the European Union have all indicators, collected and processed by the same methodology. For Balkans countries there are near 50%, but with a lot of breaks in series. Concerning the post-soviet countries, the problem of data is a major one. International organizations (ILO, Eurostat) have data on the macro level, but to analyze education levels, gender pay gap or hours worked, there is a lack of information about it. The National Statistics of these countries have also no adopted indicators on gender-disaggregated data or even do not collect them. That is why the question in comparing analysis for transition countries arises in important issue. So, interested parties may frame solutions for better understanding of the problems that women face. For instance, the government can encourage conducting surveys by appropriate institutions on the households' level about women employment informal sector, their contribution to the informal "care economy" etc. With these improvements further research is needed.

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# APPENDIX A

Table 6. List of the transition countries and their abbreviations

| **European Union (EU)** | | **Balkans** | | **Post-soviet** | |
|---|---|---|---|---|---|
| BUL | Bulgaria | ALB | Albania | ARM | Armenia |
| CRO | Croatia | BOS | Bosnia and Herzegovina | AZE | Azerbaijan |
| CYP | Cyprus | FYR | FYR Macedonia | BEL | Belarus |
| CZE | Czech Republic | MNG | Montenegro | GEO | Georgia |
| EST | Estonia | SER | Serbia | KAZ | Kazakhstan |
| GRC | Greece | | | KGZ | Kyrgyz Republic |
| HUN | Hungary | | | MDA | Moldova |
| LAT | Latvia | | | MON | Mongolia |
| LIT | Lithuania | | | RUS | Russian Federation |
| POL | Poland | | | TJK | Tajikistan |
| ROM | Romania | | | UKR | Ukraine |
| SVK | Slovak Republic | | | UZB | Uzbekistan |
| SLO | Slovenia | | | | |