

Trends in Closing the Gender Gap: The Case of the Czech Republic and Germany

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Abstract:

The purpose of this paper is to provide overview of the development of gender-based disparities over the period 2006-2021. Specifically, the aim is to investigate whether differences exist between the Czech Republic and Germany. The emphasis is on Economic Participation and Opportunity subindex of the Gender Gap Index and its indicators Labour Force Participation, Wage Equality for similar Work, Estimated Earned Income and Ability of Women to Rise to Position of Leadership. The findings indicate that gap between women and men is continually smaller in the both observed countries. Average progress of reaching parity is almost identical in case of index Economic Participation and Opportunity. Nevertheless, differences have been identified, especially in the areas of Wage Equality for Similar Work, Estimated Earned Income and Ability of Women to Rise to Position of Leadership. Germany achieves far better results in terms of Labour Force Participation and Estimated Earned Income. Conversely, the Czech Republic shows better results in cases of indicators Wage Equality for Similar Work and Ability of Women to Rise to Position of Leadership.

Index Terms—economic participation, gender equality, gender gap index, pay gap

I. INTRODUCTION

The issue of gender inequality is frequently covered in both academic research and professional practice and is still a big concern in developed as well as in developing countries. Gender inequality is a multidimensional phenomenon that demonstrates that women and men do not enjoy the same rights and opportunities across different aspects of life, including social interactions, economic participation and decision-making [2], [3]. On the other hand, gender equality as the opposite of gender inequality means equality and the participation of women and men in all spheres of public and private life at all levels, including decision-making processes and leadership positions [30].

It is obvious that the importance of women in economic areas is growing

globally and equal opportunities by gender is considered as an important economic and business issue. Barnat, MacFeely and Peltola [2] argue that the economic dimension is an important indicator for explaining gender inequality. According to Sawicka and Lagoda [31] gender equality brings economic benefits, contributes toward competitive advantage, better economic performance and improved economic efficiency. Similarly, Luci [27] argues that the active participation of women in the work force positively contributes to economic growth. The results of previous studies [9], [25] indicate that gender inequality has a significant impact on the growth of economies and seems to be

an important precondition for economic development. Farooq, Yusop, Chaudhry and Iram [7] also acknowledge in their study that gender inequality is a factor that slows economic growth.

Despite the progress in reducing gender inequality, there still exist gender differences in areas such education, health, labour market opportunities and economic and political empowerment. Moreover, since about 2000, there has been a stagnation in many dimensions of gender inequality in both developed and developing countries [26]. Even in developed countries there are still gaps in access to labour force opportunities, in wages paid to women compared to their male counterparts and in inequality in manager positions. For the purpose of this study, the Czech Republic and Germany, both developed and neighbouring countries, have been studied.

Gender equality is one of the basic values of the Czech Republic and promoting it is among the long-term priorities of the Czech government. Nevertheless, gender inequality in its various forms still remains in Czech society. The main problems include high vertical and horizontal gender segregation of the job market, economic inequality, low representation of women in decision-making positions, and stereotypical division of roles in home and family care. In the relevant international indices (for example, the Gender Equality Index of the European Institute for Gender Equality, Social Institution and Gender Index and Global Gender Gap Index) the Czech Republic is significantly below the EU average. The Czech Republic has one of the largest gender employment and gender pay gaps in the EU. In 2018, the gender pay gap was higher only in Estonia and Germany [30]. On the other hand, it can be assumed that some areas of gender inequality in the Czech Republic have been reduced. For example, the increasing participation of women in the workforce, increasing proportion of women employees with a university degree and the overall higher level of formal qualifications of employed women [30].

Furthermore, additional burdens on women have been created by the Covid-19 pandemic. Gender equality in various areas of life such as health, the economy, social behaviour, education, the labour market etc. has been impacted by this crisis. Menzel and Miotto [28] found in their study that women in the Czech Republic have been economically and socially affected harder by Covid-19 than men. On the other hand, the pandemic has brought about some experience such as for example working from home and opportunities to take more action to support and promote gender equality in Czech society.

In order to introduce and implement effective policies and measures aimed at further reducing gender inequality, a more detailed look into trends in the gender gap is needed.

The purpose of this study is to investigate trends in gender inequality in the Czech Republic and Germany by comparing scores in indicators in the field of economic participation and opportunity. Moreover, the study aims to answer whether differences and similarities between these two countries exist in some indicators in the sub-index economic participation and opportunity.

To achieve the purpose and aim of this study, the following research questions are explored:

Q1: What are the trends of the Economic Participation and Opportunity Gender gap index and its indicators in the monitored countries in the period 2006-2021?

Q2: What are the main similarities in the achieved values of the indicators of the Economic Participation and Opportunity Gender gap index?

Q3: What are the main differences in the achieved values of the indicators of the Economic Participation and Opportunity Gender gap index?

II. METHODOLOGY

Measuring gender diversity deals with quantifying and comparing differences between men and women with regard to their rights and responsibilities, opportunities and threats. The gender gap is defined as a deviation from the ideal of a society where there is no gender gap and women participate in practically the same number in all areas of life [32]. It uses a number of statistical indices to measure the differences between men and women.

In order to measure and quantify the gender gap, many index systems of indices have been developed, including the Global Gender Gap Index (GGI). The oldest index to measure gender inequalities is the Gender-related development index (GDI), which is based on the Human development index [32]. The index measures loss of human development due to gender differences. It consists of four indicators, which are grouped into three dimensions. The indicators are Life expectancy, Illiteracy, Education Level and Income. The provider of the index is the United Nations Development Program (UNDP) [1], [29], [32], [35]. UNDP has also developed another index, the Gender empowerment measure (GEM) [35]. This index is focused on empowerment and measures the extent to which women have access to specific levels of power [6]. Like GDI, GEM has four indicators, political power, legislation, skilled workers and economic resources, grouped into three dimensions of political participation and decision-making, economic participation and decision making and power over economic resources [29], [32], [35]. Other indexes used are EqualX, Gender equity in public institutions (GEPI) and the Father friendliness index (FFI) [32].

To analyse trends in the presented study we used the Global Gender Gap Index (GGI). GGI was firstly published in 2006 by World Economic [10]. The assumption on which the index is based is that gender inequality is the combined outcome of socio-economic, political and cultural variables [2]. The purpose of the index is to capture the size of gender differences and track progress in gender equality over time and to comprehensively and systematically evaluate gender differences in terms of economic participation, educational attainment, health and survival, and political empowerment of participating countries [4], [10]. The gender equality or inequality of a country is reflected through the score and ranking. The score is an absolute indicator of the level of gender inequality in a country and ranges from 0 (inequality) to 1 (equality) [4], [34]. The ranking is a relative indicator, influenced by the number of participating countries [4]. The index is designed to measure gender-based gaps in access to resources and opportunities in individual countries rather than the actual level of available resources and opportunities in those countries, which makes the index independent of the level of development. All data are converted to female/male ratios during the construction of the index and they are truncated at the "equality benchmark". After this step, the weighted average of the variables within each sub-index creates the subindex score. An unweighted average of each subindex score is used to formulate the overall Gender Gap Index Score [11].

It included 156 economies in 2021 [24], which are examined and ranked on the basis of the four sub-indexes: Economic participation and opportunity, educational attainment, health and survival and political empowerment [10], [34]. Each sub-index is based on several indicators with different weights.

There are five indicators of the economic participation and opportunity sub-index. It is composed of indicators of female labour force participation, which has weight 0.199, wage equality between women and men for similar work, weighting 0.310, estimated female earned income over male value, which has weight 0.221, number of female

legislators, senior officials, weighting 0.149, and managers and professional and technical workers, weighting 0.121 [10].

The indicators of the educational attainment sub-index are female literacy rate over male value, weighting 0.191, female net primary level enrolment over male value, weighting 0.459, female net secondary level enrolment over male value, with weight 0.230, and female gross tertiary level enrolment over male value, which has weight 0.121 [10].

The health and survival dimension consists of two variables: female healthy life expectancy over male value, weighting 0.307, and sex ratio at birth variables, which has weight 0.693 [10].

The last sub-index is political empowerment. This sub-index has three indicators of women with seats in parliament over male value, weighting 0.310, women at ministerial level over male value, which weight is 0.247, and number of years of female head of state over male value, weighting 0.443 [10].

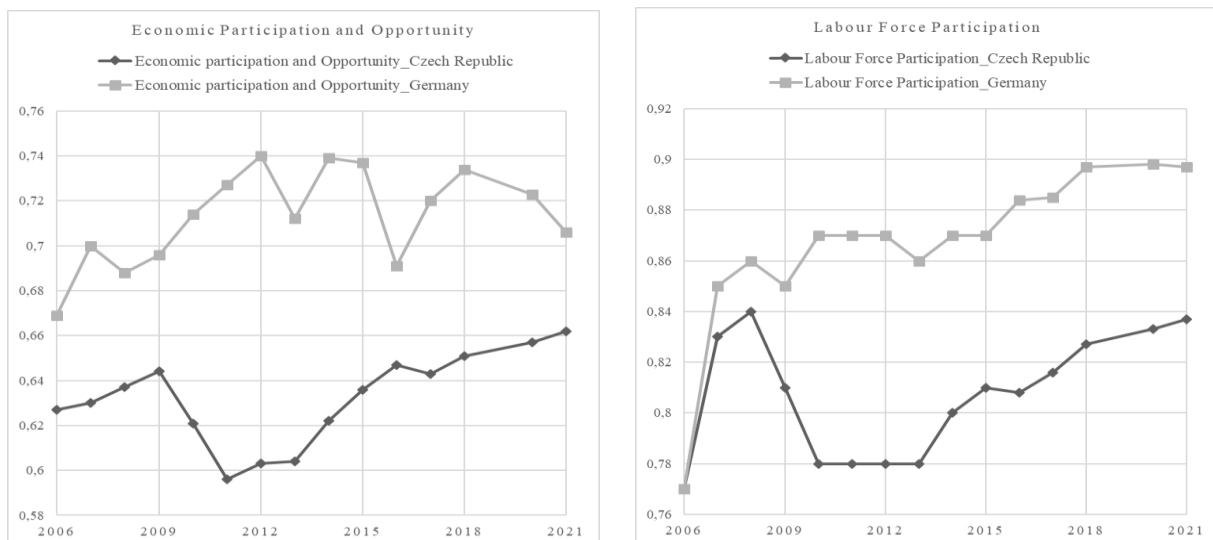
The data sources for this study are The Global Gender Gap Reports (2006-2021) published on the website of the WEF. The Global Gender Gap Report 2019 was unavailable on the site during the study, so 2019 is not included in the study

III. RESULTS

Based on the data provided by the Global Gender Gap Report, this study describes gender inequality in the Czech Republic by comparing its scores in sub-dimensions and indicators in the fields of Economic Participation and Opportunity with Germany, namely in the fields Labour Force Participation, Wage Equality for Similar Work, Estimated Earned Income and Ability of Women to Rise to Positions of Leadership. We purposely selected the Czech Republic as the country of the authors which allows an insider's view of the economic situation and social climate in the selected country, and Germany was selected as a country to which the economy of the Czech Republic is closely tied.

Fig. 2 Labour Force Participation

Fig. 1 Economic Participation and Opportunity



Source: Own proceedings based on Global Gender Gap Report data, 2006 - 2021

A. Economic Participation and Opportunity

Fig. 1 displays the development of the index Economic Participation and Opportunity in the Czech Republic in the period 2006 – 2021. There was an improvement in closing the gender gap between the period 2006 – 2009. The peak of this growth was 0.644 in 2009, but from then the gender gap became wider again for the next two years. The decline in the score bottomed out in 2011, when it reached the value of 0.596. The gap started to close again, yet it was still wider than in 2009. The score remained on the same level as 2008 in 2015. The previous peak from 2009 was surpassed in the following year, when the score reached a value of 0.647. The gender gap slightly increased in 2017 when the gender gap reached a value of 0.643. Since then, the gap has been continually closing until the year 2021 when the score remained at a value of 0.662.

Fig. 1 also shows how the index of Economic Participation and Opportunity developed in Germany in the observed period 2006-2020. The index started at a score of 0.669 in 2006 and then there was a solitary increase in 2007 (0.7). The gender gap became wider in 2008 and 2009. However, the gap decreased slightly again in 2009 and the score reached a value of 0.714 in 2010. The value of the score grew to its peak until 2012 when it reached 0.74. In 2013 there was a very noticeable decline to 0.712 followed by re-growth to 0.739 the next year. of the fall in the value of the index in Germany in 2013 was caused by a small decrease in the Labour Force Participation ratio and the Wage Equality for Similar Work ratio. Between 2015-2016 parity decreased again. The decline in the score in 2016 was caused by the gender gap in estimated earned income. The latest increase could be observed between 2017-2018 when the score reached 0.734. From then the gender gap started to grow wider again until 2021, when it remained at 0.706.

B. Labour Force Participation

Fig. 2 shows the increase in parity in the Czech Republic between 2006 – 2021. The peak of the increase was reached in 2008 with a value of 0.84. There was a significant decrease in 2009 and 2010. The value fell to 0.78 and remained at this level until 2013. The gap started to close again in 2014 when the value of the indicator reached 0.8. The increase continued in the next years with only one exception, in 2016, when the value dropped to 0.808, but the next year there was growth again (0.816). Since 2017 there has been a continual improvement in closing the gap. More than 83 % of the gap in this indicator was closed in 2021. In Germany, the indicator reached its peak in 2018. Figure 2 displays the increase between 2006 – 2007 from 0.77 to 0.85. Since then the gender gap for this indicator remained relatively stable compared with the Czech Republic. There was an increase between 2015 – 2020. The value reached its peak in 2020 at 0.898. Nevertheless, over the next period the gap started slightly opening again. In 2021 the indicator was at 0.897 and 10.3 % of gender gap was left to be closed.

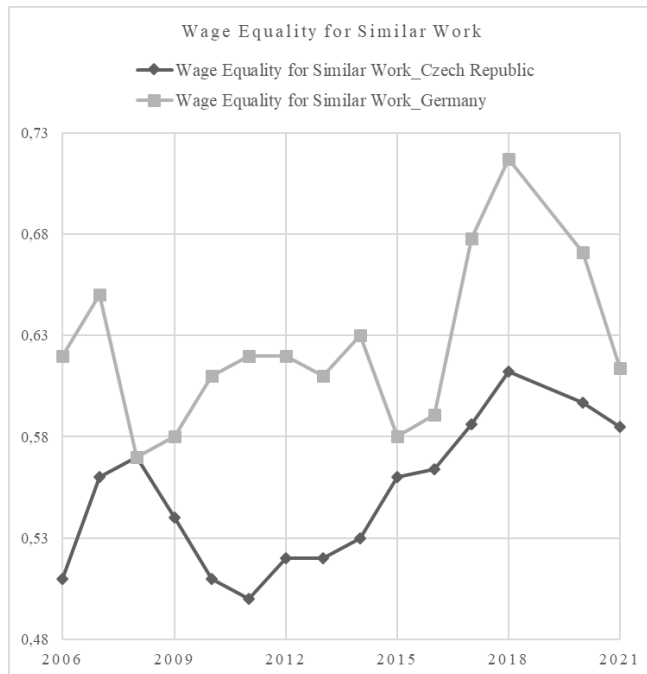
The score of the indicator was on the same level in 2006 and the development was similar in both observed countries in the next two years although the speed of progress was slower in the Czech Republic. There was a decline in the score in both countries, but in the Czech Republic it was much deeper and continued even in the next year while in

Source: Own proceedings based on Global Gender Gap Report data, 2006 - 2021

Germany it increased again. The values stabilized at 0.78 in the Czech Republic and at 0.87 in Germany between the years 2010 – 2012. A slight decline was seen in Germany in 2013 and then the gender gap started to close in both countries until 2021.

Fig. 1 Wage Equality for Similar Work**C. Wage Equality for Similar Work**

Fig. 3 displays the gender gap for the indicator Wage Equality for Similar Work in the



Source: Own proceedings based on Global Gender Gap Report data, 2006 - 2021

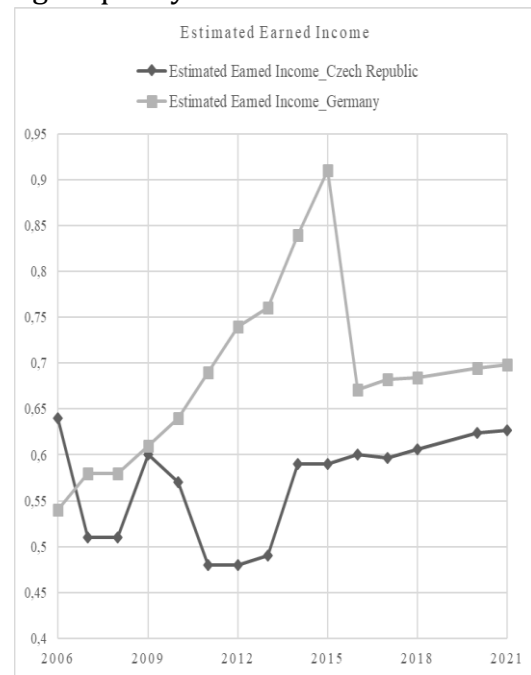
period 2006 – 2021. The trend showed there was a slight improvement. The results indicate that the score of this indicator ranged between 0.5 and 0.612. The value slightly decreased between 2008 – 2011 and then there was an increase again with peak in 2018. The score was 0.612. Since then there has been a decrease in value again. The gender gap was left open at 41.5 %.

The score in Germany reached higher values but progress was more volatile over time. There was a slight decrease in 2008, followed by an increase again. The score oscillated between 0.61 and 0.63 in the period 2010 – 2014. Then the gender gap started to open again in 2015. That decrease was followed by an increase again with a peak in 2018 at 0.717. The score of the index dropped again as in the Czech Republic in 2020 and 2021. The gender gap opened from 38.6 % in Germany in 2021.

The scores were balanced in 2008 when the gap closed from 57 % in both Germany and the Czech Republic. This was followed by a decline in the Czech Republic and an increase in the values of the indicator in Germany. The decline bottomed out in 2011. In the same year the increase in Germany reached its peak. The scores came closer again in 2015 when the gap closed from 56 % in the Czech Republic and from 58 % in Germany. The difference between the values of scores began to widen again due to faster growth in Germany in the following year. The same trend could be seen in the next period, 2016 – 2018. The growth in scores reached its peak in both countries in 2018. Then the gaps started to open again. The opening speed is slower in the Czech Republic.

D. Estimated Earned Income

Fig. 4 shows an evaluation of the indicator Estimated Earned Income for the Czech Republic. The results indicate that growth was relatively stable from 2014. The score reached its highest level in 2006, when the gender gap closed from 64 %. Then there was

Fig. 4 Estimated Earned Income

Source: Own proceedings based on Global Gender Gap Report data, 2006 - 2021

a decline to 0.51 in 2007 and the score remained the same in 2008. The gender gap slightly closed again in 2009, but in the next two years the gender gap started to open. The decline stopped in 2011 at 0.48. A minor improvement started to be visible in 2014. Since that year the gender gap closed continually. 37.3 % of the gender gap for this indicator remained to be closed in 2021.

Development of the indicator was different in Germany. Fig. 4 shows that the score grew steadily from 2006. The peak was in 2015 at 0.91. The gender gap was almost closed. Nevertheless, there was an appreciable decline to 0.671 in 2016. In the following years, the gender gap started to close gradually again. The growth was not as fast as in the period 2006-2015. The gender gap was closed only from 69.8 % in 2021.

The score of this indicator was higher in the Czech Republic than in Germany in 2006. However, in the following year the rate of closing the gap of the indicator increased in Germany and in the Czech Republic the score fell. From 2006 to 2015 the score continually grew in Germany. The development of the indicator was more volatile in the Czech Republic.

E. Ability of Women to Rise to Position of Leadership

As Fig. 5 shows, the indicator Ability of Women to Rise to Position of Leadership peaked at 0.418 in the Czech Republic in 2016. Between the years 2006 – 2008 there was an increase from 0.35 to 0.41. Then the gender gap started to open again. The score gradually declined to 0.36 in 2014. In the period 2015 – 2016 the score improved and reached its peak. After two years of closing, the gap opened again. The score dropped to 0.34 in 2017 and to its lowest level of 0.327 in 2018. In 2020 the score began to slightly improve and in 2021 the ability of women to rise to a position of leadership remained closed to only 36.6 %.

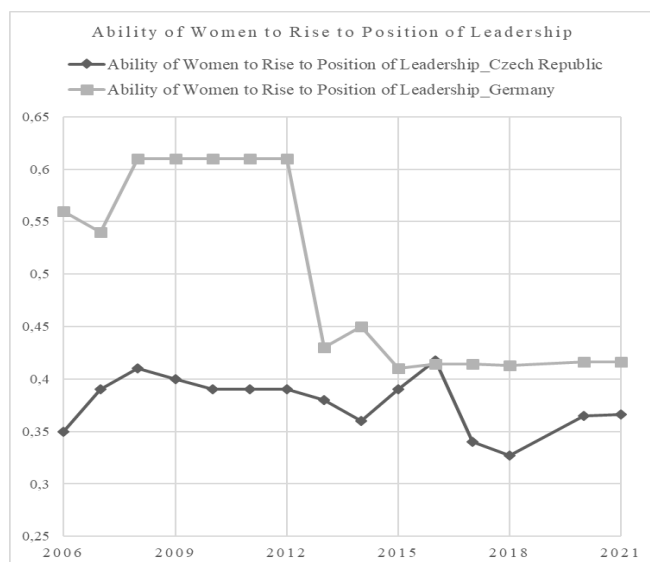


Fig. 5 Ability of Women to Rise to Position of Leadership

Source: Own proceedings based on Global Gender Gap Report data, 2006 - 2021

In Fig. 5 we can see the development of indicator Ability of Women to Rise to a Position of Leadership in Germany. The score was at 0.56 in 2006 and after a drop to 0.54 in 2007 it reached 0.61 in 2008. It remained at that level in the period 2009 – 2012. The gender gap widened perceptibly in 2013 when the score declined to 0.43. Then there was an improvement in 2014 to 0.45 followed by another decline in 2015. The score was at its lowest level, 0.41, in 2015. Since then, the gender gap very slowly started to close again. In 2021 58.4 % remained to be closed.

Since the year 2006, the gap in the indicator Ability of Women to Rise to a Position of Leadership has been closed to a much greater extent than in the Czech Republic. But due to the decline in the score in Germany in the period 2012-2013 the level of closure was almost similar and the score reached the same values in 2016. The level of the indicator was balanced in Germany between the years 2016 – 2021 but there was another decline in score in the Czech Republic followed by an increase in the same period. The gap closing rate has also stabilized in the last two years but on a lower level than in Germany.

IV. COMPARATION OF AVERAGE PROGRESS OF THE INDICATORS

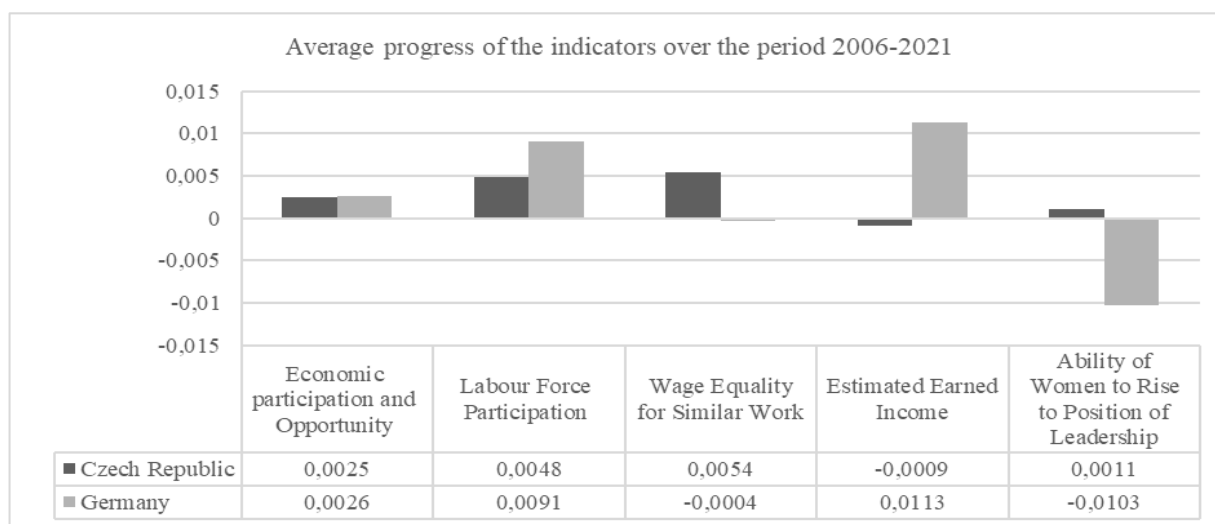


Fig. 6 Average progress of the indicators over the period 2006 - 2021

Source: Own proceedings based on Global Gender Gap Report data, 2006 - 2021

Fig. 6 shows the average change in closing the gender gap in the monitored sub-index indicators during the period 2006 – 2021. The given values are calculated as an average of year-on-year changes in individual indicators.

In the case of the Economic Participation and Opportunity gender gap sub-index, it is clear that the average changes were very similar in both countries. In the case of the Czech Republic the average change in score reached 0.0025 and in the case of Germany it was 0.0026. The average level of growth of the index is similar in the monitored countries. Nevertheless, the average change in both monitored countries did not show a noticeable average increase over the period. A similar trend can be seen worldwide. In the 2021 Global Gender Gap report two opposing trends that cause it are mentioned. The first is an increase in the proportion of women among skilled professionals and then progress in wage equality. However, overall there is a persistent lack of women in leadership positions around the world (Hausman, 2021).

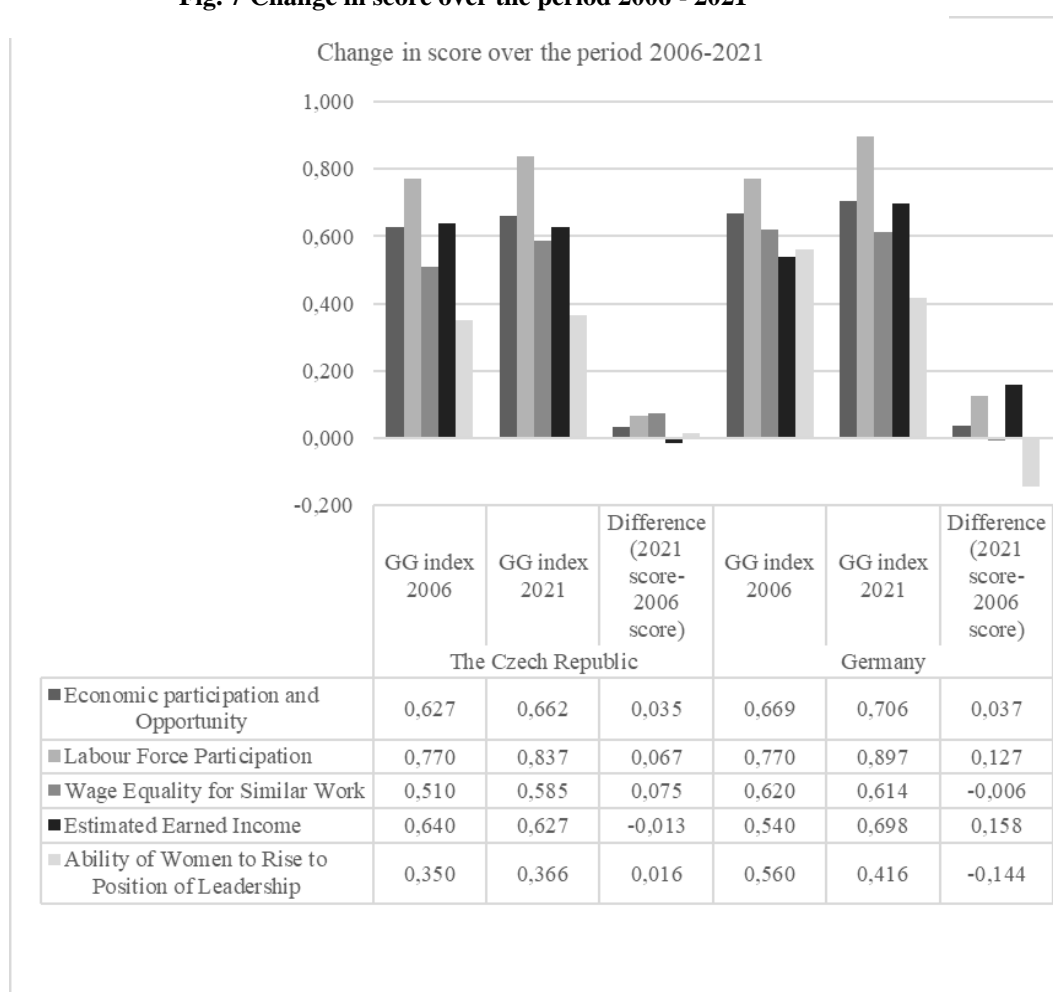
The differences are evident in the indicators. The average increase for the Labour Force Participation indicator is higher in Germany, where it reached a value of approximately 0.0091. In the Czech Republic, this average increase was smaller, at only 0.0048. It can be seen that the gender gap started to open slightly in the last two years in Germany. It is mentioned that projections for a select number of countries show that gender gaps in labour force participation are wider since the outbreak of the pandemic in the 2021

Global Gender Gap report. Despite this, in the Czech Republic, there was continual slow progress in closing the gap.

The average change in the Wage Equality for Similar Work indicator is higher in the Czech Republic, where it grew by an average of 0.0054 during the period 2006 - 2021. In Germany, on the other hand, the average growth of this indicator is negative. The value of the average progress is -0.0004.

In the case of the Estimated Earned Income indicator, the average change in the gender gap in Germany is 0.0113. In the Czech Republic, the average change in this indicator is negative. The value decreased on average by -0.0009. According to the 2021 Global Gender Gap report, Germany is cited as one of the advanced economies with a significant income gap to bridge along with Denmark, France and the United States. As in the case of the indicator Labour Force Participation it is expected that the Estimated Earned Income

Fig. 7 Change in score over the period 2006 - 2021



Source: Own proceedings based on Global Gender Gap Report data, 2006 - 2021

gender gap is likely to increase after the pandemic crisis.

The last monitored indicator, Ability of Women to Rise to a Position of Leadership, has an average growth of 0.0011 in the Czech Republic. In Germany, the average change in score of this indicator over the reviewed period is negative at -0.0103.

Fig. 7 shows changes in the scores from 2006, when the first report was published, to 2021. The change in score of the Economic Participation and Opportunity subindex is

0.035 in the Czech Republic over the period 2006-2021. The change in score of the indicator Labour Force Participation is 0.067, while the change in Wage Equality for Similar Work is 0.075, Estimated Earned Income is -0.013 and Ability of Women to Rise to Position of Leadership is 0.016 in the Czech Republic in the same period. The change in score of Economic Participation and Opportunity subindex is 0.037 in Germany over the period 2006-2021. The change in the Labour Force Participation indicator is 0.127, Wage Equality for Similar Work indicator is -0.006, Estimated Earned Income indicator is 0.158 and Ability of Women to Rise to Position of Leadership is -0.144. There is a noticeable decrease in the estimated earned income indicator in the Czech Republic in 2021 compared to 2006 and a decrease in Wage Equality for Similar Work and Ability of Women to Rise to a Position of Leadership in Germany in the same period. Germany was ranked 32nd in the sub-index Economic Participation and Opportunity, while the Czech Republic was ranked 52nd out of 115 countries in 2006 (Hausman et al., 2006). In 2021, the ranking in the Economic Participation and Opportunity sub-index was 62nd for Germany and 91st for the Czech Republic out of 156 countries [24].

V. DISCUSSION AND CONCLUSION

This study observes trends in closing the gender gap in Germany and in the Czech Republic over the period 2006-2021. For the purpose of our analysis, the Economic Participation and Opportunity sub-index with its indicators Labour Force Participation, Wage Equality for Similar Work, Estimated Earned Income and Ability of Women to Rise to a Position of Leadership were chosen.

The gender gap slightly opened in Germany in 2021. Its overall ranking was 11th place, the gender gap opened from 20.4 %. The rank in the Economic Participation and Opportunity index worsened too, Germany fell to 62nd place in 2021. The position of the Czech Republic worsened too over the observed period. Its rank was 78th overall and 91st in the Economic Participation and Opportunity index [24].

While the rankings of both countries dropped, available data showed that the overall gender gap in economic participation and opportunity closed in both countries during the reviewed period. The development in Economic Participation and Opportunity Gender Gap index is similar in both observed countries. There were four minor dips in the score in Germany and one significant decrease and one minor decrease in the Czech Republic. The year-on-year average progress is almost identical. Although the average year-on-year increase in the Economic Participation and Opportunity index is very similar in both countries, the development of country indexes in the period under review differs [10] – [24].

The biggest differences between the countries are in the average progress of indicators. Germany performed better in closing the gap in indicators in the cases of Labour Force Participation and Estimated Earned Income, while the Czech Republic is on average faster in closing the gender gap in the indicators Wage Equality for Similar Work and Ability of Women to Rise to a Position of Leadership.

Both monitored countries have shortcomings in the Ability of Women to Rise to a Position of Leadership indicator. In this case, less than 50 % of the gender gap closed both in Germany and the Czech Republic and it is possible to observe a rather declining trend in the development of the indicator. The differences in the scores in 2006 and 2021 are minimal, and the indicator in Germany in 2021 is slightly lower than in 2006. There is a global persistent lack of women in leadership positions. According to the 2021 Global Gender Gap report, women fill just 27 % of all managerial positions around the world. And is expected, that data from 2021 still does not fully reflect the impact of the pandemic

of Covid-19, so the gap in this indicator might open more widely in the next years even in Germany and the Czech Republic [24].

Despite the average faster progress in closing the gender gap in the Wage Equality for Similar Work indicator, there is still a great gender pay gap. According to the 2021-2020 Gender Equality Strategy, the Czech Republic is one of the worst EU countries in gender pay gap, the gross monthly median wage of women in 2021 was 31 720 Czech crowns (CZK) in the fourth quarter of 2021, while the gross monthly median wage of men was 36 792 CZK in the same period [5]. The reason might be horizontal segregation of the job market. Women are usually employed in lower-wage fields like education, social care, etc. This problem is also related to the low representation of women in leadership positions [30]. Pursuing a professional career is still disproportionately understood as a male activity in Czech society [30].

Strategy 2021+ aims to reduce income inequality between women and men and to increase the representation of women in decision-making positions [30].

According to the Federal Statistical Office (Destatis) the average gross hourly earnings of women was 19.12 euros, while men had 23.20 euros in March 2022. The difference in average earnings per hour was 18 % in Germany in 2021, 20 % in western Germany (and Berlin) and 6 % in the eastern part of Germany [33].

The German Sustainable Development strategy set the target to reach 30 % of female participation in supervisory boards of European joint-stock companies and partnerships limited by shares with more than 2000 employees and listed companies with full co-determination. This target was reached in 2018, which was twelve years ahead of the deadline. But most businesses and the majority of management positions in the private sector were not taken in account for the indicator [8].

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