
The Gender Polarization of Education and Employment in the European Union Countries (in 2005-2019): Practical Implications

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Abstract:

Purpose: The main purpose of this article is to define the level of education of the European Union citizens and to determine the gaps in this scope between men and women.

Design/Approach/Methodology: The analyzed indicators are percentage of the population with tertiary education (X1), percentage of early school leavers (X2), the participation rate in pre-school education (X3), and adult participation in learning (X4). What was also analyzed were such indicators as the percentage of employed graduates (Y1) and general employment level (Y2). The source of empirical data was the information collected by the European Statistical Office (Eurostat) about 28 member states of in the years 2005-2019.

Findings: In recent years, the EU's education (28) member states citizens have been growing steadily. However, according to ISCED, more women than men improve their knowledge and gain an education at the education level of 5-8, and the gap in this scope is getting wider, to the detriment of men. This diversification can be observed particularly in such countries as Estonia, Lithuania, and Latvia.

Practical Implications: In recent years, one could observe that the EU member states that recent graduates' employment rate remained stable at a high level and that the total employment rate increased steadily. This applies both to men and women.

Originality/Value: For women, education and qualifications raising on the labor market should be important as the research indicated significant correlations between the indicators that characterize the differences in the level of education of women in the EU (28) countries and the differences in their employment, which was not observed in case of men.

Keywords: Education level, employment diversification, education of men and women, labor market qualifications.

JEL codes: A2, C15, J11.

Paper type: Research study.

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1. Introduction

Among the development tasks characterizing the successive stages of human life, the process of learning and professional work is critical. Learning is a form of dominating activity in childhood and youth, while professional work is performed in adulthood's successive stages.

Therefore, education is a development task that takes place over the whole human life span, and one of its challenges is to prepare a person for professional work. Education and labor market interact and influence their shape (Krawczyk, 2011). Much attention is paid to find the best possible harmony on the line school-labor market, to use the potential of the employee and their resources to the fullest to the benefit of the company organization and for the greatest profit of the employer (Beck, 2002).

There is, however, a lack of consistency between the education system and the economy. This weakens the students' motivation to learn and results in the fact that most of them do not see the practical use of knowledge in future work. A specific problem is the one concerning early school leavers. Immediately, they stumble upon a barrier that is the school system and professional work without any preparation and necessary resources.

The formal and informal qualifications linked with the completion of education contribute to the labor market's success, facilitate professional adaptation processes, and foster successful problem-solving at subsequent stages of professional development (Plewka, 2015). They also make positioning in the company's structure easier and more beneficial (Robbins, 1998). The persons who did not complete the education are deprived of such resources. Therefore, they are in a tough situation in the labor market. Their situation constitutes a major social problem, the solution of which is one of the priorities of the European Union's education policy (Delors, 1998).

Education fosters a satisfactory professional career, and a good life translates into a greater self-realization level (Kohn and Schooler, 1986). Employers, on the other hand, inspire the employee's educational activity in terms of professional development linked with raising one's professional competences and are less prone to force the early school leavers to return to the education they – for various reasons – stopped.

The results of the return to education are significant, both for the person and for the company. What the employee needs is motivation, while the work establishment needs to be open to its staff's educational activity. In this scope, both parties may support and empower each other. The lifelong learning system would narrow the education gap, even if it occurred a long time ago. It is desired to use this opportunity, both in gender and when it comes to employment diversification.

2. Literature Review

Education is treated as the basic determinant of human, social, intellectual, and knowledge capital (Grossman, 2000; Jarecki, 2011). The meaning of education in the widely understood process of shaping a "new society" is also emphasized by an EU document Europe 2020 (Europa 2020..., 2011). In management, the beginning of the 21st century is the era of network organizations supported by IT technologies offering new opportunities for joint creation, knowledge, skills, and partners' competences use (Knop and Odlanicka-Poczobutt, 2016). Education in the Europe 2020 strategy is analyzed across two aspects. The first one concerns early education. A problem was identified on various scales across the EU member states that concern early school leaving for this level. This process ends the educational path too early, thus depriving young people of the opportunity to gain knowledge, skills, and qualifications needed on the labor market (Raport Polska, 2011..., 2011).

An early school leaver is characterized by two criteria age (18-24) and education level (not higher than middle school). The "Europe 2020" strategy assessed the early education system's indicator level, leaving at 10%. The decision not to continue one's education entails long-term consequences that, due to their nature, can be divided into individual, social, and macro-economic ones. The second aspect of education emphasized in the "Europe 2020" strategy concerns higher education. The expectations towards the percentage of people aged 30-34 who should hold a university diploma grew. The value concerning these expectations for EU countries was determined at a level greater than or equal to 40%. When it comes to higher education, EU member states are widely diversified. A high level of this indicator is justified with the benefits resulting from having a higher education degree – these are both immaterial benefits (prestige, satisfaction, esteem, better position on the labor market) and material ones (level of remuneration achieved by the persons with a higher education degree). One can also point to social benefits being the sum of the individual benefits resulting from the increase of education and its influence on the productivity level.

The modern labor market transfers more and more responsibility for the professional career pursuit onto an individual. A person is expected to have several specialist qualifications and a range of universal competencies and diverse resources; particularly emphasized is the role and importance of education, allowing to build the so-called "educational capital," which is currently a key factor of competitive advantage. In the changing reality, the "knowledge worker" has become the most desirable employee – their knowledge is used by the organizations employing them to build their own intellectual capital. At the same time, knowledge and its management's ability became the foundation of the professional development of an individual. The growing demand for knowledge led to the belief that the key that opens the door to the labor market, a guarantee of a good position, and high remuneration is higher education. The trends visible in the global economy (globalization, the research and technology development, information society

development, growing competition and development of services taking into account the changing preferences of the consumer and high level of human capital) result in the fact that highly-developed countries and the developing ones are under transformation from an economy based on industry to an economy based on knowledge (Warzecha, Odlanicka-Poczobutt and Kulińska, 2016; Kulińska and Odlanicka-Poczobutt, 2014).

The modern economy needs educated, open, mobile people willing to adapt quickly to the ever-changing environment. This leads to a new educational and professional functioning model – one profession and model of linear careers are a thing of the past. Currently, the employee should be ready to change one's place (country, city), industry, type, or manner of work many times. Higher education became a necessary condition to be ready for such changes, and, at the same time, it is no longer a guarantee of success in the labor market. This can be observed in the increasing number of unemployed higher education diplomas holders, in their increasing difficulty in finding a suitable job after graduation, as well as in taking up jobs that are incompatible with their field of completed studies, with their acquired profession, or taking up jobs that do not require higher education.

For Poles, work has always been of significant value; it was at the forefront (along with family) of one's life goals. On the one hand, this situation results from perceiving work as a value, as such a human activity that gives a person a sense of self-worth, satisfaction, that meets its basic needs, gives confidence and safety, on which a stable future can be built. On the other hand, the growing focus on work, devoting more and more energy and engagement to it results from the fact that there is less and less work, and stabilization related to job security, the amount of remuneration, social security becomes more and more difficult. Hence, we devote more time to preparing ourselves for our future employment, fighting for it, and maintaining it.

It can be assumed that finding work is one of the key conditions of implementing life goals linked with being independent; it allows living on one's own. For older workers, the stability of employment is important. Younger ones are more concerned about interesting work consistent with their education and interests, linked with high remuneration and fair assessment (Makin, Cooper, and Cox, 2000). When it comes to the sex of the worker, it is often emphasized that women more often than men are concerned with the sense of security, stability, and good social conditions at work and less often concerned with the type of performed tasks and professional achievements. As indicated by the research carried out by Czarnota-Bojarska and Łada (2004), it turned out that the differences between the sexes do not concern the group with the shortest seniority. According to the authors, currently, young people have similar professional ambitions and expectations, and gender ceases to be the most important determinant of one's social and professional role. Similar findings can be found in the research carried out by Jezior (2005).

This research indicated that there were no differences among women and men with higher education when it came to relations at work. In comparison, this tendency appeared in the group of people with lower education where the women participating in the research twice as often emphasized how important the social aspects of work are (Jeziór, 2005). In both studied groups (women and men with higher education), a higher probability concerning intellectual development at work, raising one's qualifications, and lower probability concerning remuneration aspects were identified. Moreover, women in independent or managerial positions were found to be more self-realization oriented than men. For women, the importance of a sense of security may result from the fact that they are generally better educated than men – they are more affected by the difficult situation on the labor market.

Finding stable and reliable work for many women is a condition that allows them to achieve other important life goals such as becoming independent, starting a family, or raising children. According to Turska (2012), when women attach more importance to the values traditionally matching the "male" career model, it confirms the phenomenon of "equalization" of professional careers models. The level of education in Poland grew in recent years, both generally and in specific dimensions. As indicated in the statistics, over the course of the past 10 years, the percentage of women with higher education increased so much that it overpassed the percentage of men in this scope. According to Zajączkowska, more women can also boast about secondary education. However, despite the observed development in this regard, the equal opportunities rule in access to education guaranteed by Polish law, in practice, is not fully enforced. The main reason for unequal access to education among women and men are economic struggles, combined with gender stereotypes (Zajączkowska, 2019).

The situation of young people with higher education on Poland's labor market in recent years has been better than the EU average – we can talk about higher employment indicators and lower unemployment. Higher education is also a significant bonus when it comes to the level of remuneration. According to Chłoń-Domińczak, the higher education system in Poland must face new challenges that will influence the graduates' situation and their accumulation of human capital in the next decades. It is worth listing the three main areas of these challenges.

First of them are the demographic changes – for more than ten years, the number of students in Poland is decreasing due to the low birth rate observed since the beginning of the 1990s. The second challenge is the processes taking place in the labor market – it is more dynamic, more sensitive to global trends. It requires constant adjustment of the educational offer to the changing labor market needs and equipping the graduates with transversal competencies and skills, allowing them to develop one's knowledge and abilities constantly. The third challenge is technological changes. Modern technologies, including artificial intelligence, means that technology will increasingly support and replace human work. (Chłoń-Domińczak, 2019). Technological development influences the economy's

functioning in a broad sense, while modern information and communication technologies (ICT) exert positive and negative results on various spheres of socio-economic life (Warzecha and Odlanicka-Poczobutt, 2015).

3. Materials and Methods and Description of the Dataset

The level of education of the population and the willingness to improve one's qualifications, especially those employed in enterprises, is an important determinant of efficient and effective work, which is then reflected in societies and economies (Murawska, 2017; 2018). In this aspect, gender diversity in the education of the population, or employees, plays an important role. Men and women quite often occupy specific positions in organizations, usually assigned to a specific gender, and carry out assigned tasks (Murawska, 2019). In some positions, the employees' high qualifications are necessary to carry out tasks, while basic competencies are enough for other occupations. The qualifications held by women and men can determine their professional activity, professional position, or workplace. Therefore, this article's main purpose is to define the level of education of the European Union citizens, determine the gaps in this scope between men and women, assess the differences between the countries, and analyze the tendencies in the years 2005-2019. Additionally, the authors tried to assess if these differences (gaps) in the level of education of men and women in the EU member states translate into differences (gaps) regarding the activity on the labor market.

To implement this article's goals, the authors, with the help of experts, selected and summarized necessary indicators – as a result, a database in Microsoft Excel and StatisticaPL was created. A base with several indicators characterizing education and employment based on gender (M and F) was created. The following indicators were analyzed: percentage of the population with tertiary education (X1), percentage of early school leavers (X2), the participation rate in pre-school education (X3), and adult participation in learning (X4). To achieve the second goal of the article, such indicators as the percentage of employed graduates (Y1) and the general employment indicator (Y2) were analyzed additionally (Table 1).

The collected indicators were divided into independent variables (X1M, X1K, X2M, X2K, X3M, X3K, X4M, X4K) concerning the level of education and for these indicators gaps due to gender (LX1MK, LX2MK, LX3MK, LX4MK) were calculated and into dependent variables concerning the diversification in the level of employment a (Y1M, Y1K, Y2M, Y2K) and for these indicators' gaps were calculated (LY1MK, LY2MK). Such a division of indicators was used to verify if the diversification of education level due to gender (independent variables) in the EU member states influences employment diversification.

The source of empirical data was the information collected by the European Statistical Office (Eurostat). 28 Member States of the EU were subject to the analysis¹. The research years were the years 2005-2019. The data were subject to

statistical analysis. What was calculated were the increase or decrease rate indicators Pt, L gaps indicators (gaps, differences), Vs. Variability coefficients and rxy correlation coefficients.

Table 1. Indicators taken into account to assess the gender gap in the level of education of children, youth and adults and the employment of graduates and adults in EU(28) in the years 2005-2019

Indicator symbol	Indicator description	Gap name***	Gap description
X1 _M * and X1 _K **	Education ratio at the level of 5-8 according to ISCED - percentage of the population aged 30-34 who successfully completed higher education	LX1 _{MK}	Stimulus – negative value of the gap means greater percentage of women with higher education (negative (-) gap value is to the benefit of women, positive (+) to the benefit of men)
X2 _M and X2 _K	Indicator of early education leavers – percentage of the population aged 18-24 with at most secondary education, who did not participate in any education program or training for four weeks preceding the survey	LX2 _{MK}	Destimulant – positive value of the gap means greater percentage of men as early education leavers (positive gap value is to the benefit of women, negative (-) to the benefit of men)
X3 _M and X3 _K	Indicator of participation in pre-school education in the % of the age group of children aged 4 till the starting age for compulsory education – percentage of children aged four till the starting age of compulsory education that participated in pre-school education	LX3 _{MK}	Stimulus – negative value of the gap means greater percentage of girls in the pre-school education (negative (-) gap value is to the benefit of girls, positive (+) to the benefit of boys)
X4 _M and X4 _K	Indicator of participation of adults in learning – percentage of persons aged 25-64 who claimed to have completed formal or non-formal education or training for four weeks preceding this study.	LX4 _{MK}	Stimulus – negative value of the gap means greater percentage of adult women participating in learning (negative (-) gap value is to the benefit of women, positive (+) to the benefit of men)
Y1 _M and Y1 _K	Indicator of employment of recent graduates – percentage of population aged 20-34 with at least secondary education who are employed and who did not complete any education program or training during the	LY1 _{MK}	Stimulus – negative value of the gap means greater indicator of employment of female graduates (negative (-) gap value is to the benefit of women, positive (+) to the benefit of men)

	four weeks preceding this study		
Y2 _M and Y2 _K	Indicator of employment – percentage of employed population in general aged 20-64	LY2 _{MK}	Stimulus – negative value of the gap means greater indicator of employment of women (negative (-) gap value is to the benefit of women, positive (+) to the benefit of men)

Note: M* – men, K** – women, *** – difference between the value of the indicator for men and for women, for example $X1_M - X1_K = LX1_{MK}$ etc.

Source: Own study on the basis of Eurostat, 2020, Database.

<https://ec.europa.eu/eurostat/data/database>.

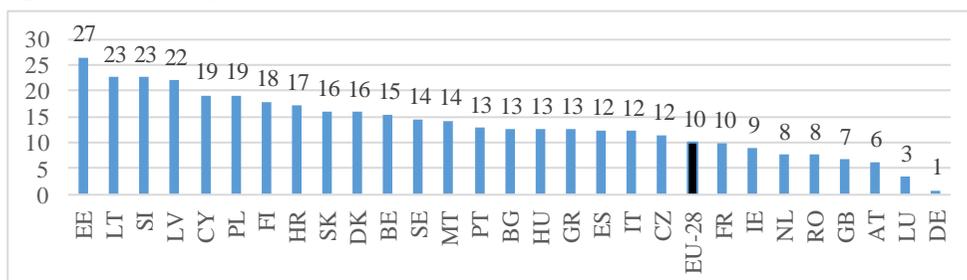
4. Empirical Results

In the EU member states, the percentage of young people aged 30-34 who completed higher education in the years 2005-2019 was systematically growing, both when it comes to men and women, which is also confirmed by the values Pt1 and Pt2. Education indicator (X1) in EU (28) in 2019 amounted to 36.6% for men (in 2005 it was at the level of 26.0%), and for women 46.7% (in 2005 it was at the level of 30.0%). As can be deduced from the data presented in table 2, the difference (gap) when it comes to higher education among men and women living in EU (28) member states were systematically growing, and in 2019, it amounted to 10.1 percentage point to the benefit of women (in 2005, this gap was at the level of 4.0%) (Table 2).

The smallest gender gap (min LX1MK) for the studied X1 indicator in 2005-2019 ranged from 0.1 to 1.4 percentage points and could be observed in such countries as Germany, Czech Republic, and Austria. In turn, relatively the largest gap (max LX1MK) could be observed in such countries as Finland, Slovenia, Estonia, and Latvia, where it ranged from 29.7% in 2015 in Estonia to 16.7 in 2005 in Finland (Table 2). In 2019, the greatest gaps when it comes to the level of higher education could be observed in such countries as Estonia (27%), Lithuania (23%), Slovenia (23%), Latvia (22%), and the smallest ones in Germany (1%), Luxembourg (3%), Austria (6%) and Great Britain (7%) (Figure 1). In all countries, the gap is to women's benefit, which means a greater percentage of women aged 30-34 who have completed higher education.

Negative values of the gap in general and maximum and minimum ones regarding the level of education of EU(28) citizens prove that more women than men complete higher education across all countries. Even though this gap is widening LX1MK (from 4.0% in 2005 to 10.1% in 2019), a positive aspect is a gradual decrease in the general variability coefficient Vs. Calculated for all EU(28) countries; decrease from 71.2% in 2005 to 43.9% in 2019.

Figure 1. Gender gap in education ($LX1_{MK}$) in EU-28 in 2019 (absolute value)



Source: Own calculations on the basis of Eurostat, 2020, Database.
<https://ec.europa.eu/eurostat/data/database>.

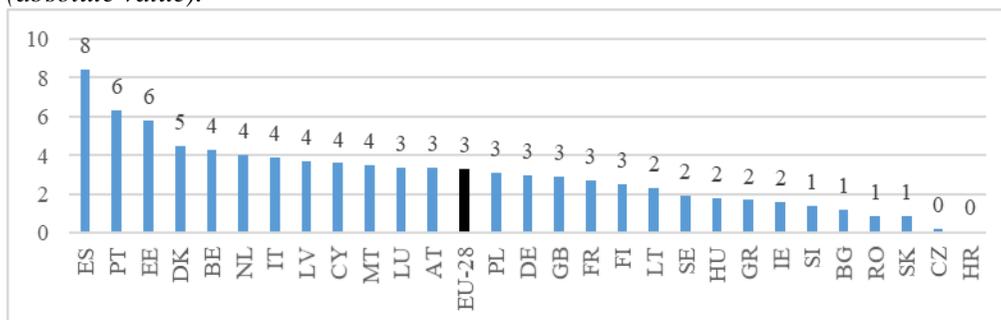
The second analyzed indicator that characterizes the EU's level of education (28) citizens is the percentage of people aged 18-24 who are classified as early education leavers (X2). It means that such persons completed at most secondary education and did not complete any education program or training during the last 4 weeks preceding the research. As can be deduced from the data found in Table 2, the percentage of early education leavers in the years 2005-2019 in the EU(28) is gradually decreasing. The percentage of men who completed at least secondary education and not participating in education programs and training in 2019 amounted to 11.9% (in 2005, it amounted to 17.7%), and the percentage of women in such situation amounted to 8.6% (in 2005 it amounted to 13.3%). The gap $LX2_{MK}$ between men and women amounted in 2019 to 3.3% and increased from 2015 when it was at the lowest level of 2.9%. From 2005 to 2015, the gap in $LX2_{MK}$ was gradually decreasing, yet in recent years, one could observe its widening to men's detriment (Table 2).

In 2019, the greatest gaps $LX2_{MK}$ could be observed in such countries as Spain (8%), Portugal and Estonia (6%) and Denmark (5%), and the smallest ones in Croatia, Czech Republic, Slovakia, Romania, Bulgaria, and Slovenia. In those countries, the gaps range from 0 to 1%. In all countries, the gap $LX2_{MK}$ is to the detriment of men, which means a greater percentage of men aged 18-24 are classified as early education leavers (Figure 2).

Similarly, as in 2019, also during the whole analyzed period, the smallest gap min $LX2_{MK}$ could be most often observed in such countries as Czech Republic, Romania, Bulgaria, Croatia, and Slovakia, where it ranged from 0.8 to 0.1 percentage point. The widest gap (max $LX2_{MK}$) could be observed in Cyprus, Portugal, Malta, Spain, and Estonia, and its value ranged from 16.8 to 7.3 percentage points. The positive value of the maximum gaps calculated for the analyzed indicator means that in countries such as Cyprus, Malta, Spain, or Portugal relatively more often than in other EU member states, more men than women can be classified as early leavers and do not want to continue their education. As much as Vs. ' differentiation in terms of the gap, $LX2_{MK}$ was the highest in 2005 and 2019. It

decreased to the level of $V_s=61.5\%$. In the studied period, one cannot observe the unambiguous decreasing tendency of the diversification between the EU (28) member states, which means that the differences in terms of gender when it comes to the early school leavers among young citizens of EU (28) persist.

Figure 2. Gender gap among early education leavers ($LX2_{MK}$) in EU-28 in 2019 (absolute value).



Source: Own calculations on the basis of Eurostat, 2020, Database, <https://ec.europa.eu/eurostat/data/database>.

Table 2. Gender gap in higher education and early education leaving by women and men in EU-28 in the years 2005-2019

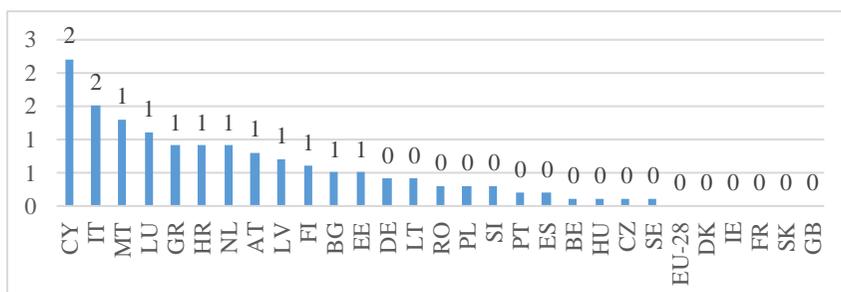
Year	Total EU (28)			EU (28) statistics			EU (28)			EU (28) statistics		
	$X1_M$	$X1_K$	$LX1_{MK}$	min $LX1_{MK}$	max $LX1_{MK}$	V_s [%]	$X2_M$	$X2_K$	$LX2_{MK}$	min $LX2_{MK}$	max $LX2_{MK}$	V_s [%]**
2005	26.0	30.0	(-) 4.0	(+0.1 (CZ))	(-) 16.7 (FI)	71.2	17.7	13.7	4.0	(-)0.2 (CZ)	(+)16.8(CY)	85.6
2006	26.3	31.6	(-) 5.3	(-)1.0 (DE)	(-) 18.2 (FI)	66.2	17.4	13.2	4.2	(-)0.2 (RO)	(+)15.4(PT)	82.8
2007	27.2	32.9	(-) 5.7	(-)0.7 (CZ)	(-) 19.4 (SI)	66.8	17.0	12.8	4.2	(-)0.3 (RO)	(+)14.2(EE)	74.4
2008	28.0	34.3	(-) 6.3	(+)0.1(MT)	(-) 21.6 (FI)	66.6	16.7	12.7	4.0	(-)0.1 (RO)	(+)13.2(PT)	76.3
2009	28.9	35.6	(-) 6.7	(+0.4 (DE))	(-)19.1(LV)	60.3	16.1	12.3	3.8	(+0.3 (CZ))	(+)13.3(ES)	75.5
2010	30.3	37.3	(-) 7.0	(+0.5 (DE))	(-)17.8(LV)	55.8	15.8	11.9	3.9	(+0.1 (CZ))	(+)12.5(MT)	76.9
2011	31.0	38.7	(-) 7.7	(-)0.5 (RO)	(-)21.7(LV)	58.4	15.3	11.5	3.8	(+0.8 (SK))	(+)12.5(MT)	68.5
2012	31.8	40.2	(-) 8.4	(-)0.9 (AT)	(-)23.0(EE)	58.9	14.5	10.9	3.6	(+0.4(AT))	(+)12.9(PT)	75.6
2013	32.9	41.4	(-) 8.5	(+)1.4 (AT)	(-)24.8(LV)	51.2	13.6	10.2	3.4	(-)0.1 (CZ))	(+)10.6(CY)	71.4
2014	33.6	42.3	(-) 8.7	(+)1.2 (DE)	(-)24.5(LV)	47.5	12.7	9.6	3.1	(-)0.1 (BG))	(+)8.3 (CY)	66.1
2015	34.0	43.4	(-) 9.4	(-)0.2 (DE)	(-)29.7(LV)	48.4	12.4	9.5	2.9	(-)0.1 (BG))	(+)8.2 (ES)	71.3
2016	34.4	43.9	(-) 9.5	(+0.4 (DE))	(-)26.0(LV)	47.1	12.2	9.2	3.0	0.0 (CZ))	(+)8.1 (MT)	74.6
2017	34.9	44.9	(-) 10.0	(-)0.4 (DE)	(-) 24.1 (SI)	45.3	12.1	8.9	3.2	(+)0.1 (CZ))	(+)7.3 (ES)	62.2
2018	35.7	45.8	(-) 10.1	(-) 0.9 (DE)	(-) 24.7 (SI)	43.0	12.1	8.8	3.3	(-)0.2 (BG))	(+)9.7 (EE)	74.4
2019	36.6	46.7	(-) 10.1	(-) 0.8 (DE)	(-)26.5(EE)	43.9	11.9	8.6	3.3	(+)0.1(HR))	(+)8.4 (ES)	61.5
P_{11}^*	10.6	16.7	-6.1				-5.8	-5.1	-0.7			
P_{12}^*	6.3	9.4	-3.1				-3.9	-3.3	-0.6			

Note: $X1_M$, $X1_K$, $LX1_{MK}$, $X2_M$, $X2_K$, $LX2_{MK}$ are described in Table 1; $*P_{11}$ – difference in the value of indicators: for example, $P_{11} = X1_{M2019} - X1_{M2005}$ (etc.), $P_{12} = X1_{M2019} - X1_{M2010}$ (etc.), $**V_s$ – variability coefficient in % for $LX1_{MK}$ and $LX2_{MK}$; min $LX1_{MK}$ and min $LX2_{MK}$ – minimum values of the gap in the EU (28); max $LX1_{MK}$ and max $LX2_{MK}$ – maximum values of the gap in the EU (28).

Source: Own calculations on the basis of Eurostat, 2020, Database. <https://ec.europa.eu/eurostat/data/database>.

To assess the development of the education level of the EU citizens (28), one can use the indicator of participation in pre-school education (X3). This indicator measures the percentage of children aged four till the starting age of compulsory education who participated in pre-school education. The value of this indicator across the whole analyzed period increased, yet this dynamic was stable, as already in 2005, the participation in pre-school education both of boys and girls was at the level of 88.0% and in 2018 it increased and reached the level of 95.2%. The gender gap (LX3MK) in the case of this indicator is practically non-existent and is not present in most EU countries, which means that both girls and boys participate in pre-school education, and there are no significant gender differences (Table 3). The lack of significant gaps in pre-school education can be deduced from the data presented in Figure 3, where the value of the difference in 2018 ranges from 2% -0% and is the greatest in Cyprus and Italy. The value of the gap in these countries is to boys' benefit, which means that they more often participate in pre-school education. However, in most countries, there are no gaps (Figure 3).

Figure 3. Gender gap in pre-school education participation (LX3_{MK}) in EU-28 in 2018 (absolute value).



Source: Own calculations on the basis of Eurostat, 2020, Database.
<https://ec.europa.eu/eurostat/data/database>.

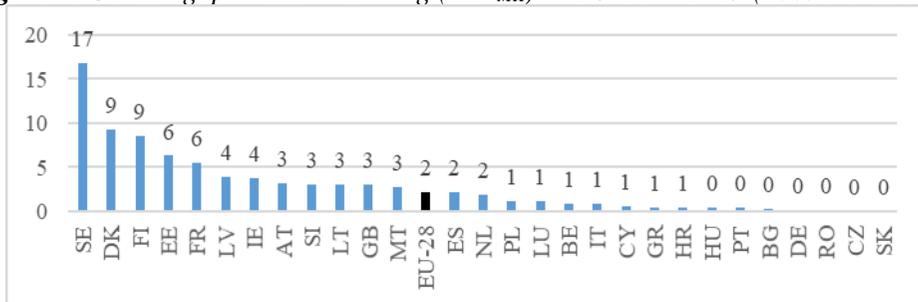
In the analyzed period covering the years 2005-2019, there are relatively no gaps, or they have minimum value (min LX3MK) – this can be observed in such countries as France, Germany, Sweden, and Finland, and the maximum value (max LX3MK) could be noticed in Denmark, Slovenia, Malta, Cyprus, and Italy, where it ranged from 4.8% to 1.2%, usually to the benefit of boys. The diversification of EU (28) countries in terms of the gap LX3MK is similarly high, confirmed by the calculated variability coefficient Vs. (Table 3).

An indicator that characterizes education level that also was subject to analysis was the percentage of adult persons participating in learning. This indicator measures the percentage of persons aged 25-64 who claimed to have completed formal or non-formal education or training for four weeks preceding this study. As can be deduced from the results of analyses, the percentage of adults who participated in learning in the years 2005-2019 was slightly growing, confirmed by the calculated values Pt1 and Pt2. While in 2005, the percentage of adult men raising their qualifications

amounted to 8.8%, in 2019, it was at the level of 10.1%. The percentage of adult women who educate themselves across the whole analyzed period was higher than the percentage of men. In 2005, it amounted to 10.3%, and in 2019 this value grew and reached 12.2%. Simultaneously, one can notice a gender gap LX4MK calculated for this indicator at the level of 2.2% in 2019. The gap in the last years subject to analysis was widening to the detriment of men, which means that the female citizens of the EU (28) more often and more willingly than men raised their qualifications after completing education.

In 2019, the greatest gap between men and women in terms of LX4MK indicator could be noticed in Sweden (17%), then in Denmark and Finland (9%), and Estonia and France (6%). The gaps' values were negative and confirmed greater participation of adult women in learning and training after the completion of the initial education. In 2019 no gender gaps could be observed in such countries as Slovakia, Czech Republic, Romania, Germany, Bulgaria, Portugal, and Hungary, where both adult women and adult men participate in education as adults on a similar scale (Figure 4).

Figure 4. Gender gap in adult learning (LX4_{MK}) in EU-28 in 2019 (absolute value).



Source: Own calculations on the basis of Eurostat, 2020, Database.
<https://ec.europa.eu/eurostat/data/database>.

As can be deduced from the data in Table 3, before 2019, small differences in terms of gender regarding (min LX4MK) indicators were also present in Czech Republic, Slovakia, Greece, and Bulgaria. Maximum differences (max LX4MK) could be observed only in Sweden. This means that this Scandinavian country is very different from other European countries and the gap between men and women in terms of willingness to learn as adults are exceptionally high and in 2005 it is dynamically widening to the detriment of men. Also, in this indicator, the diversification between the countries is exceptionally high and has been at a similar level for years, confirmed by the calculated variability coefficient Vs. (Table 3).

Knowing the EU's level of education (28) citizens, on the present gender gaps in the education and changes in that scope, it is worth verifying if there are any correlations between these indicators. Therefore, a correlation analysis of rXX was carried out between the studied variables X1, X2, X3, and X4 for men and women.

Table 3. Gender gap in the pre-school education and in the learning of adults in the EU-28 in the years 2005-2019

Year	Total EU (28)			EU (28) statistics			Total EU (28)			EU (28) statistics		
	X_{3M}	X_{3K}	LX_{3MK}	min LX_{3MK}	max LX_{3MK}	V_s [%]	X_{4M}	X_{4K}	LX_{4MK}	min LX_{4MK}	max LX_{4MK}	V_s [%]
2005	88.0	88.0	0.0	0.0 (FR, SE et al.)	(-3.5 (DK))	101.0	8.8	10.3	(-) 1.5	0.0 (LU)	(-) 9.0 (SE)	120.9
2006	89.3	89.4	(-) 0.1	0.0 (FR, IT et al.)	(-4.5 (DK))	126.1	8.7	10.5	(-) 1.8	0.0 (MT, RO)	(-)10.7 (SE)	124.6
2007	90.6	90.7	(-) 0.1	0.0 (FR, DE et al.)	(-3.1 (DK))	98.7	8.5	10.3	(-) 1.8	0.0 (GR)	(-)11.3 (SE)	124.0
2008	91.7	91.8	(-) 0.1	0.0 (FR, DE et al.)	(-4.0 (DK))	100.6	8.6	10.4	(-) 1.8	(-) 0.1 (BG, CZ)	(-)12.6 (SE)	128.4
2009	90.7	90.9	(-) 0.2	0.0 (FR)	(-3.9 (DK))	102.4	8.6	10.4	(-) 1.8	0.0 (GR)	(-)12.5 (SE)	138.4
2010	92.9	93.1	(-) 0.2	0.0 (FR, EE, GR)	(+2.7 (SI))	96.4	8.4	10.2	(-) 1.8	0.0 (PT)	(-)13.4 (SE)	147.0
2011	93.2	93.3	(-) 0.1	0.0 (ER, CY et al.)	(+2.5 (SI))	90.8	8.3	9.8	(-) 1.5	(-) 0.1 (BG)	(-)13.3 (SE)	142.8
2012	94.0	94.0	0.0	0.0 (TR, DE et al.)	(+3.3 (PT))	140.5	8.5	9.9	(-) 1.4	(-) 0.1 (BG)	(-)13.6 (SE)	146.5
2013	94.2	93.9	(+) 0.3	0.0 (FR, DE et al.)	(+3.1 (GB))	140.5	9.7	11.6	(-) 1.9	0.0 (DE)	(-)14.0 (SE)	141.1
2014	94.2	94.2	0.0	0.0 (FR, EE et al.)	(+4.8 (MT))	120.6	9.9	11.8	(-) 1.9	(-) 0.2 (SK)	(-)14.0 (SE)	143.2
2015	94.9	94.9	0.0	0.0 (FR, GB et al.)	(-3.4 (AT))	125.4	9.7	11.7	(-) 2.0	0.0 (GR, RO)	(-)14.4 (SE)	145.0
2016	95.4	95.3	(+) 0.1	0.0 (FR, SE et al.)	(+3.3 (MT))	113.9	9.8	11.7	(-) 1.9	0.0 (GR, RO)	(-)14.0 (SE)	136.6
2017	94.7	94.8	(-) 0.1	0.0 (FR, IE et al.)	(+1.2 (IT))	90.2	10.0	11.9	(-) 1.9	(+) 0.1 (RO)	(-)13.8 (SE)	122.9
2018	95.2	95.2	0.0	0.0 (FR, IE et al.)	(+2.2 (CY))	102.1	10.1	12.2	(-) 2.1	0.0 (GR)	(-)14.6 (SE)	114.3
2019	-	-	-	-	-	-	10.2	12.4	(-) 2.2	0.0 (SK, CZ)	(-)16.8 (SE)	126.2
P_{11}	7.2	7.2	0.0	-	-	-	1.4	2.1	-0.7	-	-	-
P_{12}	2.3	2.1	0.2	-	-	-	1.8	2.2	-0.4	-	-	-

Note: X_{3M} , X_{3K} , LX_{3MK} , X_{4M} , X_{4K} , LX_{4MK} are described in Table 1; $*P_i$ – difference in the value of indicators: for example, $P_{11} = X_{3M2019} - X_{3M2005}$ (etc.), $P_{12} = X_{3M2019} - X_{3M2010}$ (etc.), $**V_s$ – variability coefficient in % for LX_{3MK} and LX_{4MK} ; min LX_{3MK} and min LX_{4MK} – minimum values of the gap in the EU (28); max LX_{3MK} and max LX_{4MK} – maximum values of the gap in the EU (28).

Source: Own calculations on the basis of Eurostat, 2020, Database.
<https://ec.europa.eu/eurostat/data/database>.

Based on the analyses, one can state that in the EU(28) countries where there is a high percentage of men with higher education, at the same time, one can observe a high percentage of boys' participation in pre-school education ($rX1MX3M=0.48$) and a high percentage of participation of adult men in learning ($rX1MX4M=0.52$). Correlations were also found for the following variables: X_{3M} and X_{4M} ($rX3MX4M=0.49$);, which means that the greater the percentage of boys' participation in pre-school education across a given EU member state is, the more men are there who continue their education after the completion of initial education (Table 4).

In the case of indicators describing the level of education of women, some correlations also were noticed. It turns out that in EU(28) countries where there is a relatively higher percentage of women who completed higher education, there are

significantly fewer young girls who are early education leavers ($r_{X1KX2K}=-0.59$) and significantly more women who continue their education as adults ($r_{X1KX4K}=0.44$). Similarly, as in the case of men, the correlation between the indicators X3K and X4K (r_{X3K} and $r_{X4K}=0.45$) is important, which means that the higher the percentage of girls participating in pre-school education in the EU(28) countries is, the more is their women who continue their education once they completed their initial education (Table 4).

In turn, considering the correlations calculated towards the level of education, both among men and women, one can unambiguously observe high positive important correlations between all indicators studied during the research ($r_{X1MX1K}=0.80$, $r_{X2MX2K}=0.88$; $r_{X3MX3K}=0.99$; $r_{X4MX4K}=0.97$), which means that the level of education of women and men does not show significant differences in the EU (28) countries (Table 4).

Table 4. Correlations r_{xx} between the variables characterizing the level of education in EU-28 countries in 2019.

Variable	X1 _M	X1 _K	X2 _M	X2 _K	X3 _M	X3 _K	X4 _M	X4 _K
X1 _M	1.00	0.80*	-0.28	-0.48*	0.48*	0.48*	0.52*	0.47*
X1 _K	0.80*	1.00	-0.37	-0.59*	0.31	0.30	0.40*	0.44*
X2 _M	-0.28	-0.37	1.00	0.88*	0.31	0.29	-0.03	-0.06
X2 _K	-0.48*	-0.59*	0.88*	1.00	0.09	0.05	-0.20	-0.21
X3 _M	0.48*	0.31	0.31	0.09	1.00	0.99*	0.49*	0.44*
X3 _K	0.48*	0.30	0.29	0.05	0.99*	1.00	0.49*	0.45*
X4 _M	0.52*	0.40*	-0.03	-0.20	0.49*	0.49*	1.00	0.97*
X4 _K	0.47*	0.44*	-0.06	-0.21	0.44*	0.45*	0.97*	1.00

Note: * The marked correlation coefficients are important with $p < .05000$; $N=28$ (Data gaps were deleted by cases)

Source: Own calculations on the basis of Eurostat, 2020, Database.

<https://ec.europa.eu/eurostat/data/database>.

Table 5 presents the correlations r_{LXLX} between the gaps calculated for independent variables, describing the level of education in EU(28) countries; one can observe no important correlations between the countries. It means that the gaps between men and women in the level of education or willingness to continue education are not significantly correlated across specific countries (Table 5).

Table 5. Correlations r_{LXLX} between the gender gaps calculated for variables describing the education level (LX) in the EU-28 in 2019.

Variable	LX1 _{MK}	LX2 _{MK}	LX3 _{MK}	LX4 _{MK}
LX1 _{MK}	1.00	0.07	0.07	0.23
LX2 _{MK}	0.07	1.00	0.09	0.09
LX3 _{MK}	0.07	0.09	1.00	-0.24
LX4 _{MK}	0.23	0.09	-0.24	1.00

Source: Own calculations on the basis of Eurostat, 2020, Database, <https://ec.europa.eu/eurostat/data/database>.

The objective of this article, apart from the analysis of the differences in the education level (independent variables) in terms of gender in the EU(28), was also an attempt to identify the influence of the diversification of these indicators on the employment of graduates as well as on general employment (dependent variables). The researchers attempted to find the answer to the following question: Do the differences in the education levels of children, youth, and adults in EU(28) member states (cause) translate into the level of employment (result)? Do higher education and qualifications raising influence the possibility of finding a job and stable employment?

One of the measures that demonstrate the so-called practical results of gaining knowledge and raising skills and professional qualifications is recent graduates' employment. This indicator is the percentage of employment of people aged 20-34 who are currently employed, completed at least secondary education a year, two years or three years before the study, and are not currently pursuing any education. In the years 2005-2019, no specific increasing or decreasing trend can be observed in the employment of recent graduates (Y1). What is positive is the increase in male graduates' employment from 81.4% in 2006 to 83.5% in 2019. However, what worries is that in the years 2006-2014, graduates' employment decreased to 78% and only later started to increase. A similar trend can be observed in the employment of female graduates. In 2006, this percentage amounted to 76.5%; in the years 2012-2013, it decreased to 73%, and from that moment, an increase of this indicator value could be observed to 79.5% in 2019. The gender gap (LY1MK) in female and male graduates is at the level of 4% and increased in 2019 compared with previous years.

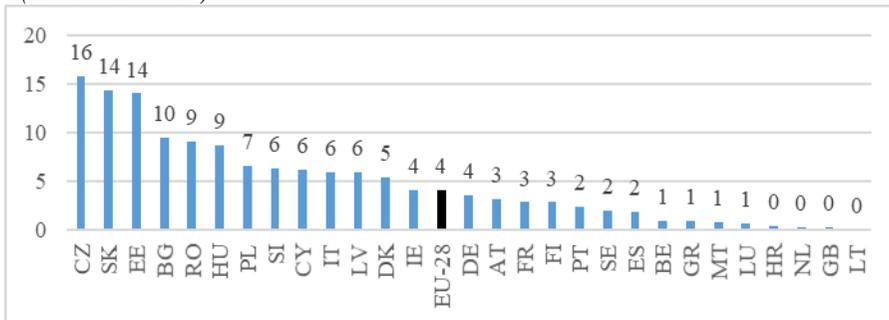
The diversification (which is confirmed by the variability coefficient V_s) between the EU(28) member states when it comes to this indicator is at a similarly high level, and additionally, in 2019, it increased as compared with previous years (Table 6).

In 2019, the widest gap in the employment of graduates in the context of gender could be observed in such countries as Czech Republic (16%), Slovakia and Estonia (14%), Bulgaria (10%) as well as Romania and Hungary (9%). The values of the calculated gaps were positive, meaning they were to the benefit of men, which means that more male than female graduates are being employed in these countries. No gaps in employment of graduates in the context of gender can be observed in such countries as Lithuania, Great Britain, the Netherlands, and Croatia (Figure 5). In the previous years that were under the analysis, maximum gaps (max LY1MK) could be observed, similarly as in 2019, in the Czech Republic, Estonia, and Slovakia and minimal ones (min LY1MK) in Lithuania, the Netherlands, and in Portugal (Table 6).

A measure playing an important role in assessing the labor market situation is the employment indicator, meaning the percentage of the employed population aged 20-64 (Murawska, 2019). This indicator in the EU(28) countries is gradually increasing, both among the women and men being employed, confirmed by the calculated

values Pt1 or Pt2. In 2019, the percentage of employed men amounted to 79.6% (in 2005, it was 75.9%), and the percentage of employed women was at 68.2% (in 2005, it was at the level of 59.9%). The gender gap (LY2MK) is decreasing since 2005, which is a positive trend and indicates decreasing differences in employment in terms of gender to the benefit of women. Nevertheless, the differences in men's and women's employment in the EU(28) countries are still significant. While in 2005, the gap LY2MK was at the level of 16.0%, in 2019, it decreased to only 11.4% (Table 6).

Figure 5. Gender gap in the employment of recent graduates (LY1_{MK}) in EU-28 in 2019 (absolute value)

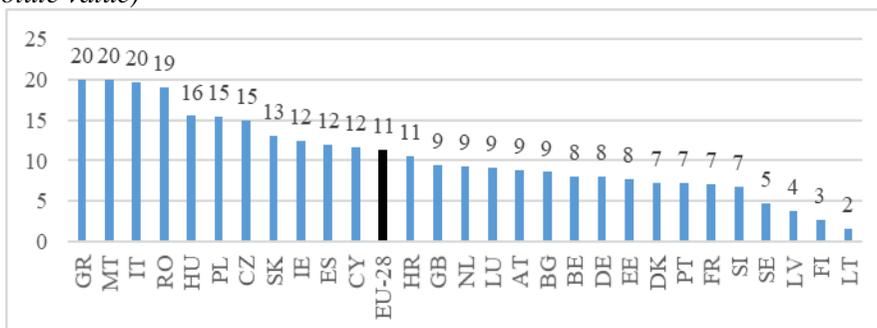


Source: Own calculations on the basis of Eurostat, 2020, Database.
<https://ec.europa.eu/eurostat/data/database>.

According to the data of 2019, the widest gaps in employment can be observed in such countries as Greece, Malta, and Italy (20%) and then in Hungary (16%), in Poland, and Czech Republic (15%). The smallest gaps, according to the latest available data, can be observed in Lithuania (2%), Finland (3%), Latvia (4%), and Sweden (5%) (Figure 6). In the previous years that were taken into account during the analysis (2005-2018), the widest gaps (max LY2MK) could be observed in Malta, and the smallest ones (min LY2MK) were repeatedly present in such countries as Lithuania, Latvia, and Finland. The diversification in the EU(28) countries in terms of gaps in employment are quite high, but what is positive is the fact that starting from 2016, there is a decreasing trend and the variability coefficient Vs. in 2019 at the level of 48.1% was at its lowest across the whole analyzed period (Table 6).

To answer whether the diversification of the EU's education level (28) citizens and gender gaps in this scope influences the differences in employment and gaps in employment, the correlations r_{XY} and r_{LXLY} were calculated. The diversification in men's education level in the EU(28) does not seem to be significantly correlated with the level of employment, which can be seen in Table 7. Therefore, it must be stated that the level of education of men in the EU(28) does not influence their employment right after graduation (graduates) or later (adults). This, in turn, cannot be said about women.

Figure 6. Gender gap in the employment in general (LY_{2MK}) in EU-28 in 2019 (absolute value)



Source: Own calculations on the basis of Eurostat, 2020, Database.
<https://ec.europa.eu/eurostat/data/database>.

Table 6. Gender gap in the employment of recent graduates and in employment in general in the EU-28 in the years 2005-2019

Year	Total EU (28)			EU (28) statistics			Total EU (28)			EU (28) statistics		
	Y _{1M}	Y _{2K}	LY _{1MK}	min LY _{1MK}	max LY _{1MK}	V _s [%]	Y _{2M}	Y _{2K}	LY _{2MK}	min LY _{2MK}	max LY _{2MK}	V _s [%]
2005	-	-	-	-	-	-	75.9	59.9	(+) 16.0	(+)4.3 (FI)	(+)44.9 (MT)	54.0
2006	81.4	76.5	(+) 4.9	(+) 0.3 (LU)	(+)24.1 (LV)	86.2	76.7	61.0	(+) 15.7	(+)4.8 (FI)	(+)43.9 (MT)	51.9
2007	83.7	78.2	(+) 5.5	(-) 0.7 (RO)	(+)11.0 (SI)	54.3	77.6	62.0	(+) 15.6	(+)4.7 (FI)	(+)41.3 (MT)	48.5
2008	84.6	79.6	(+) 5.0	(+)0.2 (MT)	(+)15.6 (LV)	74.9	77.8	62.7	(+) 15.1	(+)5.3 (FI)	(+)39.1 (MT)	47.8
2009	79.6	77	(+) 2.6	(-) 0.1 (ES)	(+)15.2 (EE)	89.1	75.7	62.2	(+) 13.5	(+)0.3 (LV)	(+)37.5 (MT)	63.0
2010	79.4	75.4	(+) 4.0	(-) 0.3 (SK)	(+)14.5 (EE)	80.1	75.1	62.1	(+) 13.0	(+) 0.5 (LV)	(+)36.6 (MT)	62.8
2011	79.2	75	(+) 4.2	(+)0.1 (LV)	(+)13.3 (EE)	76.8	75.0	62.2	(+) 12.8	(+)0.6 (LT)	(+)35.2 (MT)	59.0
2012	78.2	73.7	(+) 4.5	(-) 0.1 (BG)	(+)14.6 (EE)	77.8	74.5	62.4	(+) 12.1	(+)1.2(LT)	(+)31.4 (MT)	56.1
2013	77.6	73.2	(+) 4.4	(-) 0.1 (BE)	(+)14.4 (CZ)	92.2	74.3	62.6	(+) 11.7	(+)2.6 (LT)	(+)28.6 (MT)	52.4
2014	77.9	74.3	(+) 3.6	(-) 0.1 (SE)	(+)13.8 (CZ)	90.0	75.0	63.5	(+) 11.5	(+)1.9 (FI)	(+)26.8 (MT)	50.9
2015	78.5	75.3	(+) 3.2	(+)0.1 (ES)	(+)15.3 (CZ)	85.6	75.9	64.3	(+) 11.6	(+)2.1 (FI)	(+)26.8 (MT)	51.1
2016	80.7	76.1	(+) 4.6	(-) 0.4 (SE)	(+)18.7 (EE)	79.4	76.9	65.3	(+) 11.6	(+)1.9 (LT)	(+)25.5 (MT)	51.2
2017	81.9	78.3	(+) 3.6	(-) 0.2 (NL)	(+)15.1 (SI)	85.4	78.0	66.5	(+) 11.5	(+)1.0 (LT)	(+)24.1 (MT)	50.0
2018	83.3	79.9	(+) 3.4	0.0 (PT)	(+)15.8 (SK)	67.2	79.0	67.4	(+) 11.6	(+)2.3 (LT)	(+)21.9 (MT)	48.2
2019	83.5	79.5	(+) 4.0	0.0 (LT)	(+)15.8 (CZ)	92.5	79.6	68.2	(+) 11.4	(+)1.6 (LT)	(+)20.0 (GR)	48.1
Pt1	2.1	3.0	4.0				3.7	8.3	-4.6			
Pt2	4.1	4.1	0.0				4.5	6.1	-1.6			

Notes: Y_{1M}, Y_{1K}, LY_{1MK}, Y_{2M}, Y_{2K}, LY_{2MK} are described in Table 1; *P₁ – difference in the value of indicators: for example, P₁₁ = Y_{1M2019} - Y_{1M2005} (etc.), P₁₂ = Y_{1M2019} - Y_{1M2010} (etc.), **V_s – variability coefficient in % for LY_{1MK} and LY_{2MK}; min LY_{1MK} and min LY_{2MK} – minimum values of the gap in the EU (28); max LY_{1MK} and max LY_{2MK} – maximum values of the gap in the EU (28).

Source: Own calculations on the basis of Eurostat, 2020, Database.
<https://ec.europa.eu/eurostat/data/database>.

Based on obtained results, a significant influence on the indicator of employment of women, in general, could be noticed: Indicator of women education ($r_{X1KY2K}=0.44$), an indicator of participation of girls in pre-school education ($r_{X3KY2K}=0.44$), and indicator of the percentage of adult women continuing learning ($r_{X4KY2K}=0.54$). Additionally, there is a significant correlation dependency between girls' indicator of participation in pre-school education and the indicator of employment of female graduates ($r_{X3KY1K}=0.49$). Therefore, it must be stated that in EU(28) countries, there is a significant influence on the level of women's education on their employment.

Table 7. Correlations r_{XY} between the variables explaining the education level (X and LX) and employment level (Y and LY) in EU(28) countries in 2019.

Variable	Y1 _M	Y2 _M	Variable	Y1 _K	Y2 _K	Variable	LY1 _{MK}	LY2 _{MK}
X1 _M	0.23	0.12	X1 _K	0.31	0.44*	LX1 _{MK}	0.27	-0.26
X2 _M	-0.04	0.11	X2 _K	-0.12	-0.21	LX2 _{MK}	-0.25	-0.16
X3 _M	0.34	0.35	X3 _K	0.49*	0.44*	LX3 _{MK}	-0.18	0.26
X4 _M	0.30	0.26	X4 _K	0.36	0.54*	LX4 _{MK}	-0.16	-0.49*

Note: * The marked correlation coefficients are important with $p < .05000$; $N=28$ (Data gaps were removed by cases).

Source: Own calculations on the basis of Eurostat, 2020, Database.

<https://ec.europa.eu/eurostat/data/database>.

Correlation dependencies calculated for the gender gaps for dependent and independent variables are usually negative and insignificant. There is only one correlation dependency in the case of variables $r_{LX4MKLY2MK}=-0.49$. It means that the greater the gender gaps in EU(28) countries concerning the participation of adults in learning, the less significant are the ones in terms of employment indicator (Table 7).

5. Conclusions

To summarize, in recent years, the education of EU(28) member states citizens has been growing steadily. However, according to ISCED, more women than men improve their knowledge and gain an education at the education level of 5-8, and the gap in this scope is getting wider, to the detriment of men. This diversification can be observed particularly in such countries as Estonia, Lithuania, and Latvia. A positive aspect for the development of education level in the EU(28) is that less and less young people aged 18-24 can be counted among early education leavers, yet, in recent years, the gap to the detriment of young men started to expand. This problem concerns especially countries such as Spain and Portugal. The level of education is also evidenced by participation in adult education. The percentage of such persons in the years 2005-2019 was increasing, both among men and women, but the dynamics of changes were different, and, as a result, the gender gap began to widen. It means that the female citizens of EU(28) member states more often and more willingly

educate themselves after the completion of initial education than men, and the widest gap to the detriment of men can be observed in Sweden, Denmark, and Finland.

The education of the population is an important indicator of employment and good position and fair remuneration. In recent years, one could observe that the EU member states that recent graduates' employment rate remained stable at a high level and that the total employment rate increased steadily. This applies both to men and women. It must be emphasized that even though the gap in education in EU(28) member states most often was to the benefit of women when it comes to employment, it is to the benefit of men. The gap in the employment of graduates is at a similar relatively high level of approximately 16% to the detriment of young women. In employment, this gap is systematically decreasing (in 2019 dropped to 11%), which is a positive aspect for improving the situation of women on the labor market compared with men.

For women, education and qualifications raising on the labor market should be important, all the more so as the research indicated significant correlations between the indicators that characterize the differences in the level of education of women in the EU (28) countries and the differences in their employment, which was not observed in case of men. Therefore, it must be stated that the differences in the education level of men in the EU member states do not influence their employment, yet the level of education of women significantly influences the level and diversification of their employment.

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Notes: In the article, the abbreviations of the EU member states were used, according to the ISO codes 3166 alpha-2 developed by International Organization for Standardization (ISO 2019): Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Greece (GR), Spain (ES), Ireland (IE), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), Netherlands (NL), Germany (DE), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SI), Sweden (SE), Hungary (HU), Great Britain (GB), Italy (IT).