

SELECTED EDUCATIONAL INDICATORS AND THEIR INFLUENCE ON THE LABOUR FORCE PARTICIPATION

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Abstract

High employment represents fundamental indicator of the country economic growth. The key factor of the Labour Force Participation is the quality and targeted education of workers. Indeed, for national governments across the whole world is crucial to ensure the right conditions for education quality these days. The purpose of this paper is to analyse selected Education Indicators and their impact on Labour Force Participation 15-65 years. The object of statistical analysis are Education Indicators and Labour Force Participation in 13 selected European countries. Educational indicators are represented by the primary secondary and tertiary levels of education, early leavers from education and newly employed persons in the review of the cross-country comparison. We evaluate each country through selected indicators and then we calculate the country ranking. In the second part were used the regression analysis. Through this analytical tool were identify the impact of the selected indicators which represents the main research question in this paper.

Key words: Labour Force Participation, Educational Indicators, Employment, Education

JEL Code: I20, J21

Introduction

It is an indisputable fact that the high employment of each country is a basic indicator of its economic growth. We can assume that Education is a strong predictor of Labour Market. (Bhorat et al, 2016) Durkheim believed that the education system has two key roles: the socialisation of the young into society, including preparation for their future adult roles, and selection into the occupational structure based on individual achievement. (Durkheim, 1956) The rise of the credential over the last century owes a lot to the fact that it captures elements of both. On the one hand, the credential represents a measure of the quality of educational experience. It signifies the acquisition of knowledge (at least on the day of the examination). On the other hand, the credential is a way of judging relative, as well as absolute, performance. Therefore, over the last century, as employers have extended the use of credentials to screen

potential employees, they were also seen by some as a way of extending opportunities to all. Therefore, it is essential to focus on the possibilities of targeted support for the greatest possible employment. (Brown, 2003) The current problematic period marked by the Covid-19 pandemic reveals various problems. One is declining employment and the other is the impact of the Covid-19 pandemic on education. Where it turns out that this pandemic will certainly have a negative impact on the current generation of students. On the other hand, due to the need to make better use of computer technology, skills are growing in this area, which are very useful for future employment. From the point of view of EU governments, the effort is to best formulate such an educational policy that would make education even more effective. It was strongly influenced educational policy and forms the qualities and abilities of future generations, which leads to their high levels of employment. This is also confirmed by a study by Laplagne et al. (2007) or Kennedy and Hedley (2003). In our article, we focused on selected factory factories and their impact on labour market participation. We chose 13 European Union countries for evaluation. The selected countries were selected cross-sectionally in order to obtain an additional benchmark. Specifically, the evaluation included countries - the Czech Republic, the Slovak Republic, Denmark, Greece, Spain, France, Hungary, the Netherlands, Austria, Poland, Finland, Sweden, and Norway. Impact on labour force participation, we decided to explore in terms of selected educational indicators: terms of primary, secondary and tertiary education, as well as from the perspective of people dropping out of education and the newly employed persons to determine which of them have the greatest impact on employment.

1 The Labour Force Participation

The decision to participate in the Labour Market for working-age adults depends on key determinants such as the total size of the Labour Force, the Unemployment Rate, or the overall Unemployment Rate at the time, and therefore these parameters are important for those who predict macroeconomic and Labour market performance. (Pettengill, 1979, Égert, 2016, Haan and Leuven, 2020). Labour force participation decisions have important implications for the distribution of income. A positive relationship between Labour Force Participation and education is a longstanding finding (Laplagne et al,2007). The labour force participation rate is calculated as the labour force divided by the total working-age population. The working age population refers to people aged 15 to 64. This indicator is broken down by age group and it is measured as a percentage of each age group. (OECD, 2021) For our research we will examine

selected Educational Indicators which demonstrably have an impact on Labour Force Participation.

2 Educational Indicators

2.1 The Education Expenditures

One of the key indicators of the quality of education is undoubtedly amount of financial sources. Among EU Member States, the funding of education comes from government, with a smaller role for private sources (including households, enterprises, non-profit organizations, and religious institutions), while an even smaller role is generally played by international organizations (such as the United Nations or the World Bank). Within the EU, the proportion of financial resources devoted to education is one of the key choices made by national governments. In a similar manner, enterprises, students, and their families also make decisions on the financial resources that they are able or willing to set aside for education. (EUROSTAT, 2021) The highest Average Education Expenditure in years 2010 - 2019 is observed in Poland and the Czech Republic reached the lowest rate with 3.9% of GDP. Compared to other European countries, we can observe a declining trend, but in countries such as Finland, Iceland, and Sweden spending on education more than 6% of GDP. By EURPSTAT In 2017, public spending on education relative to GDP was highest in Denmark (7.3 %) and Sweden (7.1 %) while it was lowest in Romania (2.7 %). (EUROSTAT, 2021)

2.2 Employment

In the case of employment, we will examine the number of employees with educational level in percentage. The EU employment rate (for people aged 20 to 64) went down from 73.1 % in 2019 to 72.4 % in 2020. In 2020, the EU employment rate for people aged 20 to 64, as measured by the EU Labour Force Survey (EU-LFS), stood at 72.4 % against 73.1% in 2019 (a decrease of 0.7 percentage points (p.p.)). Behind this average, large differences between countries can nevertheless be found (see Map 1 and Tool 1). Sweden (80.8 %), Germany (80.1 %) and the Netherlands (80.0 %) display the highest employment rates in the EU so far, with more than 8 out of 10 persons aged 20 to 64 in employment in 2020. Such a high rate is also observed in the EFTA countries Switzerland (82.5 %) and Iceland (82.3 %). At the same time, 70% or less of the population aged 20 to 64 were employed in Belgium (70.0%), Croatia (66.9%), Spain (65.7%), Italy (62.6%) and Greece (61.1%). (EUROSTAT, 2021).

2.3 Primary, Secondary and Tertiary Education

Students, in the mass higher education system, are tending to exhibit more overtly instrumental learning. Often, such learning is extremely narrow and intended primarily to secure a qualification or a job rather than reflect an holistic learning experience. (Harvey, 2000) The quality of education may be linked to teaching standards, which in turn are related to the demands placed upon teachers, the training they receive, the roles they are asked to fill and the resources that are made available for them to carry out their tasks. Equally, the quality of education may show local or regional variations, related to a variety of socio-demographic factors. The patterns of educational attainment levels of the population have changed significantly: on average, younger people attain higher levels of education than older ones. In 2020, 81.4 % of people aged 25–54 in the EU had attained at least an upper secondary level of education, compared with 67.2 % of those aged 55–74. Those with tertiary educational attainment amounted to 35.9 % of those aged 25–54 and 21.8 % of those aged 55–74 (EUROSTAT,2021)

2.4 Early leavers from Education

Another key indicator that influence quality of work force is the number of young people who decide to leave earlier the educational system. In 2020, 9.9 % of 18-24 year in the EU had completed at most a lower secondary education and were not in further education or training (early leavers). Early leaver from education and training, previously named early school leaver, refers to a person aged 18 to 24 who has completed at lower secondary education and is not involved in further education or training; the indicator 'early leavers from education and training' is expressed as a percentage of the people aged 18 to 24 with such criteria out of the total population aged 18 to 24. In 2020, 11.8 % of young men and 8.0 % of young women in the EU were early leavers from education and training. (EUROSTAT,2021)

2.5 Newly Employed persons

Since the outbreak of the COVID-19 pandemic in early 2020 in Europe, many companies have been struggling with the balance between health-related measures and finding a way to continue to produce goods and provide services to preserve their existence. Many were not able to maintain the same levels of production as before the COVID crisis. To mitigate the social impact of the pandemic, the European Union (EU) and national governments introduced a variety of measures, including fiscal support or loans. Although protective measures to preserve the level of employment have been taken, a more cautious policy of enterprises in regard to

hiring new employees could be expected. In addition, there might be more reluctance to start new businesses, which could have also led to more employed people. At EU level, the number of newly employed people in the third and fourth quarter of 2020 was very close to the level during the 2009 financial crisis. Between the fourth quarter of 2019 and the fourth quarter of 2020, the number of recent job starters decreased in 22 EU Member States, with the highest falls in Poland, Slovak Republic and Romania. In Bulgaria, Greece, Italy and Romania there were more people leaving employment than starting a new job in the fourth quarter of 2020. (EUROSTAT, 2021)

3. Date, Methodology and Research Results

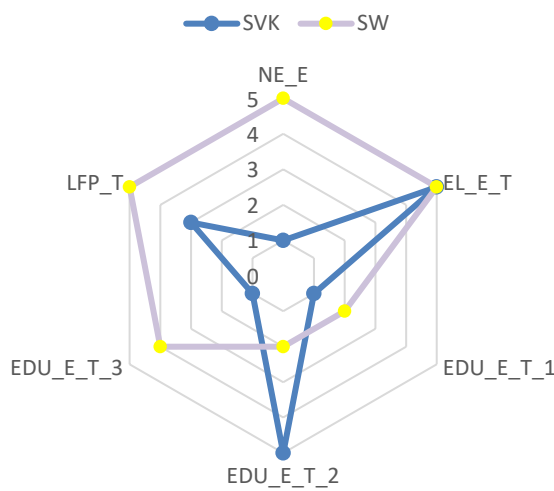
As part of the statistical analysis, several basic indicators of education will be analysed. Indicator used for research were Education Expenditures, Average Employment, Level of Education, Early leavers, and New employed persons. (See Table 1.) We have identified key Education Indicators that have an impact on Labour Force Participation. inserted into the network graph for each country separately. The result will be a mutual comparison of the selected European Union countries.

Tab. 1. Selected European union countries: Comparison of average value of Education Indicators from 2010 to 2019

Indicator	Education Expenditures % of GDP in 2018	Newly employed % of Employed persons	Early leavers from education and training % of Employed persons	Primary Education % of Total Employment	Secondary Education % of Total Employment	Tertiary Education % of Total Employment	Labour Force Participation % of population
Czech R.	4,23	12.0	2.4	4.3	73.3	22.4	73.7
Denmark	6,24	22.9	4.3	20.4	43.0	34.7	77.6
Greece	3,59	12.8	3.4	25.2	41.2	33.6	67.8
Spain	4,03	18.8	9.0	35.0	23.8	41.2	74.0
France	5,41	15.2	3.7	17.8	44.2	37.9	71.9
Hungary	4,07	15.8	4.4	11.3	62.5	26.2	67.4
Netherlands	5,36	17.4	5.2	22.1	41.8	35.0	79.4
Austria	5,11	17.6	3.8	13.8	57.7	28.5	75.7
Poland	4,62	14.4	2.1	5.8	62.1	32.1	68.0
Slovak R.	3,98	12.2	1.8	4.2	72.6	23.1	70.7
Finland	5,93	21.6	3.8	11.4	46.4	42.1	76.0
Sweden	7,18	22.2	3.8	13.7	47.6	38.5	81.4
Norway	6,84	16.35	8.72	17.19	41.33	41.18	78

Source: Own proceeding by using data from EUROSTAT, 2021

Fig. 1: Country ranking and graph of results comparison the first (Sweden) and the last (Slovak Republic) in ranking



Source: Own proceeding by using EXCEL, 2021

Ranking	Country	Points
1	Sweden	45.73714
2	Denmark	40.65524
3	Finland	38.30974
4	Netherland	36.74608
5	Norway	31.27326
6	France	28.53685
7	Austria	28.53685
8	Spain	25.01861
9	Greece	22.67311
10	Poland	17.59121
	Czech	
11	Republic	17.20029
12	Hungary	14.07297
	Slovak	
13	Republic	13.68205

Figure 1. shows the results of country comparison. We can observe that the three top places are Nordic countries. Our results prove that these countries have the best educational systems in the selected countries. On the other hand, the V4 countries are placed very low. We can assume that these countries have a great opportunity for growth of education quality.

The aim of regression analysis is to determine the relationship between individual variables. Based on this goal, we set the following hypotheses. Identical inputs as in the factor analysis were used for our research. Determination of null hypothesis: Selected factors will not affect Labour Force Participation 15-64 years.

Table 2. shows descriptive statistics of selected Indicators that represent:

- NE_EP - Newly employed as percentage Employed persons
- EL_POP_T - Early leavers from education and training as percentage of population
- NE_E - Newly employed as percentage of Employees
- EL_E_T - Early leavers from education and training as percentage of Employed persons
- EDU_E_T_1 - Primary education as Percentage of total employment
- EDU_E_T_2 - Secondary education as Percentage of total employment
- EDU_E_T_3 -Tertiary education as Percentage of total employment
- LFP_T – Labour Force Participation 15-64 years

Tab. 2: Statistical description of the individual variables

	No. Observation	Minimum	Maximum	Mean	Std. Deviation
NE_EP	156	7.3	23.8	15.457	3.9319
EL_POP_T	156	3.8	30.9	9.610	4.6027
NE_E	156	8.6	24.8	16.692	3.8768
EL_E_T	156	1.0	15.3	4.436	2.5924
EDU_E_T_1	156	3.6	40.4	15.599	8.8450
EDU_E_T_2	156	23.3	78.2	50.586	13.9256
EDU_E_T_3	156	16.8	47.7	33.538	7.4842
LFP_T	130	61.9	82.9	73.965	4.6800

Source: Own proceeding by using SPSS software, 2021

Tab. 3.: Results of regression analysis of panel data

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDU_E_T_1	0.851644	0.053614	15.88479	0.0000
EDU_E_T_2	0.671330	0.013735	48.87849	0.0000
EDU_E_T_3	0.713288	0.038543	18.50648	0.0000
EL_E_F	-1.845293	0.244621	7.543475	0.0000
EL_POP_T	-0.997822	0.105394	-9.467524	0.0000
NE_E	1.587900	0.441040	-3.600350	0.0005
NE_EP	2.153925	0.431221	4.994940	0.0000

Source: Own proceeding by using EViews software, 2021

The results from the regression analysis of the panel data can be seen from Table 3. The data analysis confirmed the significance in all examined parameters and for this reason we can reject all null hypothesis. The results of the Hausmann test determined a model with several effects. The model was tested for autocorrelation robustness and cointegration. All tests came out with a positive result. Hypothesis H0 can be rejected due to the result of the regression analysis with the level reached at the 1% level of significance beside Newly employed as percentage Employed persons which reached 5% level of significance, which showed that increasing the percentage of the working population with primary education will increase Labour Force Participation by 0.85 percentage points. At the same time, we can state from the results that increasing the percentage of the working population with secondary education will increase Labour Force Participation by 0.67 percentage points and working population with tertiary education by 0.71 percentage points. With the reduction of early leavers, the value of Labour Force Participation will increase by 1.84 percentage points in the case of Early leavers from education and training as percentage of population and 0.99 percentage points Early leavers from education and training as percentage of Employed persons. In the event of an increase in the values of new employees, Labour Force Participation will increase by 1.5 percentage points Newly employed as percentage of Employees and Newly employed as percentage Employed persons 2.15 percentage points.

Conclusion

The search for aspects of how to maintain high Labour Force Participation in the current difficult times of the Covid-19 pandemic is felt from all sides. In our article, we tried to look at aspects especially Educational Indicators, that we believe have a direct impact on this parameter. We found that all aspects we selected are relevant and that they differ in their direct impact on the resulting rate of Labour Force Participation. The results show that we should give priority to the possibilities of creating new jobs, with the need to be aware of the specifics of the new generation of employees and, of course, the new specifics of the time, which is demanding new skills in computer technology (Prince et al. 2020). In the article, we did not address the issue of gender inequality as a priority, but it is clear that for a comprehensive understanding of the topic, it will be necessary to incorporate this issue. The presence of women in the Labour market is increasingly important for economic growth and development at national and company level. The growing participation of women in the Labour Market is a major driver of global growth and competitiveness (ILO, 2015). Harnessing the power of women's potential is therefore essential for economic growth. This can be seen as an engine for sustainable growth, which can be replaced by costly hard investments, which is especially important for emerging economies (Jia et al., 2013). From the results, we can assume that the importance of education quality represents the key role to succeed on Labour Market. The Scandinavian (especially Finish Educational system) education and training system are considered as the most attractive. They are characterized by flexible ways of learning and preparation and an individual approach to learners. Mention fact we proved in our ranking results. The states who are focused on educational system growth are the best rated and have more potential to growth of Labour Force participation. Our recommendation is to take more inspirations from the Scandinavian system and implement it to the other European countries.

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References

- Bhorat, H., Cassim, A., & Tseng, D. (2016). Higher education, employment and economic growth: Exploring the interactions. *Development Southern Africa*, 33(3), 312–327. doi:10.1080/0376835x.2016.1161501
- Brown, P. (2003). The Opportunity Trap: Education and Employment in a Global Economy. *European Educational Research Journal*, 2(1), 141–179. doi:10.2304/eerj.2003.2.1.4
- Égert, B. (2016). Regulation, Institutions, and Productivity: New Macroeconomic Evidence from OECD Countries. *American Economic Review*, 106(5), 109–113. <https://doi.org/10.1257/aer.p20161026>
- Durkheim, E. (1956) *Education and Sociology*. Translated by S.D. Fox. New York: Free Press.
- Eurostat, 2021. Eurostat - Euroindicators 30.April 2021. <https://ec.europa.eu/eurostat/documents/2995521/11563067/3-30042021-CP-EN.pdf/5e5aae01-e15d-b8bd-71fb-4096b88f4120?t=1619705933576> Retrieved 20 March 2021
- Haan, M. D., & Leuven, E. (2020). Head Start and the distribution of long term education and labor market outcomes. *Journal of Labor Economics*. 38 (3), pp. 727-765. <https://doi.org/10.1086/706090>
- Harvey, L. (2000). New realities: The relationship between higher education and employment. *Tertiary Education and Management*, 6(1), 3–17. doi:10.1080/13583883.2000.9967007
- ILO (2020), *Global Wage Report 2020–21: Wages and minimum wages in the time of COVID-19* https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/--publ/documents/publication/wcms_762534.pdf Retrieved 20 August 2021.
- Jia, M., & Zhang, Z. (2012). Critical Mass of Women on BODs, Multiple Identities, and Corporate Philanthropic Disaster Response: Evidence from Privately Owned Chinese Firms. *Journal of Business Ethics*, 118(2), 303–317. <https://doi.org/10.1007/s10551-012-1589-7>
- Kennedy, S., & Hedley, D. (2003). Educational Attainment and Labour Force Participation in Australia. *Economic Round-Up*, (Winter 2003), 27–41. <https://search.informit.org/doi/10.3316/informit.455961160682443> Retrieved 20 August 2021
- Laplagne, P., Glover, M., & Shomos, A. (2007). Effects of health and education on labour force participation. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1018889>

OECD (2021) Labour force participation rate. <https://data.oecd.org/emp/labour-force-participation-rate.htm> Retrieved 20 July 2021

Pettengill, J. S. (1979). *Labour Unions and the Wage Structure: A General Equilibrium Approach*. *The Review of Economic Studies*, 46(4), 675. <https://doi.org/10.2307/2297035>

Prince, M., Yaprak, A., Cleveland, M., Davies, M. A. P., Josiassen, A., Nechtelberger, A., Nechtelberger, M., Palihawadana, D., Renner, W., Chovanova Supekova, S., & Von Wallpach, S. (2020). The psychology of Consumer ethnocentrism and COSMOPOLITANISM: A five-country study of VALUES, moral Foundations, gender identities and consumer orientations. *International Marketing Review*, 37(6), 1013–1049. <https://doi.org/10.1108/imr-05-2019-0142>

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