

PUBLIC EXPENDITURE ON EDUCATION IN EU COUNTRIES VS. ECONOMIC GROWTH

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Abstract. Education is one of the most important tasks of the state. According to the Treaty on the Functioning of the European Union (EU), education remains the exclusive competence of member states. There is organizational diversity in the education process in the various EU countries, as well as a different scale of its public financing. The purpose of this article is to confirm the thesis that the degree of public spending on education translates into state economic growth. The article presents the results of a study of the extent of public spending of the European Union member states on education covering primary, secondary and higher education in 1996-2022. The results obtained were compared with economic indicators of individual EU countries. An attempt was also made to distinguish groups of countries based on the criterion of the level of spending on education in relation to their total public spending and based on the criterion of the amount of GDP growth in 1996-2022.

Keywords: public expenditure, education spending, gross domestic product, education system

INTRODUCTION

Education is one of the key areas of state activity, aimed at providing citizens with access to learning and comprehensive development. It is an obligation that stems from the state's responsibility for the well-being of society, since education affects citizens' quality of life, competence, civic awareness and ability to take up work (Hanushek, Woessmann, 2020). Education, as a task of the state, includes various types and forms of education to promote the development of citizens, build social competence and prepare them for professional and social life. The educational system is diversified to respond to the needs of people at different stages of life and development (Field, 1997).

In the European Union, education remains the exclusive competence of member states (according to Articles 165 and 166 of the Treaty on the Functioning of the European Union). The Treaty on the Functioning of the EU grants the EU only soft powers in this area, mainly focusing on coordinating, complementing and assisting the activities of member states (Cankaya, Kutlu, Cebeci, 2015). In accordance with the principle of subsidiarity, higher education policies in Europe are determined at the level of individual member states (Dakowska, 2019). The European Union primarily plays a supporting and coordinating role. The formal education system of European countries includes: pre-school education, primary education, secondary education and higher education. European Union member states are free to shape their education policies, including financially.

Studies conducted by Hanushek & Woessmann have shown that the degree of educational development has a direct bearing on a country's economic development indicators. In particular, Hanushek & Woessmann point out the need to ensure not only access to universal education, but also to nurture the quality of education (Hanushek, Woessmann 2015). The literature highlights the links between public spending on education and the rate of economic growth. Kao's (1999) and Pedroni's Residual-Based Panel Cointegration Test (1999) suggest a long-run relationship between these factors. Sabah and Wasif show that investments in education are key to economic progress. Not only do they build human capital, but they also help implement new technologies, lowering the cost of adoption. Zoran, based on his analysis for the European Union, the US, Japan and the BRICS countries, concluded that there is a positive correlation between the amount of public spending on education and economic growth in these countries (Zoran, 2015).

The purpose of this article is to confirm the thesis that the degree of public spending on education translates into national economic growth. The article analyzes the extent to which European Union member states finance education covering primary, secondary and tertiary education between 1996 and 2022, and then compares the results obtained with the economic indicators of each country during this period. An attempt was also made to identify groups of countries with similar levels of spending on education in relation to their total public spending for this purpose.

RESEARCH MATERIAL AND METHODS

The article relies on a statistical survey based on data collected by Eurostat. Data on public spending by the general government (all levels of government) on "education" (according to the Classification of Government Functions - COFOG) within the European System of National Accounts (ESA 2010) was analyzed. The COFOG Classification of Government Functions, was developed in its current version in 1999 by the Organization for Economic Cooperation and Development and published by the United Nations Statistical Division as a standard for classifying the purposes of government activities. It first presents education spending rates by stage for all EU countries for 2022. Then, for each country separately, the average of public spending on education from 1996-2022 to the average GDP for that period was calculated. The average of public spending on education from 1996-2022 for each EU member state to the average of

their total public spending from that period was also calculated. The results were compared with the GDP growth rates of each country for the period 1996-2022.

THE RESULTS

In 2022, government spending on education in the EU amounted to €746 billion, or 4.7% of GDP. Of this, 'pre-primary and primary education' accounted for 1.6% of GDP (€254 billion) and secondary education accounted for 1.7% of GDP (€274 billion). For tertiary education, 0.8% of GDP (€124 billion) was reported in the EU, while 'subsidiary services to education' (e.g. school transport) amounted to 0.3% of GDP (€51 billion). Detailed public spending of the European Union countries on education as % of GDP is presented in Table 1 (Eurostat, 2024).

Table 1

General government total expenditure on education, 2022, % of GDP

	Education	Pre-primary and primary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Education not definable by level	Subsidiary services to education	R&D Education	Education n.e.c.
EU	4,7	1,6	1,7	0,0	0,8	0,1	0,3	0,0	0,1
Belgium	6,3	2,0	2,4	0,0	0,9	0,6	0,2	0,0	0,1
Bulgaria	3,9	0,8	2,0	:	0,8	0,0	0,1	0,0	0,2
Czechia	4,9	1,2	2,3	0,0	0,7	0,1	0,2	0,3	0,1
Denmark	5,3	2,5	1,2	0,0	1,3	0,1	0,1	0,0	0,1
Germany	4,5	1,4	1,6	0,1	0,8	0,1	0,4	0,0	0,1
Estonia	5,8	2,4	1,6	0,1	1,0	0,3	0,3	0,1	0,2
Ireland	2,7	1,0	1,0	0,0	0,5	0,0	0,1	0,0	0,0
Greece	3,8	1,2	1,2	0,0	0,9	0,0	0,1	0,4	0,1
Spain	4,4	1,7	1,7	0,0	0,6	0,1	0,1	0,1	0,1
France	5,2	1,4	2,2	0,0	0,7	0,2	0,7	0,0	0,0
Croatia	4,8	2,5	0,9	0,0	0,9	0,0	0,2	0,1	0,1
Italy	4,1	1,5	1,8	0,0	0,3	0,0	0,2	0,0	0,1
Cyprus	5,1	1,7	1,7	0,0	0,9	0,3	0,4	0,0	0,1
Latvia	5,3	2,0	1,2	0,0	0,9	0,5	0,2	0,1	0,4
Lithuania	4,9	1,1	1,8	0,2	0,8	0,4	0,0	0,2	0,4
Luxembourg	4,7	1,7	1,7	0,0	0,4	0,4	0,4	0,0	0,0
Hungary	5,1	1,0	1,4	0,0	1,9	0,1	0,4	0,0	0,1
Malta	5,0	1,2	1,6	0,0	0,8	0,1	0,3	0,4	0,6
Netherlands	5,1	1,5	2,0	0,0	1,2	0,0	0,2	0,0	0,0
Austria	4,8	1,5	1,9	0,0	0,8	0,2	0,2	0,0	0,1
Poland	4,6	2,1	0,9	0,0	1,1	0,1	0,3	0,1	0,1
Portugal	4,3	1,6	1,7	0,0	0,7	0,1	0,1	0,0	0,1
Romania	3,2	0,8	1,3	0,0	0,7	0,1	0,1	0,0	0,2
Slovenia	5,6	2,1	2,0	0,0	1,0	0,1	0,3	0,0	0,1
Slovakia	4,5	1,3	1,5	0,0	0,6	0,3	0,6	0,0	0,2
Finland	5,6	1,2	2,4	0,0	1,6	0,2	0,0	0,0	0,1
Sweden	6,3	3,9	1,0	0,0	1,1	0,3	0,0	0,0	0,1

There are differences in the scale of government expenditures as a proportion of GDP across European Union member states (Musialkiewicz, 2024). As a ratio to GDP in 2022, the highest levels of government expenditure were found in France (58.3% of GDP), followed by Italy (56.1% of GDP), Finland (53.5% of GDP), Austria and Belgium (both 53.2% of GDP) and Greece (52.9% of GDP), while the lowest levels were found in Ireland (21.2% of GDP), Lithuania (36.4% of GDP), Cyprus (38.8% of GDP) and Malta (39.3% of GDP). Therefore, in determining the priorities of state tasks in the classification of public spending, and in our case the role of education in state tasks, it is necessary to examine the ratio of education spending to total public spending (Eurostat, 2024b).

Analyzing the average of public spending of EU countries from 1996-2022, it is necessary at the outset to present the level of public spending of each country in relation to GDP, as shown in Figure 1.

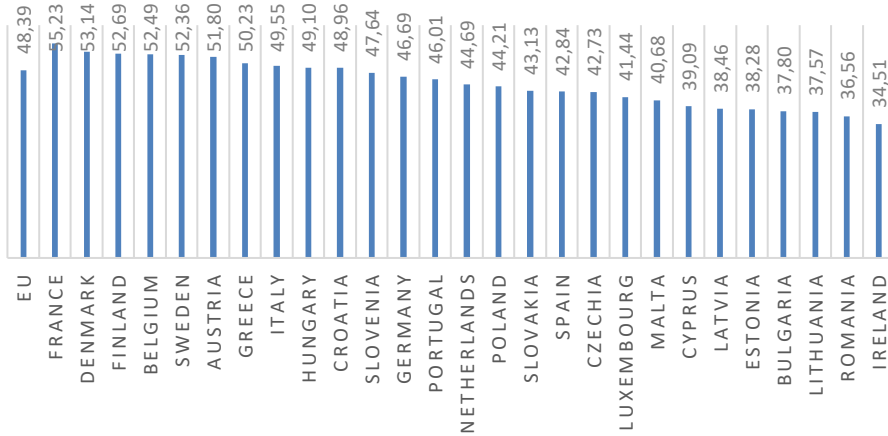


Figure 1. General government total expenditure, 1996-2022, % of GDP

The above figures illustrate that the level of public spending between 1996 and 2022 was higher in Western and Northern European countries such as France (55.23%), Denmark (53.14%) and Finland (52.69%), while it was lowest in Ireland (34.51%) and Central and Eastern European countries such as Romania (36.56%), Lithuania (37.57%) and Bulgaria (37.8%).

Public spending on education from 1996 to 2022 as a percentage of GDP averaged 4.86% for the EU as a whole. They were highest in Sweden (7.33%), Denmark (6.49%), Estonia (6.22%), Finland (6.07%) and Slovenia (6.05%), and lowest in Romania (3.47%), Bulgaria (3.75%) and Slovakia (3.95%). The above figures are shown in Figure 2.

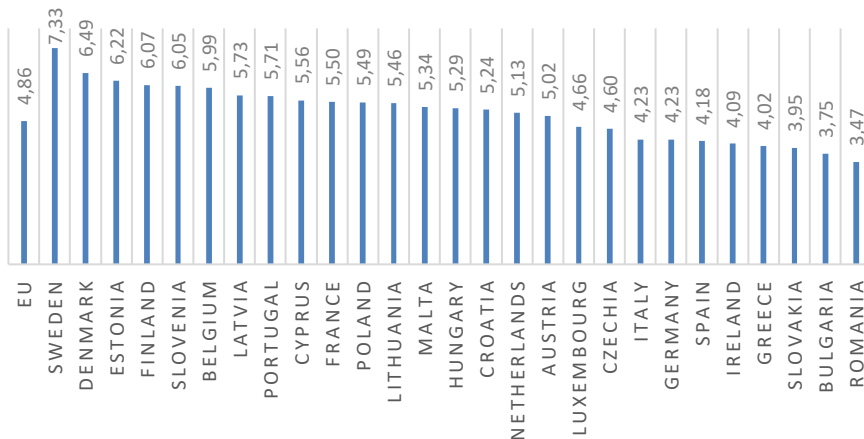


Figure 2. General government total expenditure on education, 1996-2022, % of GDP

Due to the large differences in the level of public spending within EU countries in relation to GDP, a more meaningful indicator representing the importance of education in state policy is the ratio of public spending on education to all public spending. Figure No. 3 shows the total public spending on education between 1996 and 2022 to all public spending by country.

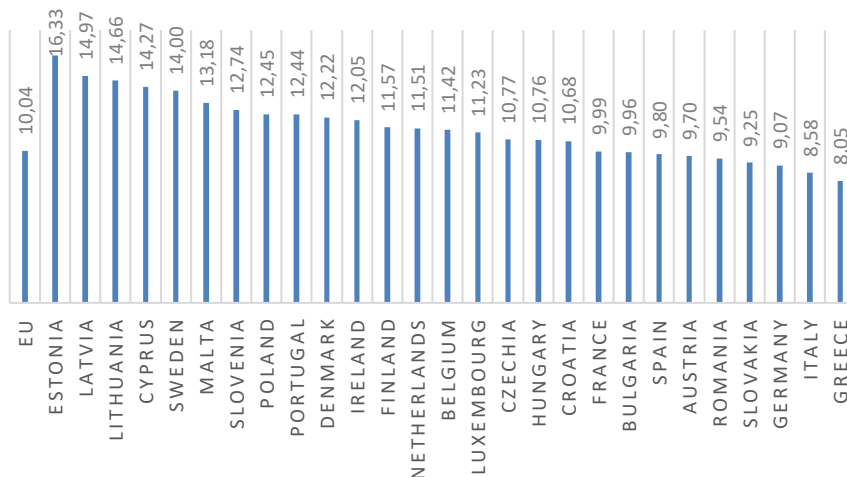


Figure 3. Education expenditure, 1996-2022, % of total public expenditure

Spending on education averaged 10.04% of all public spending in the EU between 1996 and 2022. They were highest in the Baltic countries, Estonia (16.33%), Latvia (14.97%) and Lithuania (14.66%). The lowest were in Greece (8.05%), Italy (8.58%) and Germany (9.07%).

Based on the above data, five groups of countries with similar public education financing policies can be distinguished, as shown in Table 2. The groups were formed based on the division into five parts of the subtraction result between the second highest and penultimate indicator (extreme values were eliminated).

Table 2

Groups of EU countries with similar education expenditure

Very high spending on education (VH) (above 13.7% of total public spending)	High spending on education (H) (between 13.7% and 12.4% of total public spending)	Medium spending on education (M) (between 12.4% and 11.1% of total public spending)	Low spending on education (L) (between 11.1% and 9.8% of total public spending)	Very low spending on education (VL) (less than 9.8% of total public spending)
Estonia, Latvia, Lithuania, Cyprus, Sweden,	Malta, Slovenia, Poland, Portugal,	Denmark, Ireland, Finland, Netherlands, Belgium, Luxembourg,	Czechia, Hungary, Croatia, France, Bulgaria,	Spain, Austria, Romania, Slovakia, Germany, Italy, Greece

When analyzing the economic development of countries, we most often use a measure in the form of gross domestic product (GDP). GDP is the total monetary value of goods and services produced in a given period. It is calculated as the sum of the monetary value of consumption, investment, government spending and net exports. The next table shows the total gross domestic product (in million Euros) of the current EU member countries in 1996 and in 2022 and the difference between 1996 and 2022 expressed as a percentage.

Table 3

GDP of EU countries in 1996 and in 2022 (million Euros)

	1996	2022	%
EU	8 540 233,3	13 146 883,2	54,00
Belgium	269 779,9	434 113,3	61,00
Bulgaria	28 645,7	49 991,8	74,52
Czechia	112 583,1	201 146,3	78,66
Denmark	199 924,2	304 744,0	52,43
Germany	2 192 680,2	3 074 843,4	40,23
Estonia	8 166,2	21 477,7	163,01
Ireland	86 744,1	401 929,7	363,35
Greece	158 431,9	200 557,0	26,59
Spain	739 640,6	1 207 453,5	63,25
France	1 530 362,5	2 283 328,3	49,20
Croatia	32 040,6	57 325,7	78,92
Italy	1 435 173,2	1 691 724,6	17,88
Cyprus	11 528,9	26 278,0	127,93
Latvia	9 454,6	24 599,3	160,18
Lithuania	15 401,3	43 880,9	184,92
Luxembourg	24 361,9	56 252,8	130,90
Hungary	70 267,1	139 703,4	98,82
Netherlands	469 897,5	794 222,8	69,02
Austria	223 042,5	349 044,8	56,49
Poland	203 841,0	559 221,6	174,34
Portugal	141 699,5	198 622,6	40,17
Romania	89 149,9	190 896,2	114,13
Slovenia	23 407,1	45 954,4	96,33
Slovakia	38 541,0	89 940,3	133,36
Finland	127 466,6	207 437,0	62,74
Sweden	259 296,7	474 061,3	82,83

The data in Table 3 shows that the economies of the various countries grew at very different rates between 1996 and 2022. Ireland experienced the highest GDP growth, but this is mainly due to the fact that large multinationals based in Ireland are responsible for this growth, taking advantage of the tax preferences Ireland offered them (Morgenroth, 2010). In the countries of continental Europe, the largest increases were in the countries of Central and Eastern Europe, in Lithuania 185%, Poland 174%, Estonia 163%, Latvia 160% and Slovakia 133%. The lowest increases were in southern

European countries, Italy (18%), Greece (27%) and Portugal (40%). The differences between GDP in 1996 and 2022 are shown in Figure No. 4.

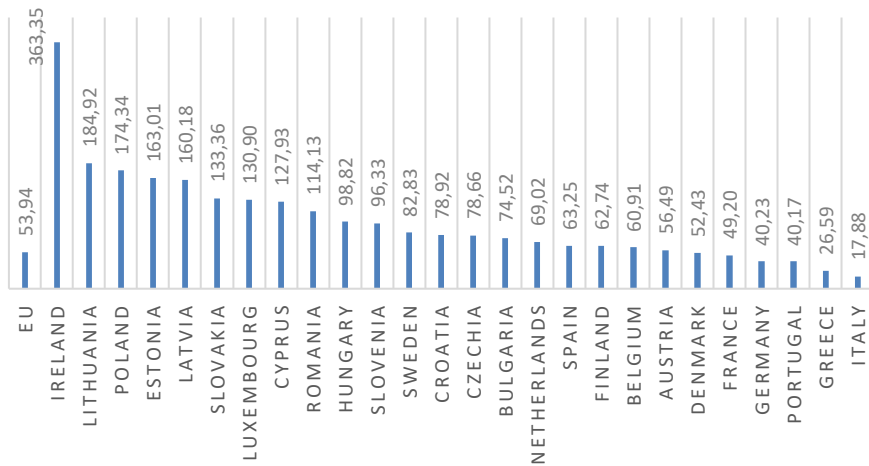


Figure 4. GDP growth of EU countries between 1996 and 2022 in %

The following table identifies five groups of countries with similar GDP growth rates from 1996 to 2022. The groups were formed based on the division into five parts of the subtraction result between the second highest and penultimate indicator (extreme values were eliminated).

Table 4

Groups of countries with similar GDP growth from 1996 to 2022

Very high GDP growth (VH) (above 153%)	High GDP growth (H) (between 153% and 122%)	Medium GDP growth (M) (between 122% and 90%)	Low GDP growth (L) (between 90% and 59%)	Very low GDP growth (VL) (below 59%)
Ireland, Lithuania, Poland, Estonia, Latvia	Slovakia, Luxembourg, Cyprus	Romania, Hungary, Slovenia	Sweden, Croatia, Czechia, Bulgaria, Netherlands, Spain, Finland, Belgium,	Austria, Denmark, France, Germany, Portugal, Greece, Italy

Table No. 5 shows the types of groups (VH, H, M, L, VL) into which each country has been classified based on the ratio of the value of education spending to the value of public spending and the rate of GDP growth from 1996 to 2022.

Table 5

Comparison of the classification of countries in terms of public spending on education and GDP growth

	Expenditure on education	GPD goowth
Belgium	M	L
Bulgaria	L	L
Czechia	L	L
Denmark	M	VL
Germany	VL	VL
Estonia	VH	VH
Ireland	M	VH
Greece	VL	VL
Spain	VL	L
France	L	VL
Croatia	L	L
Italy	VL	VL
Cyprus	VH	H
Latvia	VH	VH
Lithuania	VH	VH
Luxembourg	M	H
Hungary	L	M
Netherlands	M	L
Austria	VL	VL
Poland	H	VH
Portugal	H	VL

Romania	VL	M
Slovenia	H	M
Slovakia	VL	H
Finland	M	L
Sweden	VH	L

There are 10 countries belonging to the same groups distinguished by the level of public spending on education and GDP growth (Bulgaria, Czechia, Germany, Estonia, Greece, Croatia, Italy, Latvia, Lithuania, Austria). Another 10 countries are characterized by similar levels of education spending and GDP growth (Belgium, Spain, France, Cyprus, Luxemburg, Hungary, Netherlands, Poland, Slovenia, Finland). For 3 countries, the relationship of these indicators varies (Denmark, Ireland, Romania) or is very different (Portugal, Sweden, Slovakia).

CONCLUSIONS

An analysis of public spending on education in EU countries has shown that the level of spending by individual countries for this purpose varies widely. The highest spending on education between 1996 and 2022 was in the Baltic countries, Estonia (16.33% of all public spending), Latvia (14.97%) and Lithuania (14.66%). The lowest were in Greece (8.05%), Italy (8.58%) and Germany (9.07%).

A comparison of the public spending on education of EU countries in 1996-2002 to the growth in the level of GDP, shows that the countries with the highest GDP growth were mostly (with the exception of Slovakia) characterized by high public spending on education. In contrast, the countries with the lowest GDP growth between 1996 and 2022 were among those with the lowest public spending on education (with the exception of Portugal). It can be concluded that there is a correlation between public spending on education and gross domestic product growth, but high spending on education does not necessarily lead to GDP growth.

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