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# *CONVERGENCE OF PUBLIC SOCIAL EXPENDITURES IN EU27*

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# CONTENTS

# CONVERGENCE OF PUBLIC SOCIAL EXPENDITURES IN EU27[1]

DAN CONSTANTIN OLTEANU[2]

**Abstract:** *In this paper we verify and quantify the convergence trend of public social expenditure at European Union level (27 countries), as well as between Western European (WE) and Central and Eastern European (CEE) countries between 1995 and 2022, structured on the three social sectors (health care, education and social protection), and three destinations (public consumption, compensation of employees and social benefits). At the same time, we investigate the manner and extent to which the effects of the Covid-19 crisis in 2020-2022 have affected this convergence trend.*

**Keywords:** *social convergence, public social expenditure, health, education, social protection, public consumption, public wages, social benefits.*

**JEL**: *H51, H52, H53, I18, I28, I38*

## 1. Introduction

Strengthening economic and social cohesion has been one of the EU's main objectives since its inception in 1993. However, we have shown in two previous studies[3] that the process of reducing disparities is taking place more in two convergence "clubs", corresponding to the north-western and south-eastern European states, than across all member countries. The trends in the economic and social indicators of the regions mentioned tend to remain parallel, with convergence occurring mainly within the two groups and less between them.

Public expenditure on social areas (health, education and social protection) plays an important role in supporting the convergence process. These also show a significant degree of heterogeneity between Member States, both in terms of their size relative to public revenue and as a share of total public expenditure, not to mention expenditure in absolute per capita terms, where the differences are huge, as we have shown in another study[4] . In the same study, we found that the rates of growth in social spending during the acute phase of the pandemic (2020-2021) also vary greatly between Member States, as does the magnitude of the subsequent contractions in 2022. It is therefore possible that the effects of the health crisis have accentuated differences in the size of social spending between countries.

The conclusions of the aforementioned studies constitute the starting point and motivation for this research, in which we aim to study how this heterogeneity of public social expenditure has evolved at the level of the EU27 member states. Specifically, the objective of this paper is to verify and analyse the convergence trend in social spending in the European Union, as well as between the groups of Western European (WE) and Central and Eastern European (CEE) countries between 1995 and 2022, structured around the three main social *sectors* (health care, education and social protection) and the three main *destinations* (public consumption, compensation of employees and social benefits). At the same time, we will examine the extent and manner in which the economic effects of the Covid-19 crisis in 2020-2022 have affected this convergence trend. First, in the following section, we will present the results of relevant studies on social expenditure, and in section 3, we will detail the methodology, indicators and statistical data used in the calculations. In

[1] Preliminary results of this research were included in the presentation *European Social Spending Convergence 1995-2022*, Espera International Conference, Bucharest, October 18, 2024.

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[3] Olteanu (2020, 2019).

[4] Olteanu (2024).

section 4, we will briefly present the differences between countries in terms of public social expenditure by sector, and in sections 5-7 we will analyse the convergence of expenditure in the three social sectors, expressed in three ways: (i) absolute values in euro per capita, at purchasing power parity; (ii) by sector, expressed as a share of Member States' public revenue; (iii) by destination, expressed as a share of public revenue. Finally, section 8 summarises a number of research conclusions.

## 2. Studies on social public expenditure convergence

Economic and social convergence, as well as the convergence of public expenditure aimed at accelerating this process at the level of EU Member States, is a widely debated topic in the specialist literature, with the conclusion that these objectives are not as easy to achieve as was believed in the European strategies developed when the Union was established.

In a previous study (Olteanu 2024, p. 8), we showed that the share of total social expenditure in public revenue is significantly heterogeneous across the EU27, with maximum values of over 70% in Germany, Spain, and France and relatively low values of 53-57% in Hungary, Cyprus, Croatia and Greece in 2022. The share of social expenditure in total public expenditure is also heterogeneous, with minimum values of 46-55% in Hungary, Romania, Greece and Bulgaria and values of over 70% in Denmark and Ireland. The structure of social expenditure by destination (wages, consumption, etc.) also varies between countries in the three social sectors, as shown by the analyses carried out in this study. Similarly, on page 9, we showed that the discrepancies between countries increase considerably if we do not take into account the economic level and report social expenditure expressed in PPS per capita, with values below 8,000 PPS in Bulgaria, Cyprus, Latvia and Hungary and above 14,000 PPS in Denmark, France, Luxembourg, Finland and Norway.

A study by Celik et al. (2023) empirically demonstrates the existence of a convergence trend in health expenditure among a group of 22 OECD countries, between 1976 and 2020. At the same time, the study shows that this convergence has contributed to the convergence of economic growth among the countries considered. On the other hand, Nixon (2000) studies the pattern of convergence in health expenditure in parallel with the evolution of two indicators of the population's health level (life expectancy and infant mortality) in the EU. He finds a tendency of convergence towards the average, in the countries analysed, for the values of the aforementioned indicators. As regards the correlation between expenditure and health status, this is more pronounced in the case of infant mortality and life expectancy among women.

The European Commission (2020, p. 6), in a study on social convergence at EU level, shows that the promise of prosperity is one of the pillars on which the EU was built, but leveling of living standards remains a challenge. Although convergence in living standards between many Member States has been evident over the last 30 years, convergence within countries (regional) has not been achieved. On the other hand, economic crises and necessary fiscal consolidation have contributed to deepening the disparities between central and peripheral European areas.

The study by Apergis et al. (2013) examines the convergence of public expenditure, by category, including social expenditure, for a group of 17 EU member states between 1990 and 2012, concluding that convergence is only present at the level of total expenditure, but not by category. Expenditure on health, social protection and education shows convergence clusters, along with a trend of non-convergence for the entire group of countries studied.

De Simone et al. (2010) analyse and demonstrate the convergence of social expenditure for 17 OECD member countries between 1980 and 2001, both for total expenditure and for certain categories, such as health expenditure and certain social protection expenditure (allowances for low-income families, unemployment benefits, child allowances).

Cornelisse and Goudswaard (2002, p. 9), in an article on the convergence of social protection systems in the EU, find the existence of convergence in two social indicators: the relative size of unemployment benefits and the share of social protection expenditure in GDP. It is noted that the process of social expenditure convergence depends on a number of country-specific factors,

such as the luxury nature of social protection, different rates of economic growth and different government propensities for social spending.

The European Commission (2016), in a report on employment and social development in Europe (Chapter 1), examines the convergence of employment and social indicators in the EU and the Eurozone before and after the 2008 global financial crisis, as well as how social policies can contribute to this convergence. The analyses note a break in the trend of economic and social convergence since the 2000s and, in particular, as a result of the 2008 crisis, followed by a divergence in employment and social performance. The contribution of social spending to income stabilisation is highlighted, but also its procyclical trend (ibid., pp. 74-75).

Delgado Rodríguez and de Lucas Santos (2018), in their study on the factors determining the speed of economic convergence in the EU, analyse the impact of public policies – including investment in education – in the EU15 on economic convergence between 1980 and 2010. They conclude that these investments have contributed to increasing the speed of convergence, and that this impact is still ongoing. The coordination of public policies between Member States plays an important role in this process.

Sánchez and Pérez-Corral (2018), using panel analyses, study the relationship between public social spending and income inequality in EU member states between 2005 and 2014. In emerging countries, spending on health and social protection leads to a reduction in income inequality; in other countries, only social protection spending has a significant impact in this regard. On the other hand, spending on education has no significant effect on the aforementioned inequalities.

Attia and Berenger (2007), in a study on social protection convergence, analyse the process of social expenditure convergence (as percentage of GDP and per capita) among 12 EU member states between 1980 and 2000, as well as the effect of the Maastricht Treaty on this process. Econometric analyses confirm the existence of convergence for both indicators considered; the degree of openness and the public debt criterion negatively affect the convergence process.

## 3. Methodology and indicators used

The target group of the analyses carried out in this research consists of the 27 EU member states, divided into two groups – Western European (WE) and Central and Eastern European (CEE), as follows:

- 13 WE countries (Belgium, Denmark, Germany, Ireland, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden);
- 14 CEE countries (Bulgaria, Czech Republic, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia, Slovakia).

The areas of activity for which we will perform statistical analyses are the three social sectors – healthcare, education, social protection – defined according to the COFOG (Classification of the Functions of Government), developed by the OECD and adopted in Eurostat statistical reports.

Within each of the social sectors mentioned, we will structure the analyses into three categories of expenditure, according to destination – intermediate consumption, compensation of employees, social benefits (in cash and in kind – products) – in accordance with the ESA 2010 (European System of Accounts) classification used in Eurostat statistics.

The indicators calculated are as follows:

- ✓ Public expenditure expressed in euros at the exchange rate and at purchasing power standard (PPS) per capita, structured by the mentioned sectors and destinations, for the period 1995-2022;
- ✓ Public expenditure expressed as a percentage of budgetary revenue, broken down by sector and destination, for the period 1995-2022;

- ✓ The coefficient of variation CV=( σ/$\bar{x}$ )*100 (%), where σ represents the standard deviation, calculated according to the formula $\sigma = \sqrt{\frac{\sum(xi-\bar{x})^2}{n}}$, where *xi* is the value of expenditure *x* for country *i*, $\bar{x}$ is the average expenditure of the countries considered, and *n* is the number of countries; CV is calculated for the EU27, WE and CEE country groups, respectively;
- ✓ Median expenditure of WE and CEE groups, as a share in EU27 median (%).

The statistical data series are extracted from the Eurostat database.

## 4. Public social expenditure in 2022

In the following sections, we will present the results of the analyses on the convergence of social expenditure, using three sets of indicators for each of the three social sectors (health, education and social protection): (i) their size expressed in euros at purchasing power parity; (ii) the share of expenditure in budget revenue; (iii) the share in revenue of expenditure structured by destination (public consumption, public wages and social benefits). First, in this section we will present the values of the three sets of indicators for the year 2022.

In Table 1 we have presented the differences between EU countries in terms of social expenditure expressed in euro per capita, both at the exchange rate and at purchasing power standard (PPS)[5] - in order to eliminate differences in price levels between the countries considered - and as a share of budget revenue. As expected, expressing values in PPS slightly reduces the disparities between countries, but they still remain significant. We have also kept the values in euro at the exchange rate, because PPS is not always appropriate: for example, in healthcare, medicines and equipment may have approximately similar prices in the Member States and are not affected by purchasing power. The last three rows of the table show the median values for the EU27, WE and CEE groups[6] .

The median value for WE countries (13,623 PPS/capita) is almost double that of CEE countries (7,153 PPS/capita). Excluding the extreme value corresponding to Luxembourg, the highest values for this indicator are found in countries such as Denmark, Germany, France, the Netherlands, Austria, Finland and Sweden. At the opposite end of the spectrum are Bulgaria, Latvia, Romania and Slovakia. Romania has the second lowest value after Bulgaria.

If we take into account the share of *total social expenditure* in the budget revenues of the Member States, the differences are not so great, with a median of 68.8% for the WE countries and 63.3% for the CEEs. However, there are values well above the EU27 (66,1%), corresponding to Germany (71%), Spain (70.5%) and France (70.6%), but also to Slovenia (69.8%), from the CEE group. Romania, with a value of 63.5%, is below the EU27, but slightly above the CEE median.

The share of *health expenditure* in revenues for EU members shows a significant dispersion around the median. High values are found in countries such as the Czech Republic (22%), Ireland (21.4%) and Austria (18.8%); very low shares are observed in Hungary (10.4%), Greece (11.8%), Poland (13.1%) and Latvia (13.3%). Not far from the minimum values is Romania, with a percentage of 14.5% of income, below both the EU27 and the CEE medians.

Slightly smaller differences between groups are seen in *the education sector*, with medians of 10.5% and 11.9% for the WE and CEE groups, respectively. The shares in revenue show a high dispersion, as in the health sector, ranging from 7.5% in Greece and 8.4% in Italy, to shares of approximately 15% in Estonia, Latvia and Malta. It is noteworthy that education is the only sector for which CEE countries show higher percentages compared to WE countries.

[5] PPS corresponding to gross domestic product (EU27=1) was used; PPS data corresponding to final government consumption are not available for the entire period analysed.

[6] We preferred median values to averages because the latter are influenced by the extreme values recorded by some countries, such as Luxembourg.

**Table 1**

**Public social expenditure in EU27 countries, 2022**

| | *Total* Euro (exchange rate) / inhabitant | *Total* PPS* / inhabitant | *Health* % of public revenue | *Education* % of public revenue | *Social protection* % of public revenue |
|---|---|---|---|---|---|
| Belgium | 16,545.7 | 14,781.4 | 16.3 | 12.6 | 40.9 |
| Bulgaria | 3,013.6 | 4,998.2 | 14.4 | 10.1 | 34.7 |
| Czech Rep. | 7,293.6 | 9,040.0 | 22.0 | 11.9 | 33.2 |
| Denmark | 20,875.8 | 15,662.4 | 16.4 | 10.9 | 39.0 |
| Germany | 15,542.3 | 13,888.2 | 18.1 | 9.6 | 43.3 |
| Estonia | 6,624.4 | 7,382.1 | 15.4 | 15.0 | 32.7 |
| Ireland | 14,772.9 | 12,424.3 | 21.4 | 11.6 | 32.6 |
| Greece | 5,680.0 | 6,923.5 | 11.8 | 7.5 | 37.5 |
| Spain | 8,520.2 | 9,134.9 | 16.2 | 10.2 | 44.0 |
| France | 14,799.5 | 13,623.5 | 16.9 | 9.7 | 44.1 |
| Croatia | 4,462.0 | 6,621.9 | 17.1 | 10.7 | 28.8 |
| Italy | 10,917.5 | 11,374.1 | 14.8 | 8.4 | 45.6 |
| Cyprus | 7,099.8 | 7,786.6 | 14.9 | 12.3 | 28.5 |
| Latvia | 4,823.3 | 6,024.1 | 13.3 | 14.8 | 36.9 |
| Lithuania | 5,669.2 | 7,533.6 | 14.4 | 13.7 | 37.9 |
| Luxembourg | 35,064.3 | 26,846.4 | 12.3 | 10.8 | 44.0 |
| Hungary | 3,968.1 | 6,139.4 | 10.4 | 11.9 | 30.7 |
| Malta | 6,917.9 | 7,755.5 | 16.4 | 14.8 | 29.8 |
| Netherlands | 15,316.7 | 13,083.9 | 16.8 | 11.3 | 34.7 |
| Austria | 17,290.8 | 15,397.7 | 18.8 | 9.6 | 41.5 |
| Poland | 4,751.2 | 7,730.5 | 13.1 | 11.5 | 41.9 |
| Portugal | 6,733.7 | 7,984.7 | 16.3 | 9.9 | 40.0 |
| Romania | 3,190.2 | 5,703.3 | 14.5 | 9.6 | 39.3 |
| Slovenia | 8,349.7 | 9,839.1 | 17.2 | 12.8 | 39.8 |
| Slovakia | 5,350.6 | 6,746.3 | 15.7 | 11.1 | 38.3 |
| Finland | 17,658.0 | 14,237.8 | 14.0 | 10.5 | 44.5 |
| Sweden | 17,233.6 | 13,593.1 | 14.3 | 14.2 | 36.8 |
| *EU27 median* | 7,293.6 | 9,040.0 | 15.7 | 11.1 | 38.3 |
| *WE median* | 15,542.3 | 13,623.5 | 16.3 | 10.5 | 41.5 |
| *CEE median* | 5,509.9 | 7,152.8 | 14.7 | 11.9 | 35.8 |

*Source*: author's calculations based on Eurostat data [gov_10a_exp] [demo_pjan] [prc_ppp_ind] [gov_10a_main] extracted on 16/10/2024.
* PPS corresponding to GDP.

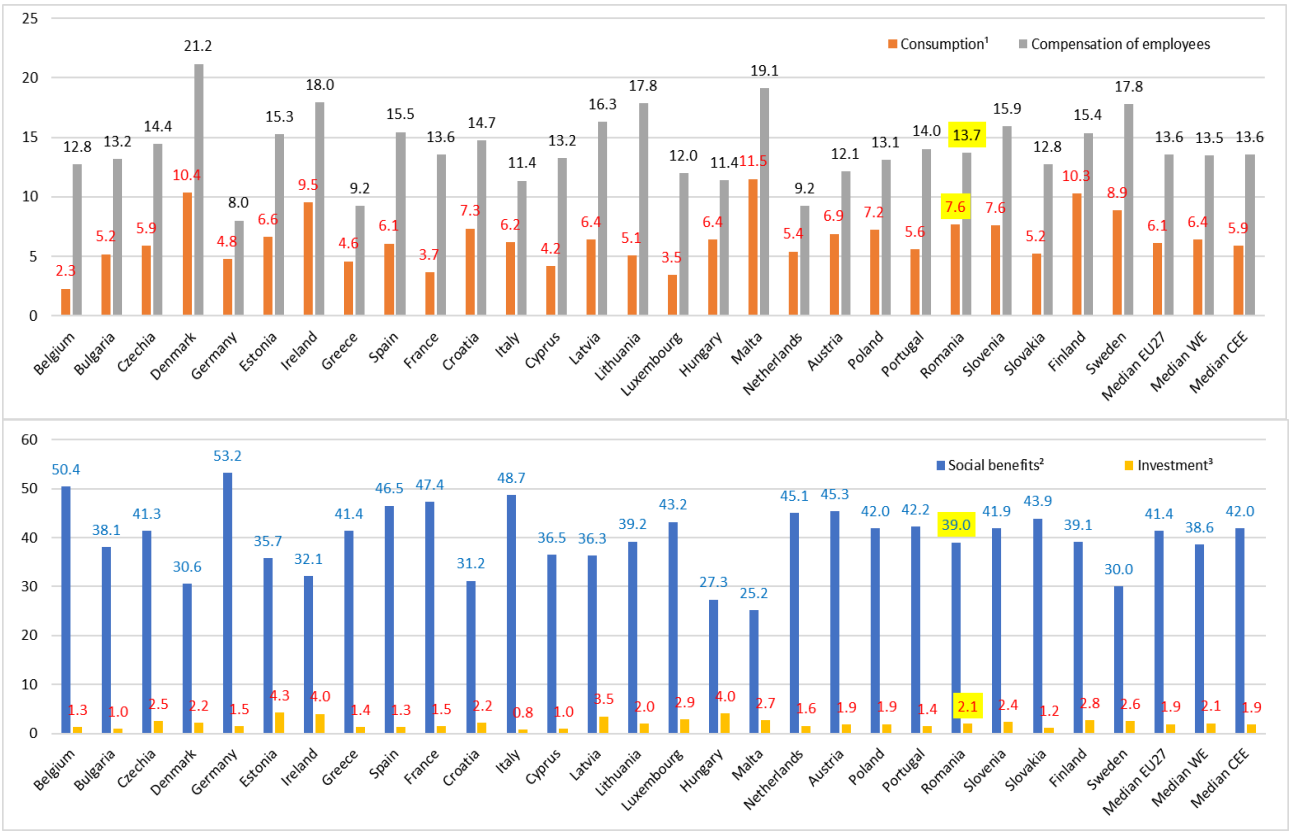
In *social protection*, the differences between the WEE and CEE countries in terms of the share of expenditure in revenue are the greatest, of almost 6%: 41.5% and 35.8% respectively. Noteworthy here is the high percentage of Romania (39.3%), slightly exceeding the EU27.

In Figure 1 we have structured social expenditure, expressed as a percentage of budget revenue, into four main categories: *consumption, wages, social benefits and investment*. As can be seen, social benefits account for the largest share in the EU27, with a median of 41.4% of revenue, followed by wages at 13.6%, consumption at 6.1% and investments at 1.9%.

The differences between Member States are significant for all three destinations. For example, in the case of social benefits, the values increase from 25-27% in Malta and Hungary to 53.2% in Germany and 50.4% in Belgium. There are also significant differences in the share of wages, ranging from 8% in Germany, 9.2% in Greece and the Netherlands, to 21.2% in Denmark, 19.1% in Malta and 18% in Ireland. Thus, the maximum values are double the minimum values.

**Figure 1**

**Total social expenditure by destination, % of budget revenue, in 2022**




*Source:* author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.
¹ Intermediate consumption. ² Social benefits other than social transfers in kind, and social transfers in kind – purchased market production. ³ Gross fixed capital formation & Investment grants.

Looking at the EU27, WE and CEE medians, they are relatively close for consumption, budgetary wages and investments, with notable differences in social benefits. Romania's values are above the EU27, except for the share of social benefits, where the share is lower.

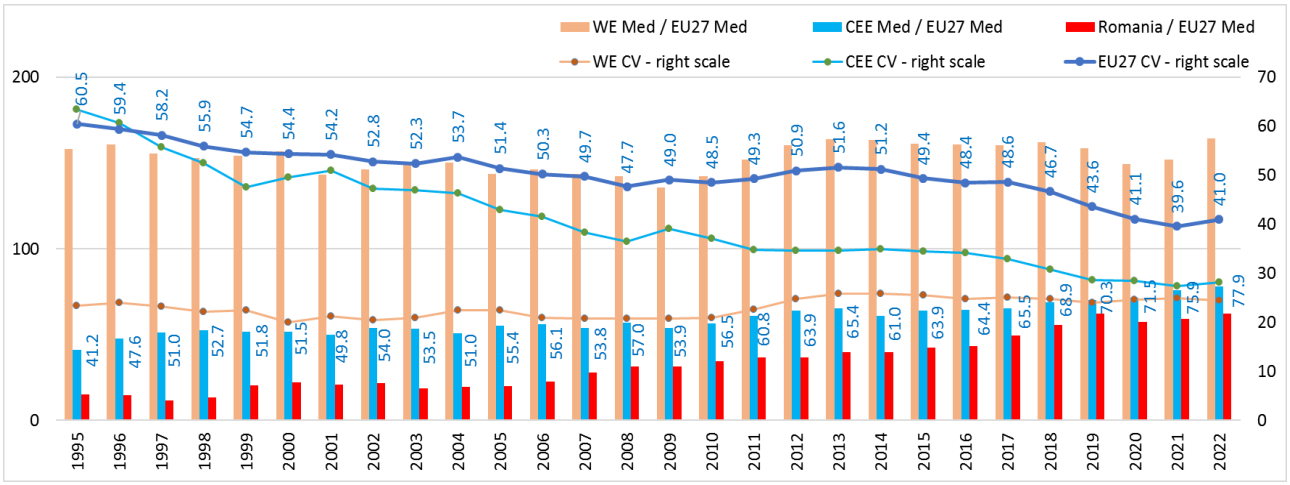
## 5. Convergence of public social expenditure by sector, expressed in PPS/capita

In this section, we will begin our analysis of the expenditure convergence in the three social sectors, first studying the convergence of absolute values per capita, in PPS. To this end, we calculated the coefficient of variation (CV) for the EU27 countries as a whole and separately for the WE and CEE countries, as well as the share of the WE, CEE medians and Romania in the overall EU27 median.

Figure 2 presents the results for the *health* sector. The columns represent the share of the WE, CEE and Romania in the EU27 median, while the horizontal lines show the CV developments for the three groups. Studying the ratio of medians, we observe an approximately horizontal trend for the WE (from 158% to 164.4% between 1995 and 2022), while the share of CEE increases substantially, from 41.2% to 77.9% over the period considered, which indicate a convergence trend. Romania's share in the EU27 significantly increased (from 15.1% to 62.1%) and is approaching the CEE share considerably.

**Figure 2**

**Convergence of health expenditure expressed in PPS / capita (%)**



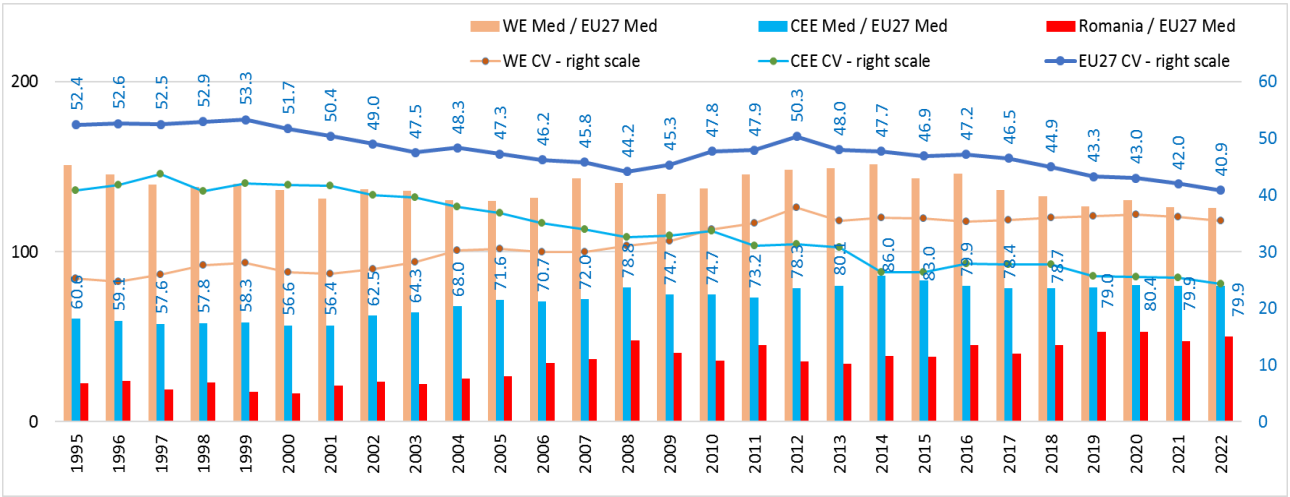

*Source*: author's calculations based on Eurostat data [gov_10a_exp] [demo_pjan] [prc_ppp_ind], extracted on 16/10/2024.

On the other hand, CV values have been declining in the EU27 (except for the period 2008-2013, following the financial crisis), from 60.5% to 41%, confirming convergence. However, this downward trend is due exclusively to the major reduction in CV of the CEEs, from the extremely high level in 1995 (63.5%) to 28.2% in 2002; within the WEs, there was a slight increase in variation, from 23.3% to 24.5%. Therefore, convergence is only taking place between CEE countries, not between WE countries.

In the *education* sector, the WE and CEE medians are somewhat closer, which means that their shares in the EU7 show smaller differences, as can be seen in Figure 3. The convergence process is also slower compared to the health sector, while Romania's rise, although inconsistent, remains pronounced, from 22.5% to 50.1%.

**Figure 3**

**Convergence of education expenditure expressed in PPS / capita (%)**




*Source:* author's calculations based on Eurostat data [gov_10a_exp] [demo_pjan] [prc_ppp_ind], extracted on 16/10/2024.

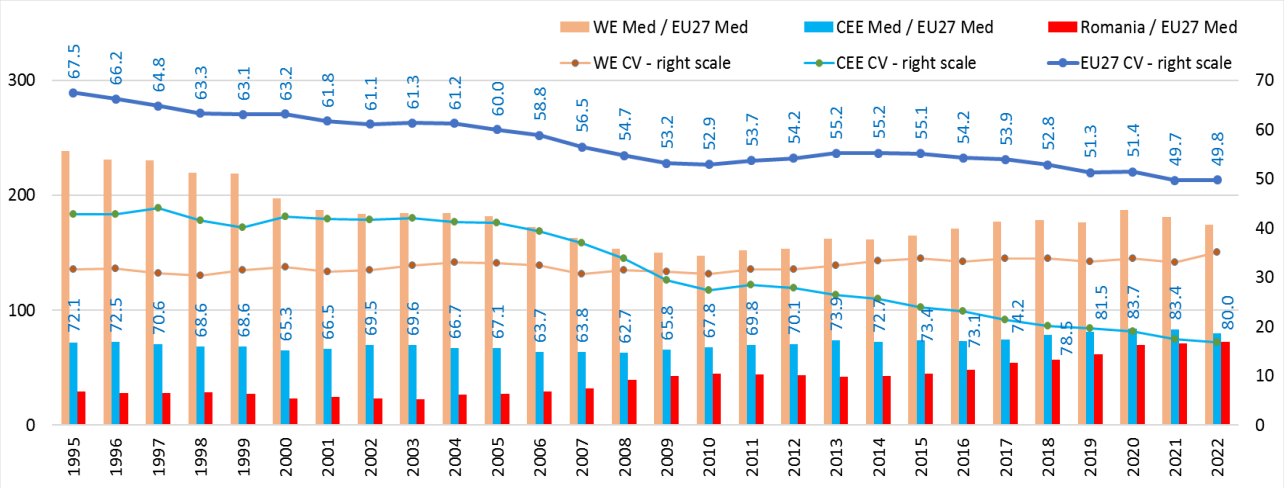
Looking at CV developments, values are declining in the EU27 (except for the period 2008-2012) and the CEE group, while the CV for the WE group is rising until 2012 and slightly declining thereafter, showing a process of divergence within the group between the ends of the interval.

In the case *of social protection* (Figure 4), the differences between the shares of the WE and CEE medians are initially as significant as in the case of health, but they diminish slightly towards the end of the period, mainly due to the large reduction in the WE share, from 238.4% to 147.5% by 2010. The share of Romania increases substantially (29.2% - 72.6%), as in the case of the other two social sectors.

The convergence trend in social protection expenditure is demonstrated by the downward trend in the CV for the EU27. As in the previous cases, the reduction in expenditure variation within the EU is due to the CEE countries, while the CV for the WE countries contributes in the opposite direction, with a slight increase between 1995 and 2002.

**Figure 4**

**Convergence of social protection expenditure expressed in PPS/capita (%)**




*Source:* author's calculations based on Eurostat data [gov_10a_exp] [demo_pjan] [prc_ppp_ind], extracted on 16/10/2024.

## 6. Convergence of social expenditure, by sector, % of budget revenue

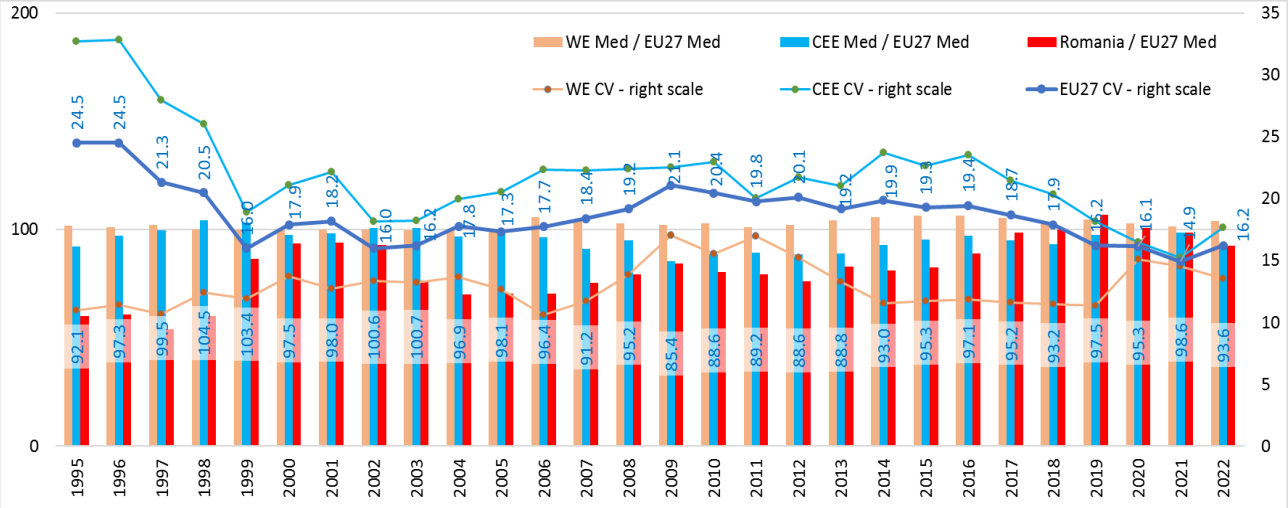
Another approach to the convergence of social expenditure by sector is to look at its share of total budget revenue. In this way, we eliminate the influence of the economic development level - and, implicitly, the size of the budget available to European countries - on the size of social expenditure. As a result, the values obtained are expected to be much closer between the EU27 Member States.

Figure 5 shows the results for the *health* sector. As these are percentages of revenue, the values are influenced by both the size of expenditure and that of revenue. The latter depends on the size of output, which in turn follows fluctuations corresponding to the economic cycle, and is affected by events such as the 2008-2009 financial crisis or the 2020-2021 health crisis. As a result, Figure 5 shows fluctuations in both the evolution of the median ratios and the coefficients of variation (more pronounced) of the three groups.

On the other hand, values relative to budget imply much smaller differences between countries, as mentioned above; as a result, both the median ratio and the CV are lower than those obtained in the previous section. The changes in the indicators are also less significant. The weights of the WE and CEE medians in the EU27 are relatively close, and the differences between the two fluctuate. It can be seen that the CEE group maintains approximately the same gap from the EU27, from 92.1% to 93.6%, while Romania's share increases significantly between 1995 and 2022, from 60.1% to 92.4%, with wide fluctuations that even include exceedances of the EU27 median between 2017 and 2019.

**Figure 5**

**Convergence of health expenditure as a share of public revenue (%)**



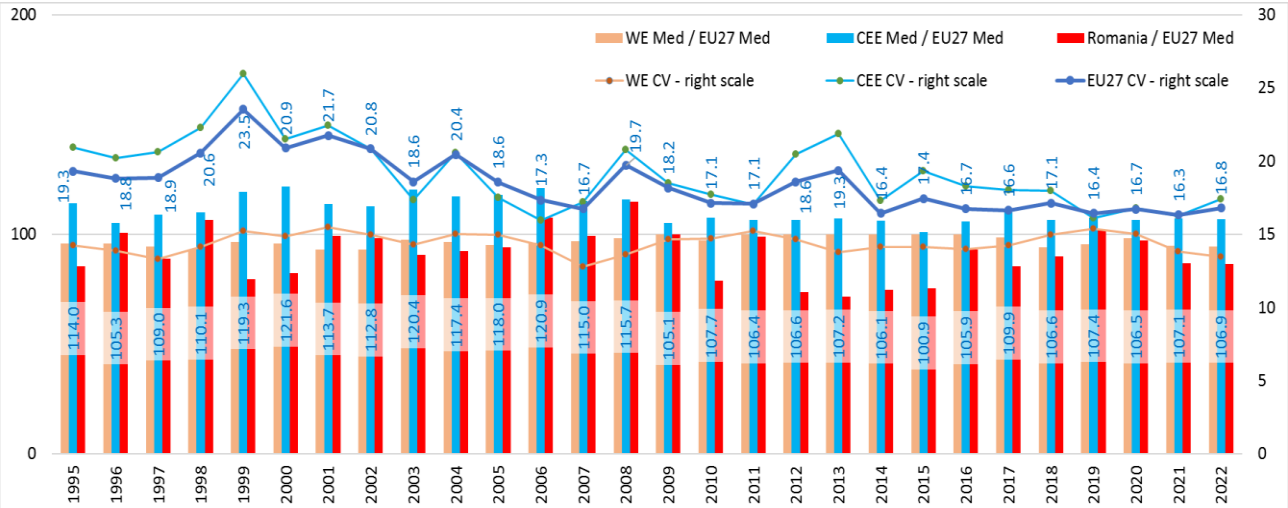

*Source:* author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.

The CV values corresponding to the EU27 show pronounced fluctuations, with a sharp decline between 1995 and 1999, followed by an increase until 2009 (divergence), a decline starting in 2010, and then 2022 interrupting the convergence trend that began in 2010. Although the general trend for the period studied is convergence, with the exception of the period 1995-1999, no conclusion can be drawn regarding the convergence of the share of health expenditure in revenue. The CV of the CEE group shows a similar evolution to EU27, as in the case of absolute values, while the variation within the WEs is opposite to that of the CEEs in certain segments, especially since 2012.

In the case *of education* (Figure 6), the share of CEE expenditure in revenue is higher than that of WEs. As a result, the median ratio is above unity for CEE and below unity for WE. The differences between the two fluctuate, as in the case of health, but there is no major change between the ends of the interval studied; Romania's share shows the same characteristics.

**Figure 6**

**Convergence of education expenditure as a share of public revenue (%)**



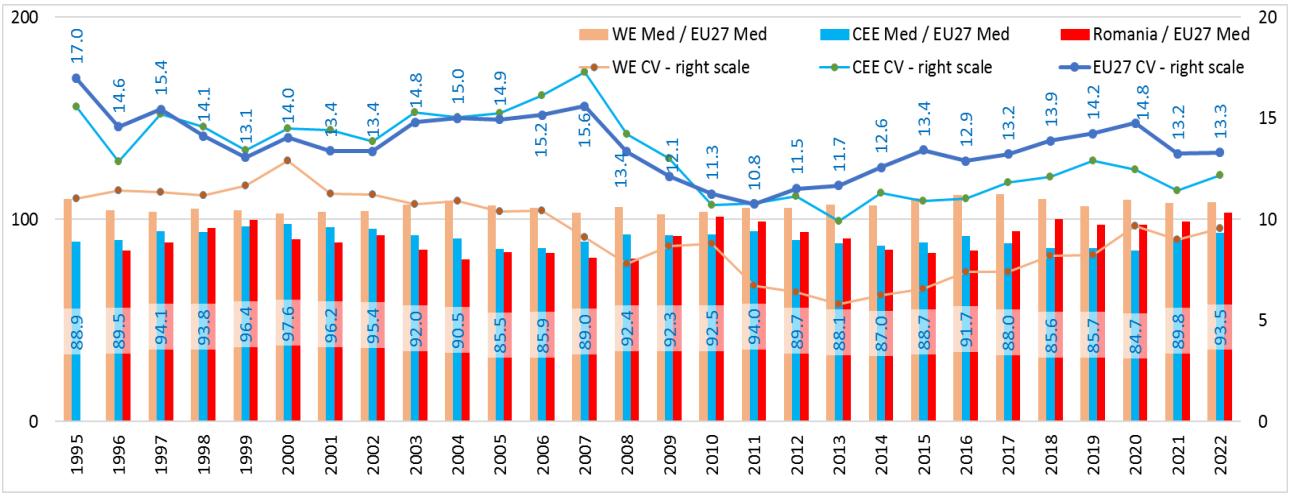

*Source:* author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.

The evolution of the CV for the EU27 and CEE indicates a general downward trend, with numerous fluctuations and a slight increase during the pandemic, while the trend for the WE group is approximately horizontal.

*Social protection* (Figure 7) is the sector with the largest differences between the WE and CEE groups in terms of their share of the EU27 median, along with notable fluctuations in these differences. During periods of economic growth (2003-2008, 2012-2018), the differences increase, while during periods of crisis (2009-2011 and 2021-2022) they decrease, mainly due to the increase in the CEE share. The differences WE - CEE decrease towards the end of the period (health crisis), reaching 108.4% and 93.5% respectively, in 2022.

**Figure 7**

**Convergence of social protection expenditure as a share of public revenue (%)**




*Source:* author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.

The CV values for the EU27 also follow the economic cycle, with increases (divergence) during periods of growth and decreases (convergence) during decline, the most pronounced being that of 2007-2010. The CV trend for the CEE is very similar to that of the EU27, both in terms of level and evolution. Over the period as a whole, the general trend is towards convergence, but very weak.

## 7. Convergence of social expenditure, by destination, % of budget revenue

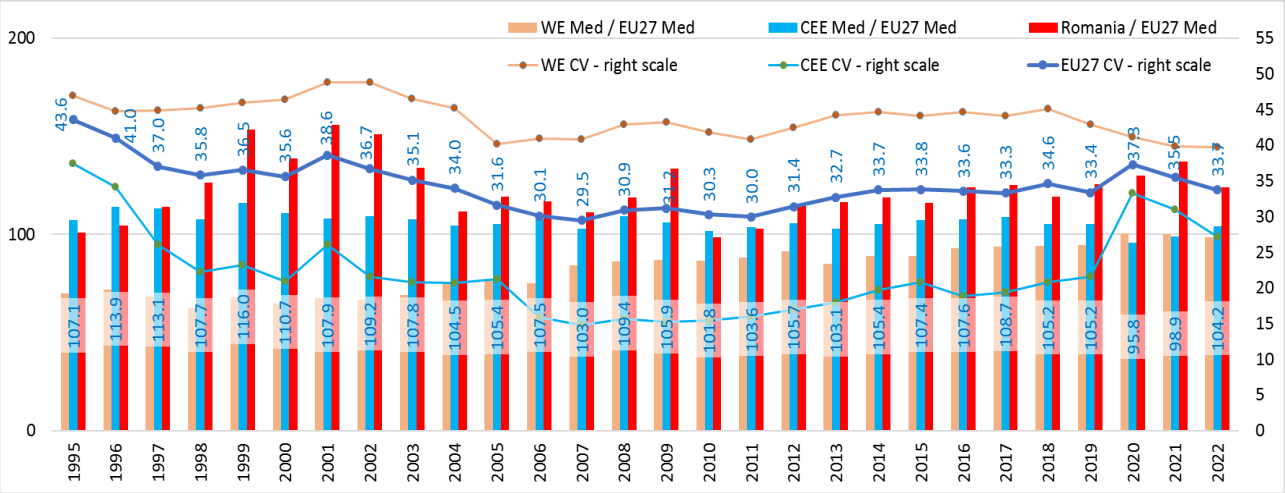
We will analyse the share of social expenditure in public income, structured according to the three main destinations: consumption, compensation of employees and social benefits. We have omitted the analysis of investment expenditure, as investment needs differ greatly between the CEE and WE groups, which is why convergence analysis is not appropriate.

Figure 8 shows that, in terms of the share of social sector *consumption* in budget revenues, the median for CEE countries is higher than the EU27 median, leading to a ratio greater than 100%, while the corresponding ratio for WE countries is less than 100%. The initially wide gaps between the two narrow towards the end of the period, with the shares in the EU27 reaching almost parity, with a slight superiority for the CEE group. What is striking is the behaviour of Romania's consumption, with values well above the European median, peaking in 2001 (155.9% of EU27 median). The values subsequently decline, especially after the financial crisis, but begin to rise again during the Covid-19 (137.1% in 2021).

In terms of CV, the WE group's values are significantly higher than those of the CEE, implying a high heterogeneity of consumption. The convergence trend is fluctuating: a decrease in variation until 2007 (convergence), followed by an increase until 2020 (divergence) and another reduction during the Covid-19 period (2020-2022).

**Figure 8**

**Convergence of social sector consumption expenditure as a share of public revenue (%)**



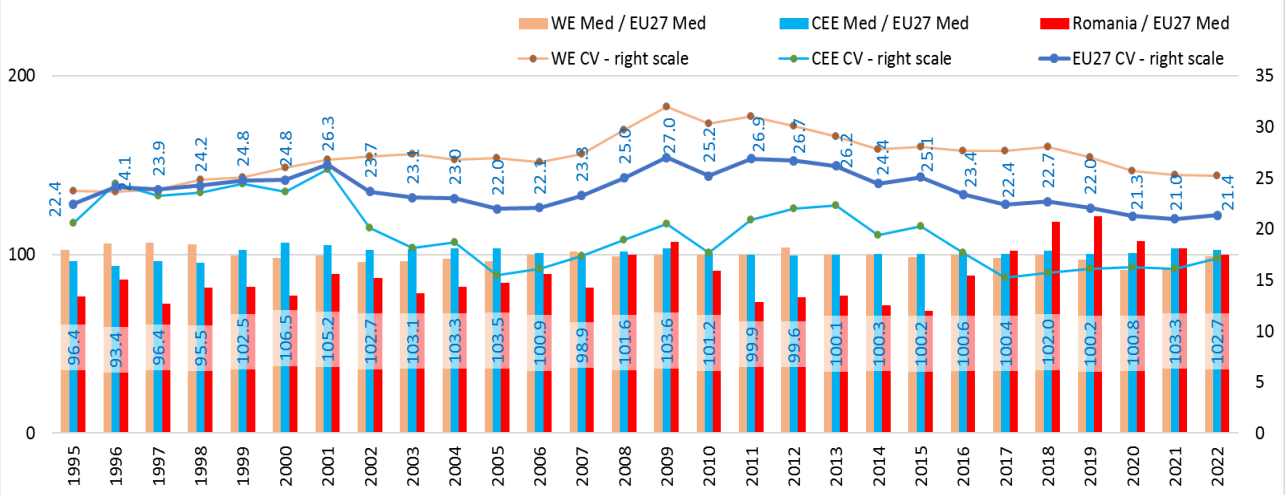

*Source:* author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.

Figure 9 shows the convergence *of public wages* in the social sectors, also expressed as a percentage of public revenue. In this case, the shares of the WE and CEE medians in the EU27 are much closer, as compared to public consumption, and do not show major fluctuations over time. Unlike consumption expenditure, Romania's share is below 100% in most of the years, with the exception of the period 2017-2021. Therefore, public wages in Romania, as a percentage of public revenue, were predominantly *lower* than the European median, with the maximum differences recorded in 2011-2015.

The evolution of CV of public sector wages within the EU27 follows a trajectory somewhat opposite to that of consumption, with an increase (divergence) prior to the financial crisis and a subsequent sustained decline (convergence) until the end of the period.

**Figure 9**

**Convergence of social sector wages as a share of public revenue (%)**

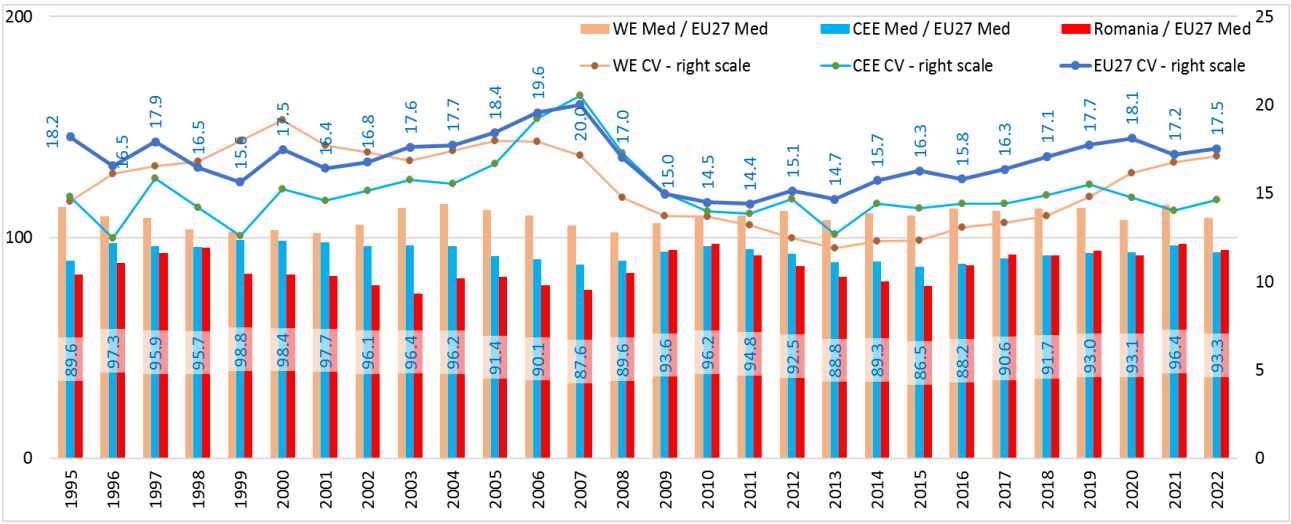



Source: author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.

In the case *of social benefits* (Figure 10), the median ratio also shows a marked difference between the WE and CEE groups, as in the case of consumption; in contrast, the WE - CEE differences remain throughout the entire period, with few exceptions. Romania's share in the EU27 is below unity and lower than the CEE countries until 2016, after which it exceeds it (2017-2022) and approaches the EU27 median (94.4%) in 2022.

**Figure 10**

**Convergence of social benefits expenditure as a share of public revenue (%)**




Source: author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.

The evolution of CV is directly proportional to economic developments, with growth (divergence) until 2007, followed by a decline (convergence) as a result of the financial crisis, and a return to an upward trend (divergence) starting in 2012, after which the health crisis caused a decreasing variation. No conclusion can be drawn on convergence over the entire period, as the CV trend is approximately horizontal.

## 8. Conclusions

Summarising the results, we can draw the following conclusions, corresponding to the three categories of indicators for which we analysed the convergence process of social expenditure.

**1.** With regard to social expenditure in the three social sectors, expressed in PPS/capita, we observed the following trends:

- A clear trend towards convergence within the EU27 and, in particular, within the group of CEE countries, for all three social sectors;
- Within the WE countries, there is a slight trend towards divergence, which is somewhat more pronounced in the education sector;
- Convergence also appears between the two groups considered, WE and CEE;
- A trend towards convergence between Romania and the EU27/CEE median, especially in the health and social protection sectors.

**2.** The convergence of social expenditure by sector, expressed as a percentage of budget revenue, has the following characteristics:

- Fluctuating expenditure variation within the groups, with a general trend towards convergence, more pronounced in the case of health (for EU27 and CEE) and less pronounced in the case of education and social protection;
- Slight convergence trend between the WE and CEE groups in the case of health and social protection; in the case of education, the differences between the EU27, WE and CEE remain roughly constant;
- Romania is approaching the CEE median considerably in the case of health, and even exceeds it in the social protection sector.

**3.** With regard to social expenditure by destination (public consumption, public wages, social benefits), expressed as a percentage of budget revenue, we conclude the following:

- Overall fluctuating trend in the variation of revenue shares; no conclusion can be drawn regarding convergence for the entire period at EU27 level;

- For public consumption – convergence trend 1995-2007 (especially for EU27 and CEE), followed by increased variation until 2020, after which convergence reappears; consumption EU shares for Romania exceed the WE and CEE medians, except for the first two years;
- Public wages show a divergence trend until 2009 (EU27 and WE), followed by convergence until the end of the period; Romania is approaching the WE and CEE medians and even exceeds them in 2018-2021;
- The variation in the share of social benefits is fluctuating, with two periods of convergence 1995-2007 and 2013-2022, for all three groups (EU27, WE and CEE); Romania exceeds the CEE median starting in 2017.

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## Annex 1

## Convergence of social expenditure by sector, PPS/capita

| 1. Expenditures in Euro PPP per capita | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coef. of Variation (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Health | 60.5 | 59.4 | 58.2 | 55.9 | 54.7 | 54.4 | 54.2 | 52.8 | 52.3 | 53.7 | 51.4 | 50.3 | 49.7 | 47.7 | 49.0 | 48.5 | 49.3 | 50.9 | 51.6 | 51.2 | 49.4 | 48.4 | 48.6 | 46.7 | 43.6 | 41.1 | 39.6 | 41.0 |
| Education | 52.4 | 52.6 | 52.5 | 52.9 | 53.3 | 51.7 | 50.4 | 49.0 | 47.5 | 48.3 | 47.3 | 46.2 | 45.8 | 44.2 | 45.3 | 47.8 | 47.9 | 50.3 | 48.0 | 47.7 | 46.9 | 47.2 | 46.5 | 44.9 | 43.3 | 43.0 | 42.0 | 40.9 |
| Social protection | 67.5 | 66.2 | 64.8 | 63.3 | 63.1 | 63.2 | 61.8 | 61.1 | 61.3 | 61.2 | 60.0 | 58.8 | 56.5 | 54.7 | 53.2 | 52.9 | 53.7 | 54.2 | 55.2 | 55.2 | 55.1 | 54.2 | 53.9 | 52.8 | 51.3 | 51.4 | 49.7 | 49.8 |
| WE Med / EU27 Med (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Health | 158.0 | 160.8 | 155.6 | 152.8 | 154.0 | 156.8 | 143.1 | 146.1 | 148.8 | 150.2 | 143.7 | 146.3 | 143.8 | 142.4 | 135.6 | 142.1 | 151.9 | 160.3 | 163.6 | 163.5 | 161.2 | 160.8 | 160.2 | 162.0 | 158.5 | 149.3 | 152.2 | 164.4 |
| Education | 150.9 | 145.6 | 139.4 | 138.1 | 139.8 | 136.5 | 131.0 | 136.5 | 135.7 | 130.1 | 129.7 | 131.7 | 143.3 | 140.6 | 134.2 | 137.4 | 145.5 | 148.3 | 149.0 | 151.5 | 143.1 | 146.0 | 136.5 | 132.5 | 126.7 | 130.2 | 126.0 | 125.8 |
| Social protection | 238.4 | 231.0 | 230.0 | 219.7 | 218.8 | 197.2 | 187.3 | 183.8 | 184.3 | 184.4 | 182.0 | 172.4 | 162.8 | 153.7 | 149.7 | 147.5 | 152.3 | 153.7 | 162.4 | 161.5 | 165.2 | 171.2 | 177.3 | 178.4 | 176.2 | 186.9 | 180.8 | 174.1 |
| CEE Med / EU27 Med (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Health | 41.2 | 47.6 | 51.0 | 52.7 | 51.8 | 51.5 | 49.8 | 54.0 | 53.5 | 51.0 | 55.4 | 56.1 | 53.8 | 57.0 | 53.9 | 56.5 | 60.8 | 63.9 | 65.4 | 61.0 | 63.9 | 64.4 | 65.5 | 68.9 | 70.3 | 71.5 | 75.9 | 77.9 |
| Education | 60.6 | 59.1 | 57.6 | 57.8 | 58.3 | 56.6 | 56.4 | 62.5 | 64.3 | 68.0 | 71.6 | 70.7 | 72.0 | 78.8 | 74.7 | 74.7 | 73.2 | 78.3 | 80.1 | 86.0 | 83.0 | 79.9 | 78.4 | 78.7 | 79.0 | 80.4 | 79.9 | 79.9 |
| Social protection | 72.1 | 72.5 | 70.6 | 68.6 | 68.6 | 65.3 | 66.5 | 69.5 | 69.6 | 66.7 | 67.1 | 63.7 | 63.8 | 62.7 | 65.8 | 67.8 | 69.8 | 70.1 | 73.9 | 72.7 | 73.4 | 73.1 | 74.2 | 78.5 | 81.5 | 83.7 | 83.4 | 80.0 |

*Source:* Author's calculations based on Eurostat data [gov_10a_exp] [demo_pjan] [prc_ppp_ind], extracted on 16/10/2024.

## Annex 2

### Convergence of social expenditure by sector, % of public revenue

| 2. Expenditures as % of public revenues | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coef. of Variation (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Health | 24.5 | 24.5 | 21.3 | 20.5 | 16.0 | 17.9 | 18.2 | 16.0 | 16.2 | 17.8 | 17.3 | 17.7 | 18.4 | 19.2 | 21.1 | 20.4 | 19.8 | 20.1 | 19.2 | 19.9 | 19.3 | 19.4 | 18.7 | 17.9 | 16.2 | 16.1 | 14.9 | 16.2 |
| Education | 19.3 | 18.8 | 18.9 | 20.6 | 23.5 | 20.9 | 21.7 | 20.8 | 18.6 | 20.4 | 18.6 | 17.3 | 16.7 | 19.7 | 18.2 | 17.1 | 17.1 | 18.6 | 19.3 | 16.4 | 17.4 | 16.7 | 16.6 | 17.1 | 16.4 | 16.7 | 16.3 | 16.8 |
| Social protection | 17.0 | 14.6 | 15.4 | 14.1 | 13.1 | 14.0 | 13.4 | 13.4 | 14.8 | 15.0 | 14.9 | 15.2 | 15.6 | 13.4 | 12.1 | 11.3 | 10.8 | 11.5 | 11.7 | 12.6 | 13.4 | 12.9 | 13.2 | 13.9 | 14.2 | 14.8 | 13.2 | 13.3 |
| WE Med / EU27 Med (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Health | 101.8 | 101.2 | 102.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.7 | 100.0 | 100.0 | 105.9 | 104.7 | 103.0 | 102.1 | 102.7 | 101.1 | 102.2 | 104.4 | 105.6 | 106.6 | 106.6 | 105.3 | 103.2 | 104.5 | 103.0 | 101.3 | 103.8 |
| Education | 95.8 | 95.7 | 94.2 | 93.1 | 96.6 | 95.7 | 93.0 | 93.1 | 97.5 | 96.5 | 95.2 | 96.2 | 97.0 | 98.2 | 99.8 | 97.3 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 98.7 | 93.9 | 95.3 | 98.2 | 94.9 | 94.3 |
| Social protection | 110.2 | 104.6 | 103.8 | 105.4 | 104.5 | 103 | 103.8 | 104.1 | 107.3 | 109.3 | 106.9 | 105.8 | 103.1 | 106.1 | 102.3 | 103.7 | 105.6 | 105.8 | 107.3 | 106.9 | 110.5 | 112.1 | 112.4 | 109.9 | 106.6 | 109.5 | 107.9 | 108.4 |
| CEE Med / EU27 Med (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Health | 92.1 | 97.3 | 99.5 | 104.5 | 103.4 | 97.5 | 98.0 | 100.6 | 100.7 | 96.9 | 98.1 | 96.4 | 91.2 | 95.2 | 85.4 | 88.6 | 89.2 | 88.6 | 88.8 | 93.0 | 95.3 | 97.1 | 95.2 | 93.2 | 97.5 | 95.3 | 98.6 | 93.6 |
| Education | 114.0 | 105.3 | 109.0 | 110.1 | 119.3 | 121.6 | 113.7 | 112.8 | 120.4 | 117.4 | 118.0 | 120.9 | 115.0 | 115.7 | 105.1 | 107.7 | 106.4 | 106.6 | 107.2 | 106.1 | 100.9 | 105.9 | 109.9 | 106.6 | 107.4 | 106.5 | 107.1 | 106.9 |
| Social protection | 88.89 | 89.54 | 94.14 | 93.79 | 96.43 | 97.6 | 96.19 | 95.44 | 91.96 | 90.53 | 85.51 | 85.88 | 88.99 | 92.35 | 92.25 | 92.47 | 93.97 | 89.66 | 88.08 | 87.01 | 88.66 | 91.72 | 88.03 | 85.63 | 85.71 | 84.67 | 89.81 | 93.46 |

*Source:* author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.

## Annex 3

### Convergence of social expenditure by destination, % of public revenue

| 3. Expenditures as % of public revenues | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coef. of Variation (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Consumption | 43.6 | 41.0 | 37.0 | 35.8 | 36.5 | 35.6 | 38.6 | 36.7 | 35.1 | 34.0 | 31.6 | 30.1 | 29.5 | 30.9 | 31.2 | 30.3 | 30.0 | 31.4 | 32.7 | 33.7 | 33.8 | 33.6 | 33.3 | 34.6 | 33.4 | 37.3 | 35.5 | 33.7 |
| Compensation of employees | 22.4 | 24.1 | 23.9 | 24.2 | 24.8 | 24.8 | 26.3 | 23.7 | 23.1 | 23.0 | 22.0 | 22.1 | 23.3 | 25.0 | 27.0 | 25.2 | 26.9 | 26.7 | 26.2 | 24.4 | 25.1 | 23.4 | 22.4 | 22.7 | 22.0 | 21.3 | 21.0 | 21.4 |
| Social benefits | 18.2 | 16.5 | 17.9 | 16.5 | 15.6 | 17.5 | 16.4 | 16.8 | 17.6 | 17.7 | 18.4 | 19.6 | 20.0 | 17.0 | 15.0 | 14.5 | 14.4 | 15.1 | 14.7 | 15.7 | 16.3 | 15.8 | 16.3 | 17.1 | 17.7 | 18.1 | 17.2 | 17.5 |
| WE Med / EU27 Med (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Consumption | 69.9 | 72.0 | 68.4 | 62.2 | 68.0 | 64.8 | 67.4 | 66.5 | 69.2 | 74.9 | 76.4 | 74.9 | 84.2 | 86.3 | 87.0 | 86.7 | 88.0 | 91.2 | 84.8 | 89.1 | 88.9 | 93.0 | 93.8 | 94.0 | 94.4 | 100.5 | 100.0 | 98.5 |
| Compensation of employees | 102.4 | 106.0 | 106.7 | 105.6 | 99.5 | 98.0 | 99.2 | 96.0 | 96.1 | 97.7 | 96.4 | 100.0 | 101.5 | 99.1 | 99.8 | 100.0 | 100.0 | 104.1 | 100.0 | 100.0 | 98.4 | 100.0 | 98.0 | 100.0 | 97.0 | 91.3 | 92.3 | 99.0 |
| Social benefits | 113.7 | 109.4 | 108.8 | 103.7 | 102.6 | 103.4 | 101.9 | 105.8 | 113.3 | 115.0 | 112.3 | 109.8 | 105.5 | 102.3 | 106.4 | 109.3 | 109.8 | 112.1 | 107.9 | 110.9 | 109.8 | 113.1 | 112.1 | 112.9 | 113.4 | 107.7 | 114.9 | 109.0 |
| CEE Med / EU27 Med (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Consumption | 107.1 | 113.9 | 113.1 | 107.7 | 116 | 110.7 | 107.9 | 109.2 | 107.8 | 104.5 | 105.4 | 107.5 | 103 | 109.4 | 105.9 | 101.8 | 103.6 | 105.7 | 103.1 | 105.4 | 107.4 | 107.6 | 108.7 | 105.2 | 105.2 | 95.8 | 98.9 | 104.2 |
| Compensation of employees | 96.4 | 93.4 | 96.4 | 95.5 | 102.5 | 106.5 | 105.2 | 102.7 | 103.1 | 103.3 | 103.5 | 100.9 | 98.9 | 101.6 | 103.6 | 101.2 | 99.9 | 99.6 | 100.1 | 100.3 | 100.2 | 100.6 | 100.4 | 102.0 | 100.2 | 100.8 | 103.3 | 102.7 |
| Social benefits | 89.6 | 97.3 | 95.9 | 95.7 | 98.8 | 98.4 | 97.7 | 96.1 | 96.4 | 96.2 | 91.4 | 90.1 | 87.6 | 89.6 | 93.6 | 96.2 | 94.8 | 92.5 | 88.8 | 89.3 | 86.5 | 88.2 | 90.6 | 91.7 | 93.0 | 93.1 | 96.4 | 93.3 |

*Source:* author's calculations based on Eurostat data [gov_10a_exp] [gov_10a_main], extracted on 16/10/2024.