



Michael Dauderstädt

Inequality in Europe

The consequences of pandemic and war

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SUMMARY

The pandemic and the current crisis (Ukraine war, energy crisis, inflation) have had different effects on income distribution in the EU. The southern periphery, which is more dependent on tourism, suffered more during the pandemic, whereas the current crisis has hit the central and eastern European countries more, where inflation is significantly higher. As a result, however, thanks to higher growth in the poorer EU countries, the distribution between countries has improved somewhat. Within countries, government protection measures have mitigated the effects of the two crises. In the pandemic, this was halfway successful. The findings for the current crisis are still pending, but inflation is likely to have lowered the real incomes of the poorer parts of the population. For EU-wide inequality, the income convergence observed since 2015 came to a halt in the pandemic, while inflation in 2022 is likely to have accelerated nominal convergence.

INTRODUCTION

The Covid-19 crisis has largely been overcome, but the next crisis is already looming in Europe, encompassing the Ukraine war, energy shortages and inflation. The present analysis concentrates first on the consequences of the Covid-19 crisis on income distribution in Europe. It can take advantage of the fact that reliable data from the household surveys (EU SILC = Statistics of Income and Living Conditions) are now available for 2021, the second year of the pandemic.¹ In the second part, it tries to estimate the consequences of the war (inflation, energy crisis) on the distribution of incomes in Europe, although it cannot yet draw on the corresponding data from EU SILC for 2022, which will not be available until autumn 2023.

Three dimensions of income inequality can be distinguished:

- (i) inequality between the Member States of the European Union (EU);
- (ii) inequality within these countries; and
- (iii) inequality between people in the EU as a whole, combining the previous two inequalities.²

First, the two central concepts of this analysis, income and inequality, need to be clarified a little more.

Only the monetary income of households or individuals counts as income here. Other benefits received, such as free education, health care or security, are not included. When comparing money income, especially between countries that may also have different currencies, income can also be weighted with purchasing power. In poorer EU countries, the purchasing power of the same amount of money is higher than in richer countries because many goods are cheaper (especially rents and services). Therefore, comparison at purchasing power standards (PPS) results in smaller income differences than comparison at exchange rates. Furthermore, different definitions of income need to be distinguished. When comparing countries, gross domestic product (GDP, also per capita) is usually used, which corresponds to value added on the territory of the country.

However, this value added may not benefit the citizens of the country, but rather foreign employees or owners of capital. Gross national income (GNI) corrects GDP for income going abroad and income received from abroad. The difference between GDP and GNI is relatively small for the EU as a whole and for many large countries (for example, Germany, Italy, France, Spain), but significant for some, as discussed in more detail below. The EU-SILC income data use another modified income concept, namely disposable income, which is also weighted by household size (equivalised income).

Income inequality can be measured with different indicators that reflect different values and interests. The indicator most commonly used in the present analysis is the quintile ratio (also called the S80/S20 ratio), which indicates the ratio between the income of the richest fifth of the population and the income of the poorest fifth. It is thus a measure of relative inequality as opposed to, say, the gap or standard deviation between these incomes, which measures absolute inequality. When looking at the development of inequality, it may be that relative inequality is decreasing, but absolute inequality is still increasing. The first is called beta convergence (when incomes converge in relative terms) and the other sigma convergence (when they converge in absolute terms, that is, the standard deviation, usually symbolised by a sigma, decreases).³

¹ The author's last analyses (Dauderstädt 2021b and 2022), on the other hand, still had to estimate the effects of the pandemic on income distribution; a similar estimate is attempted in this paper for the consequences of the current crisis.

² According to the concepts introduced by Milanovic (2005) to measure international inequality. See also Ferreira (2021).

³ On the different metrics and their advantages and disadvantages, see also Ferreira (2021).

1

PANDEMIC AND INEQUALITY

A good two years after its outbreak, after a first year (2020) with lockdowns, massive slumps in production, consumption and employment in specific sectors and a second (2021) with cautious progress (vaccination) and easing restrictions, the pandemic can now be considered largely overcome. The impact on European income distribution was noticeable, but ultimately less dramatic than feared, thanks to massive political countermeasures.

1.1 SOUTHERN DISCOMFORT

In what follows, the development of the distribution of average incomes between the Member States during the pandemic will be considered first, neglecting the distribution within countries. The EU has had high income disparities between Member States at least since Ireland joined the then European Economic Community in 1972. Table 1 shows per capita incomes (in different definitions) in 2021 in ascending order of size, and the pandemic-related change in GDP/capita between 2019 and 2021 (second column).

The table shows the large income differences between the richer and poorer Member States. As the penultimate row (Max/Min) shows, the average income of the richest country in terms of GDP/capita (Luxembourg) is ten times that of the poorest (Bulgaria). If other income definitions are used, the picture improves: Luxembourg's equalised disposable income is 'only' just under nine times that of Romania. Inequality falls even more, to about three times, if one compares incomes at PPS. Other indicators show the same result: the standard deviation or coefficient of variation (= standard deviation divided by the mean) is highest for GDP/capita in euros and significantly lower for incomes measured in PPS.

A comparison of incomes at exchange rates and PPS shows that, in the upper part of the table, where the poorer countries are located, incomes valued at PPS are significantly higher. At the border is Italy, for which the two values are almost equal. For the ten richer countries, on the other hand, the incomes at PPS are lower. In addition, the comparison of income between GDP and GNI is affected by the fact that some countries have a national income that is significantly lower than their GDP. This is particularly true of Ireland and Luxembourg (and Cyprus), where 24 per cent (Ireland) and 30 per cent (Luxembourg), respectively, of their GDP goes to foreign recipients, often to foreign companies that shift their profits to

these tax havens, where they count towards GDP but not GNI. There is little change in the ranking of countries: Ireland and Luxembourg retain their top places, Cyprus drops two places.

How has the pandemic affected these very different incomes? Huge differences can be observed in the rates of growth between 2019 and 2021. In fact, the coefficient of variation is even higher for growth rates than for the level of GDP at exchange rates (where income inequality is highest). Some countries had double-digit growth rates between 2019 and 2021, such as, among the poor countries, the Baltic states and Bulgaria (the poorest country) and, among the richer Member States, the two richest (Ireland and Luxembourg) and Denmark. Growth during the Covid-19 crisis was thus not closely correlated with per capita income. The biggest losers were Spain, Portugal, Greece with single-digit rates of decline (marked in red in Table 1) and Italy, which achieved growth of just 0.23 per cent. The causes lie primarily in these economies' high dependence on tourism, which almost completely collapsed during the pandemic (Dauderstädt 2022).

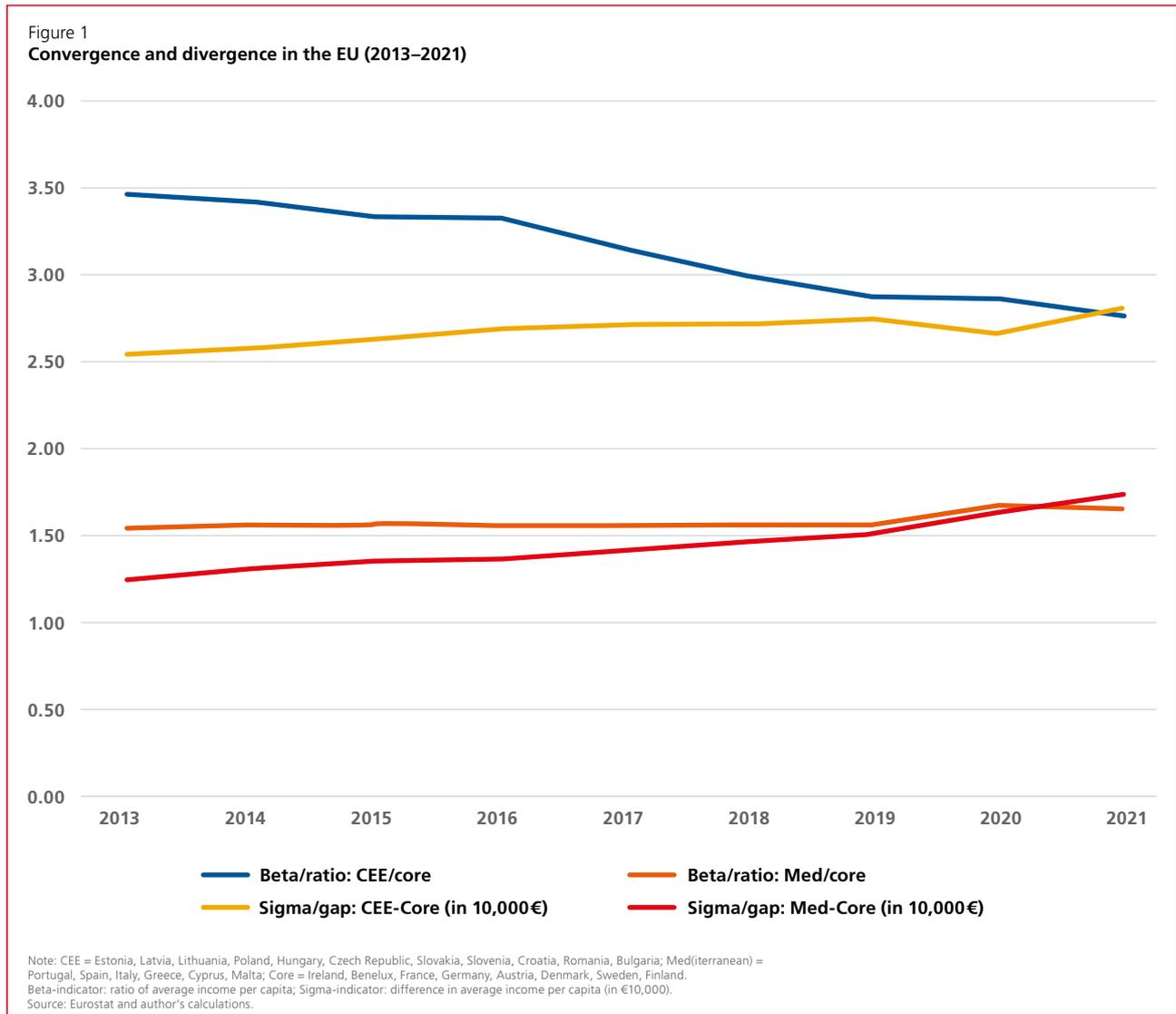
Therefore, a different, regional perspective is appropriate to view the development of average national incomes. For this purpose, the EU can be divided into three major regions that differ geographically, historically and economically. The old, rich, north-western core of the EU with an average GDP/capita of around 40,000 euros (€), and the two peripheries, one in the south with the somewhat poorer Mediterranean countries (average GDP/capita around €25,000), and one in the east with the mostly even poorer states of central and eastern Europe (CEE; average GDP/capita around €15,000), which joined the EU after 2004.

Immediately after the outbreak of the pandemic (between 2019 and 2020), average GDP per capita in southern Europe declined by 8.5 per cent, compared with a decline of 2.2 per cent in central and eastern Europe (CEE) and 2.7 per cent in the rich north-west of the EU. In 2021, most Member States recovered quickly. For example, GDP/capita ultimately increased by 3.6 per cent on average in the EU during the pandemic, that is, between 2019 and 2021, but still declined by 3.7 per cent in Spain and 0.2 per cent in Greece. Looking at country groups, the economies of southern Europe still contracted between 2019 and 2021 (GDP/capita: -1.3 per cent), while the poorer CEE countries grew by 8.4 per cent (the Baltic states were the frontrunners with rates above 12 per cent) and the rich core achieved a more modest growth rate of 4.4 per cent.

Table 1
Per capita income of EU Member States in 2021 and change compared with 2019 (in euros or per cent)

	GDP/capita	GDP/capita	GNI/capita PPS	Equivalised disposable income 2021	
	2021	Change 2019–21	2021	Euros	PPS
Bulgaria	10,334	17.11 %	10,000	6,730	12,234
Romania	12,560	8.54 %	12,400	5,426	9,773
Croatia	14,719	7.59 %	15,100	8,859	12,511
Poland	15,227	8.56 %	14,500	9,158	15,310
Hungary	15,835	5.60 %	15,300	7,333	11,058
Greece	17,073	-0.17 %	16,900	9,951	11,276
Latvia	17,881	11.54 %	17,900	11,233	14,253
Slovakia	18,087	4.46 %	17,900	8,796	9,784
Lithuania	20,058	14.59 %	19,200	11,881	16,885
Portugal	20,772	-0.33 %	20,600	13,100	14,654
Czech Republic	22,677	7.27 %	21,300	12,023	15,632
Estonia	23,626	12.91 %	22,200	14,207	16,668
Slovenia	24,766	6.57 %	24,400	16,590	18,920
Spain	25,452	-3.68 %	25,600	18,102	18,564
Cyprus	26,677	1.52 %	24,400	19,598	21,534
Malta	28,894	2.73 %	26,100	19,785	22,080
Italy	30,148	0.23 %	30,700	20,277	20,014
France	36,913	2.05 %	37,700	25,965	22,958
Germany	43,292	3.57 %	44,800	29,086	27,209
Belgium	43,329	4.00 %	43,700	27,706	24,320
Austria	45,350	1.39 %	45,600	30,019	26,759
Finland	45,365	4.43 %	46,100	28,599	22,557
Netherlands	48,842	4.20 %	47,700	30,617	26,439
Sweden	51,564	11.15 %	53,100	27,653	22,420
Denmark	57,493	8.00 %	59,500	35,741	25,507
Ireland	84,695	17.16 %	64,400	31,821	22,736
Luxembourg	112,950	12.27 %	78,700	48,154	36,422
Standard deviation	23,250	0.05 %	18,033	10,774	6,457
Mean value	33,873	0.06 %	31,700	19,571	19,203
Coefficient of variation	0.68	0.85	0.57	0.55	0.33
Max	112,950	17.16 %	78,700	48,154	36,422
Min	10,334	-3.68 %	10,000	5,426	9,773
Max/Min	10.93	-	7.87	8.87	3.73
Max-Min	102,615	20.84 %	68,700	42,728	26,649

Source: Eurostat, Ameco (for GNI) and author's calculations.



If we look at the EU as a whole, the variance of countries' average per capita incomes, which had decreased since 2014 (then 0.71), increased slightly during the pandemic from 0.65 to 0.69, indicating (sigma-)divergence. As regards the convergence of income levels in the EU, the message is mixed. The further relative catching-up of the poorest countries is encouraging. Figure 1 shows beta-convergence for central and eastern Europe: the ratio of average CEE incomes to the core fell from 3.46 in 2013 to 2.87 in 2019 and 2.76 in 2021, although the absolute gaps continued to increase (no sigma-convergence: the gap grew from €25,486 in 2013 to €27,386 in 2019 and €27,989 in 2021). For the southern periphery, on the other hand, the ratio of average incomes to the rich core increased from 1.56 in 2019 to 1.65 in 2021 (still 1.53 in 2013) and the gap inevitably also increased from €15,098 to €17,275 (still 'only' €12,419 in 2013!). The dramatic development in the Mediterranean region thus continued or reinforced a trend that had been going on for some time, beginning in the euro crisis (Dauderstädt 2021c). The Troika's counterproductive austerity policies had stalled a previous phase of catch-up growth (after the adoption of the euro in 1999), from which the region has barely recovered. The South fell even further behind the richer core of the EU in the pandemic (neither beta- nor sigma-convergence).

1.2 HIGHER POVERTY RISKS DESPITE EFFECTIVE STATE PROTECTION MEASURES

How did the pandemic affect income distribution within countries? The main consequences of the lockdowns were sectoral, affecting specific industries such as tourism, air travel, restaurants and hotels. In these industries, both rich owners and poorer workers suffered. But the states responded with huge spending programmes, including furlough, which prevented a sharp rise in unemployment (Dauderstädt 2021b). Such subsidies were all the more justifiable because the income losses were caused by state bans that restricted supply and demand alike (for example, air travel).

Thus, most incomes were protected to a considerable extent, as can be seen when looking at the Gini coefficient, a measure of inequality that ranges from 0 (perfect equality) to 100 (absolute inequality). While on average across all Member States the Gini coefficient of income before social transfers increased slightly (from 50.2 in 2019 to 52.2 in 2021), the (always significantly lower) Gini of disposable income (which includes taxes and social transfers) actually decreased from 30.2 in 2019 to 30.1 in 2021 (see Table 2a).

Table 2a
Development of inequality in the pandemic (Gini coefficient 2019–2021)

Country/Region	Gini market income				Gini disposable income			
	2019	2020	2021	2021–19	2019	2020	2021	2021–19
EU27	50.2	50.5	52.2	2.0	30.2	30.0	30.1	–0.1
Belgium	46.2	46.1	47.4	1.2	25.1	25.4	24.1	–1.0
Bulgaria	54.5	53.4	54.0	–0.5	40.8	40.0	39.7	–1.1
Czech Republic	42.1	42.3	44.1	2.0	24.0	24.2	24.8	0.8
Denmark	48.6	49.4	49.2	0.6	27.5	27.3	27.0	–0.5
Germany	55.4	54.9	56.0	0.6	29.7	30.5	30.9	1.2
Estonia	44.5	44.7	45.5	1.0	30.5	30.5	30.6	0.1
Ireland	47.1	47.3	47.9	0.8	28.3	28.3	26.9	–1.4
Greece	55.1	53.9	54.1	–1.0	31.0	31.4	32.4	1.4
Spain	48.4	46.9	50.1	1.7	33.0	32.1	33.0	0.0
France	51.0	57.8	58.8	7.8	29.2	29.2	29.3	0.1
Croatia	48.7	47.2	48.5	–0.2	29.2	28.3	29.2	0.0
Italy	47.9	47.6	49.8	1.9	32.8	32.5	32.9	0.1
Cyprus	47.4	46.2	46.0	–1.4	31.1	29.3	29.4	–1.7
Latvia	47.7	46.8	48.2	0.5	35.2	34.5	35.7	0.5
Lithuania	50.3	49.6	51.2	0.9	35.4	35.1	35.4	0.0
Luxembourg	52.3	58.5	52.2	–0.1	32.3	31.2	29.6	–2.7
Hungary	47.9	44.2	47.4	–0.5	28.0	28.0	27.6	–0.4
Malta	42.9	43.9	45.0	2.1	28.0	30.3	31.2	3.2
Netherlands	46.4	47.1	55.8	9.4	26.8	28.2	26.4	–0.4
Austria	47.6	46.7	47.5	–0.1	27.5	27.0	26.7	–0.8
Poland	46.5	45.3	44.7	–1.8	28.5	27.2	26.8	–1.7
Portugal	55.0	54.4	55.9	0.9	31.9	31.2	33.0	1.1
Romania	52.1	50.5	52.3	0.2	34.8	33.8	34.3	–0.5
Slovenia	42.7	42.3	42.8	0.1	23.9	23.5	23.0	–0.9
Slovakia	39.1	38.1	n.a.	–	22.8	20.9	n.a.	–
Finland	48.7	48.9	49.4	0.7	26.2	26.5	25.7	–0.5
Sweden	57.3	56.0	56.9	–0.4	27.6	26.9	26.8	–0.8

Source: Eurostat and author's calculations.

However, this EU average masks remarkable national differences. The Gini of disposable income – that is, inequality – increased by more than 1 point in Malta, Greece, Germany and Portugal (highlighted in red in the last column of Table 2a), while Luxembourg stands out for its particularly successful redistribution.

A similar result of mostly decreasing inequality is seen if we use the quintile ratio (S80/S20 ratio, that is, the ratio between the incomes of the richest and the poorest fifths of the population). Table 2b presents the national values for

2021 and the changes during the pandemic. The countries are sorted in descending order, according to the magnitude of the decrease in inequality. Luxembourg again ranks top, while at the bottom, among the ten Member States with increasing inequality, there are many Mediterranean countries: Spain, Portugal, Greece and Malta. Possibly, their state redistribution and income protection capacities were weaker because of fiscal constraints in the aftermath of the sovereign debt panic (the ‘euro crisis’). On average across the EU, the S80/S20 ratio fell slightly by 0.02 from 4.99 to 4.97 (see top row in Table 2b).

Table 2b
Evolution of inequality (S80/S20 ratio) in the pandemic
 (ordered by rate of change 2019–2021 – last column)

Country/Region	S80/S20	Changes		
	2021	2019–2020	2020–2021	2019–2021
EU27	4.97	–0.10	0.08	–0.02
Luxembourg	4.6	–0.35	–0.40	–0.75
Bulgaria	7.5	–0.09	–0.56	–0.65
Poland	4.0	–0.30	–0.05	–0.35
Cyprus	4.2	–0.27	–0.08	–0.35
Lithuania	6.1	–0.30	0.00	–0.30
Sweden	4.1	–0.21	–0.08	–0.29
Ireland	3.8	0.04	–0.24	–0.20
Belgium	3.4	0.04	–0.23	–0.19
Denmark	3.9	–0.09	–0.07	–0.16
Slovenia	3.2	–0.07	–0.08	–0.15
Italy	5.9	–0.26	0.11	–0.15
Finland	3.1	0.03	–0.14	–0.11
Austria	4.1	–0.06	–0.03	–0.09
Netherlands	3.9	0.21	–0.27	–0.06
Estonia	5.0	–0.05	0.00	–0.05
Hungary	4.2	–0.07	0.03	–0.04
Germany	4.9	–0.02	0.01	–0.01
Croatia	4.8	–0.15	0.17	0.02
Romania	7.1	–0.46	0.51	0.05
Latvia	6.6	–0.27	0.36	0.09
Czech Republic	3.4	0.00	0.09	0.09
France	4.4	0.15	0.00	0.15
Spain	6.2	–0.17	0.42	0.25
Portugal	5.7	–0.17	0.67	0.50
Greece	5.8	0.12	0.56	0.68
Malta	5.0	0.51	0.34	0.85
Slovakia	3.0 (2020)	–0.31	–	–

Source: Eurostat and author's calculations.

A similar picture emerges in the distribution of income between wages and profits. The wage share – that is, the share of total wages in GDP – rose on average in the EU from 55.3 to 56.6 per cent between 2019 and 2020, only to fall back to 55.7 per cent in 2021. This development was observed in all Member States and followed a similar course during the financial crisis. While profits collapse rapidly in a recession, wages remain relatively stable, especially when short-time work schemes are in place.⁴

However, this predominantly reassuring picture of often decreasing and rarely strongly increasing inequality should not obscure the fact that the income dimension is only one aspect of Corona-related inequality. For example, the restrictions in the education and health system have affected many weaker population groups, although many consequences will only become apparent in the long term. As table 3 shows, wealth inequality, measured by the share of the top 10 %, has declined slightly in the pandemic (2020), but then increased again in most countries, rising on average from 58.3 % to 58.43 % (see also Oxfam 2022, Chancel 2022).

⁴ Cf. in more detail Dauderstädt (2022); see also there Table A5 in the Annex.

Table 3
Distribution of wealth (share of the top 10%), 2019–2021
 (ordered by rising inequality – last column)

Year	2019	2020	2021	2019–2021
Ireland	66.25 %	65.85 %	66.02 %	–0.23 %
Sweden	58.96 %	58.19 %	58.87 %	–0.09 %
Cyprus	66.45 %	66.42 %	66.38 %	–0.07 %
Croatia	56.04 %	56.04 %	56.04 %	0.00 %
Estonia	66.42 %	66.42 %	66.42 %	0.00 %
Hungary	67.26 %	67.26 %	67.26 %	0.00 %
Italy	56.19 %	56.19 %	56.19 %	0.00 %
Latvia	60.57 %	60.57 %	60.57 %	0.00 %
Luxembourg	59.34 %	59.34 %	59.34 %	0.00 %
Malta	53.82 %	53.82 %	53.82 %	0.00 %
Belgium	52.18 %	52.09 %	52.19 %	0.01 %
Lithuania	57.42 %	57.43 %	57.43 %	0.01 %
Slovenia	57.22 %	57.23 %	57.23 %	0.01 %
Slovakia	49.67 %	49.67 %	49.72 %	0.05 %
Portugal	60.60 %	60.58 %	60.69 %	0.09 %
Spain	57.46 %	57.38 %	57.58 %	0.12 %
Netherlands	47.74 %	47.69 %	47.88 %	0.14 %
Germany	58.73 %	58.54 %	58.94 %	0.21 %
Poland	61.56 %	61.55 %	61.78 %	0.22 %
Romania	57.45 %	57.45 %	57.72 %	0.27 %
Finland	55.76 %	55.76 %	56.06 %	0.30 %
Greece	60.39 %	60.05 %	60.74 %	0.35 %
France	58.90 %	58.77 %	59.33 %	0.43 %
Austria	61.42 %	61.33 %	61.85 %	0.43 %
Czech Republic	57.93 %	57.90 %	58.47 %	0.54 %
Denmark	50.14 %	50.16 %	50.74 %	0.60 %
Average	58.30 %	58.22 %	58.43 %	0.13 %

Source: World Inequality Database; author's calculations.

This more critical finding is confirmed by looking at the poverty risk ratio (= the share of people in the total population at risk of poverty and social exclusion). The usual definition sees such a risk if a person's income is lower than 60 per cent (often also 50 per cent) of the national median⁵ income. Critical observers consider this definition inad-

equated, so that one could not speak of true poverty (the respective income threshold in Germany for a person living alone was €15,009/year or €1,251/month). This poverty rate increased in the EU by 0.6 percentage points on average during the pandemic (see Table 4), that is, by almost 2.7 million people.

⁵ The median income is not the average income, but the income in the middle of the income distribution (50 per cent of people are above and 50 per cent below it). It is usually lower than the average income. The

gap between the two values can also serve as an indicator of the inequality of income distribution

Table 4
Development of poverty risk during the pandemic

Country/Region	2019	2020	2021	2021–2019
EU27	21.1	21.6	21.7	0.6
Belgium	20.0	20.3	18.8	-1.2
Bulgaria	33.2	33.6	31.7	-1.5
Czech Republic	12.1	11.5	10.7	-1.4
Denmark	17.3	16.8	17.3	0.0
Germany	17.3	20.4	20.7	3.4
Estonia	23.7	22.8	22.2	-1.5
Ireland	20.4	20.1	20.0	-0.4
Greece	29.0	27.4	28.3	-0.7
Spain	26.2	27.0	27.8	1.6
France	18.8	19.3	19.3	0.5
Croatia	20.8	20.5	20.9	0.1
Italy	24.6	24.9	25.2	0.6
Cyprus	18.6	17.6	17.3	-1.3
Latvia	26.7	25.1	26.1	-0.6
Lithuania	25.5	24.5	23.4	-2.1
Luxembourg	20.1	19.9	21.1	1.0
Hungary	20.0	19.4	19.4	-0.6
Malta	20.7	19.9	20.3	-0.4
Netherlands	16.5	16.0	16.6	0.1
Austria	16.5	16.7	17.3	0.8
Poland	17.9	17.0	16.8	-1.1
Portugal	21.1	20.0	22.4	1.3
Romania	36.1	35.6	34.4	-1.7
Slovenia	13.7	14.3	13.2	-0.5
Slovakia	14.8	13.8	15.6	0.8
Finland	15.4	15.9	14.2	-1.2
Sweden	18.4	17.7	17.2	-1.2

Source: Eurostat and author's calculations.

The strongest increase (marked in red in the last column of Table 4) is in Germany, confirming the worrying picture shown by the Gini coefficient for income distribution there, even though the S80/S20 ratio was relatively inconspicuous. With equally high increases in poverty (also marked in red), two countries of the southern periphery again stand

out, namely Spain (with 1.6 percentage points in second place) and Portugal (with 1.3 percentage points in third place). In contrast, the two countries with the highest poverty risk rates in the EU, at over 30 per cent, do surprisingly well: Romania (-1.7 percentage points) and Bulgaria (-1.5 percentage points).

1.3 STAGNATING EU-WIDE INEQUALITY

The developments in between- and within-country inequality described above determine the changes in EU-wide inequality, which indicates the distribution of income among all people living in the EU, regardless of nationality or place of residence. It corresponds to Milanovic’s concept 3 of international inequality (Milanovic 2005). Although the EU is not a state, the EU-wide distribution of income still plays an important role in a highly integrated economy with a single internal market and the free movement of goods, services, people and capital. For workers, these income differences are an incentive to migrate, for investors an incentive to relocate production to cheap locations. Populist movements tend to be reactions by people, especially in richer countries,

who feel affected by immigration and deindustrialization. Last but not least, the biggest setback to European integration, Brexit, is due to this constellation of problems.

In order to estimate EU-wide inequality, one can rank all the people in the EU according to their income. The data base is the EU-SILC household surveys, which collect the disposable income of about 130,000 households. This makes them the best available empirical basis, even though one has to assume that actual inequality is higher, as the surveys are not very representative at the lower and upper ends of the income distribution. As already mentioned, it is important here to measure incomes both at exchange rates (Table 5a) and at purchasing power (PPS; Table 5b) in order to obtain both relevant (albeit quite different) inequality values.

Table 5a
Income of the national quintiles 2021 (exchange rates)

Member state	Per capita income in €				
	Q1	Q2	Q3	Q4	Q5
Bulgaria	2,093	3,647	5,187	7,144	15,574
Romania	1,523	3,353	4,847	6,676	10,812
Croatia	3,414	6,006	8,091	10,472	16,312
Latvia	3,583	6,581	9,406	12,896	23,709
Lithuania	4,149	7,015	9,680	13,133	25,449
Poland	4,082	6,524	8,311	10,479	16,404
Estonia	5,385	9,098	12,632	16,882	27,082
Hungary	3,213	5,112	6,622	8,396	13,338
Slovakia	4,363	6,867	8,522	10,292	13,929
Czech Republic	6,213	8,798	10,659	13,238	21,274
Portugal	4,714	8,374	11,140	14,660	26,662
Greece	3,374	6,496	8,785	11,567	19,533
Malta	7,761	13,017	17,103	22,619	38,817
Spain	5,770	11,475	15,977	21,611	35,680
Slovenia	8,508	12,552	15,451	18,889	27,581
Italy	6,915	12,967	17,634	23,370	40,496
Cyprus	8,957	12,976	16,760	21,683	37,812
Germany	11,635	19,200	25,038	32,743	56,830
France	11,200	17,769	22,725	28,670	49,482
Belgium	13,690	20,338	25,882	31,808	46,861
Austria	13,109	21,672	27,592	34,293	53,475
Finland	14,312	20,287	25,540	31,741	51,157
Netherlands	14,038	21,739	28,289	34,607	54,457
Sweden	12,111	19,589	25,532	32,107	48,915
Ireland	15,143	21,943	28,232	36,056	57,744
Denmark	16,436	25,539	32,124	39,976	64,641
Luxembourg	19,879	31,435	42,589	56,056	91,063

Source: Eurostat and author's calculations

In order to reduce the computational effort, the present analysis relies on a simplified method, the quintile method, which takes only the average incomes of the 135 national quintiles (27 Member States x 5) as a starting point. But this approach includes both the within-state distribution (through the five quintiles) and the between-state distribution, and approximates very well the value that would result from evaluating the entire sample (Dauderstädt 2020). Instead of all people, one now ranks the quintiles, from the poorest (in 2021, this was Romania’s poorest quintile with an average income of €1,523 at exchange rates or €2,742 at PPS) to the richest (Luxembourg’s richest with an average income of €91,063 at exchange rates or €68,877 at PPS). These values give a first indication of the huge income dis-

parities within the EU: the ratio of the poorest to the richest quintile is 60 times at exchange rates and 25 times even at PPS. Thus, the spread between rich and poor in the EU is much broader than between the average incomes of Member States (see Table 1, in which the corresponding values range between eleven and three times) and also wider than within most Member States when comparing their inequality with the EU-wide inequality presented below (at least at exchange rates).

A suitable indicator of EU-wide inequality is the S80/S20 ratio, which shows the ratio between the income of the richest fifth of the EU population and that of the poorest fifth. These two EU quintiles each comprise just under 90 million

Table 5b
Income of the national quintiles 2021 (PPS)

Member state	Per capita income in € (PPS)				
	Q1	Q2	Q3	Q4	Q5
Bulgaria	3,804	6,629	9,428	12,987	28,310
Romania	2,742	6,040	8,730	12,024	19,472
Croatia	4,822	8,483	11,427	14,790	23,037
Latvia	4,546	8,351	11,935	16,364	30,085
Lithuania	5,897	9,970	13,757	18,665	36,168
Poland	6,824	10,907	13,894	17,518	27,422
Estonia	6,318	10,675	14,821	19,808	31,774
Hungary	4,846	7,709	9,986	12,661	20,113
Slovakia	4,853	7,638	9,479	11,448	15,493
Czech Republic	8,078	11,439	13,858	17,212	27,661
Portugal	5,273	9,367	12,461	16,399	29,824
Greece	3,823	7,361	9,955	13,107	22,134
Malta	8,661	14,527	19,087	25,243	43,320
Spain	5,917	11,767	16,384	22,161	36,589
Slovenia	9,703	14,314	17,621	21,541	31,454
Italy	6,825	12,798	17,405	23,066	39,970
Cyprus	9,842	14,258	18,416	23,826	41,549
Germany	10,885	17,961	23,423	30,630	53,162
France	9,903	15,711	20,094	25,350	43,752
Belgium	12,017	17,852	22,719	27,921	41,135
Austria	11,685	19,319	24,596	30,569	47,668
Finland	11,288	16,001	20,144	25,035	40,350
Netherlands	12,123	18,773	24,429	29,885	47,026
Sweden	9,819	15,882	20,700	26,031	39,658
Ireland	10,819	15,678	20,172	25,762	41,258
Denmark	11,729	18,226	22,925	28,528	46,131
Luxembourg	15,036	23,776	32,212	42,399	68,877

Source: Eurostat and author’s calculations.

people and are here composed of the matching national quintiles (see Tables 5a and 5b). For this purpose, all national quintiles are ranked according to their average income, and the total incomes of the richest and poorest are added up until the population segments included reach one-fifth of the EU population.

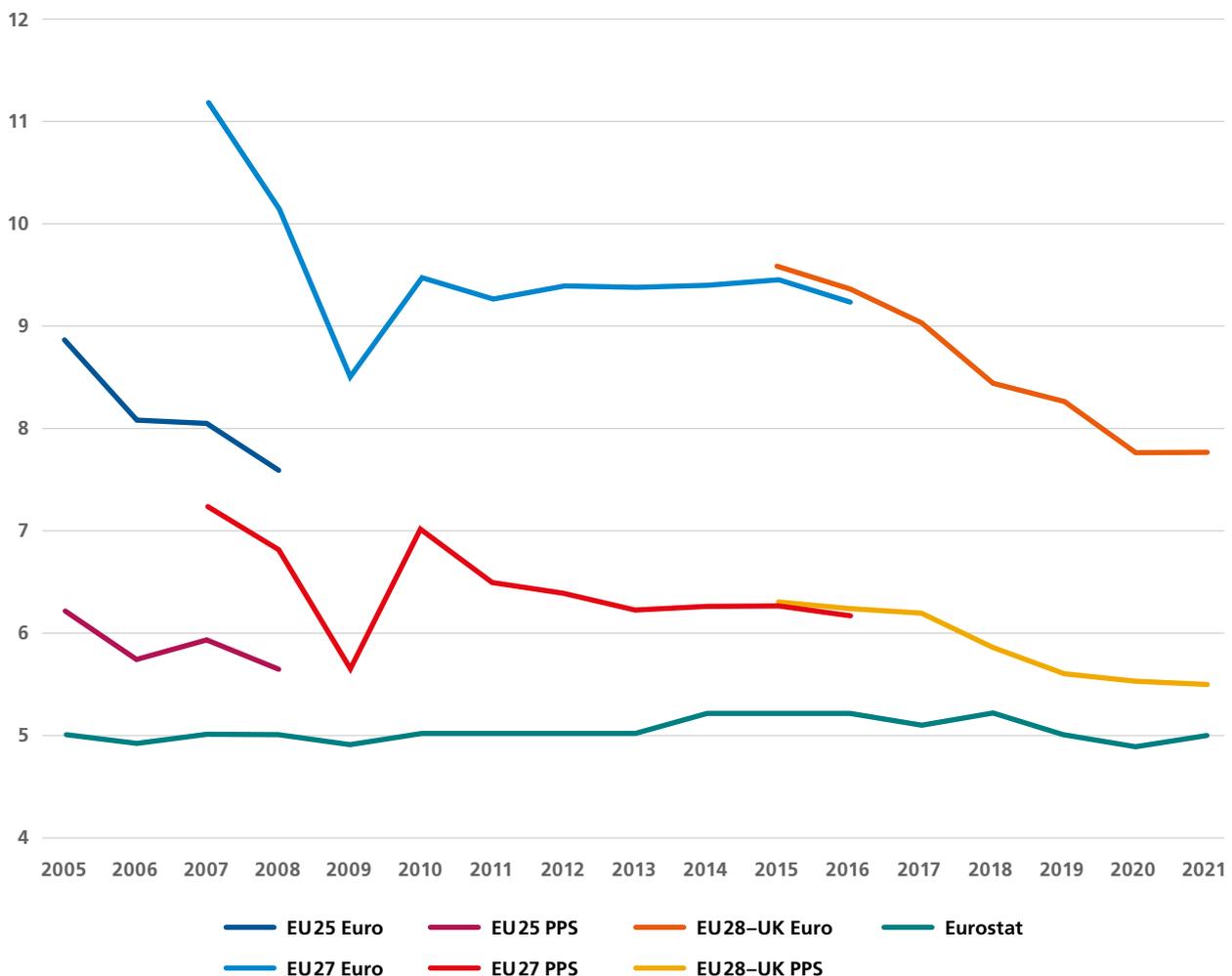
The composition of the richest and poorest EU quintiles is shown in both tables (5a and b) in red (for the poorest EU quintile) and green (for the richest EU quintile). In order to get the exact size of the population of an EU quintile, only the parts of the respective national quintile lying at the income threshold are included (pale colour in Table 5a: Q4 Hungary and Q4 Germany; in Table 4b: Q1 Germany and Q5 Portugal). The colour distribution in the table reflects the effect of the switch from exchange rates to purchasing power. In Table 5b (PPS), more quintiles from richer countries are included in the poorest EU quintile and more quintiles from poorer countries are included in the richest EU quintile.

How has EU-wide inequality evolved during the Covid-19 crisis? Figure 2 shows the development of the S80/S20 ratio since 2005. If one disregards the increases that resulted from

the EU accession of Romania and Bulgaria in 2007 and – much weaker – Croatia in 2013, a phase of stagnation can be observed after the financial crisis in 2009, followed by a slight decline from 2015, which the pandemic slowed down and even slightly reversed. This finding can hardly be surprising given the development of between- and within-country inequality, as explained in detail above. Within-country changes have been small on average, as also shown by the lowest Eurostat curve, which has been oscillating weakly around the value 5 for years.⁶ It has thus always been the between-country income differences that have mainly driven the development of EU-wide inequality: negative in the case of enlargement to bring in poorer countries, positive due to the catching-up growth of these same poorer CEE countries (see Figure 1). The falling behind of the southern periphery, on the other hand, has had little effect, as their average income is in the middle of the EU-wide distribution.

⁶ This value given by Eurostat for the EU27 is the population-weighted average of the national S80/S20 ratios, although it does not indicate ‘true’ EU-wide inequality, as experts have pointed out several times, for example (besides the author) Atkinson et al. (2010), p. 109, and Darvas (2016), p. 15 for the Gini coefficient.

Figure 2
EU-wide inequality (S80/S20 ratio 2005–2021)



Source: Eurostat and author's calculations.

In the pandemic, a weak decline in EU-wide inequality was even observed for 2020,⁷ driven also by a slight drop in intra-state inequality, on average (visible in the lowest curve in Figure 2 as well as in Tables 2a and 2b). This was probably because of the strong income protection policies (Dauderstädt 2021a). In 2021, however, there was an equally weak setback that caused EU-wide inequality to rise again, but without returning to the level of 2019.

The quintile method can also be used to calculate an EU-wide poverty rate, which is the percentage of EU residents whose income is below 60 per cent of the EU median income. The median income does not differ much when measured at exchange rates or PPS and was about €17,500 in 2021, resulting in a poverty threshold of about €10,500 (about two-thirds of the German poverty threshold). The percentage of people with lower incomes is very different at exchange rates and PPS, however: 19.4 per cent (PPS) and 24 per cent at exchange rates for 2021, which is much lower than in 2019, when it was 22.4 per cent (PPS) and 30.7 per cent (exchange rates) before the pandemic (although it was still the EU28 at that time).⁸ This positive development is also likely to be due mainly to higher income growth in the poorer EU Member States (CEE).

If the 135 national quintiles are ranked, with the richest (Luxembourg Q1) in first place and the poorest (Romania Q5) in 135th place, the shifts in income distribution can also be seen in changes of place in the ranking.⁹ The ‘winner’ here is the richest Bulgarian quintile, which moved up 15 places (from 81st to 66th), ahead of the two poorest Latvian quintiles, which moved up 12 places. Adding up all the place changes per country, Latvia improved the most (47 for all 5 quintiles) ahead of Bulgaria (30). The losers were the Swedes, whose two poorest quintiles fell 10 places each (from 74th to 84th and from 43rd to 53rd, respectively) and all the Swedish quintiles together by 37. The next worst quintile was the poorest in France, which also dropped 10 places, from 78th to 88th, and as a country Spain, whose quintiles dropped a total of 25 places.

All in all, the EU has come through the pandemic relatively unscathed, if one looks only at the distribution of income. The main losers were the countries of the southern periphery. They should therefore be particularly supported by the EU’s anti-crisis programme (EU Next Generation). With this major initiative (€750 billion), the EU has reacted to the pandemic with more solidarity and determination than to the financial market crisis and the subsequent sov-

ereign debt panic in 2009 (Rainone/Pochet 2022). However, critics doubt whether this will promote cohesion in the long term, as poorer countries use the funds more for consumption than richer ones, which spend higher shares on research and development (Archiburghi 2023).

⁷ In this respect, inequality in 2020 was slightly lower (less than 0.1 for the S80/S20 ratio) than predicted by the author (Dauderstädt 2021b), assuming constant intra-state inequality at the beginning of 2021, before the EU-SILC data were available.

⁸ The EU-wide poverty risk rate calculated in this way differs from the EU average of all national poverty risk rates, which is shown in the top row of Table 3.

⁹ The following results refer to the changes between 2018 and 2021 at exchange rates.

2

AFTER THE PANDEMIC: UKRAINE WAR, ENERGY CRISIS, INFLATION

No sooner had Europe largely put the pandemic behind it than the next crisis arrived, in 2022. In the wake of the war in Ukraine and the sanctions implemented by Russia and the West, energy prices have risen sharply and inflation has increased significantly, albeit partly for other reasons, such as pandemic-related supply shortages and strong demand thanks to the support policies described above and the influx of refugees. How has this crisis affected the income distribution in the EU in its three dimensions (between and within countries, as well as EU-wide)?

2.1 INFLATIONARY GROWTH IN EASTERN EUROPE

To assess the development of inequality between countries, one can use the growth forecasts for 2022 from the Ameco database.¹⁰ In contrast to the Covid-19 crisis, the southern periphery is less affected than the north and many countries in central and eastern Europe, with the exception of south-eastern Europe (see Table 6). Although almost all countries still show positive growth rates of GDP, some even experienced a decline between 2021 and 2022 (for example, Czech Republic, Estonia and Luxembourg).

One explanatory factor could be differences in protective measures: EU Member States have responded to the challenges of the new crisis with similar economic and social policies, but with different priorities and different degrees of fiscal stimulus. Countries with price controls have had lower inflation rates (France). In terms of spending, Germany stands out with over 7 per cent of GDP, while the values for many countries were significantly lower (Italy and the Netherlands still around 5 per cent; Finland and Sweden even below 1 per cent). However, different levels of subsidies to businesses and consumers are not correlated with different growth rates. For example, Slovenia spent about 1 per cent of GDP on subsidies and its GDP grew by 6.28 per cent, while Germany spent 7 per cent of GDP (in the so-called ‘Doppel-Wumms’ or ‘double whammy’ [in a positive sense]) and its GDP grew by only 0.78 per cent.¹¹

As a result, the countries with projected weak growth also include rich Member States, such as Germany. In addition to Ireland, which is already very rich, the relative front-runners include Greece and Portugal, as well as Slovenia and Croatia. Growth is more problematic when the negative terms-of-trade effects of higher energy prices are included. Growth in the EU as a whole is then significantly weaker and, in many countries, it can be observed that GDP has de facto declined.

As a result, the Mediterranean region outperformed central and eastern Europe (CEE) and the rich core of the EU in terms of GDP growth in 2022. This could also be a longer-term trend against the backdrop of the energy crisis, as the south of Europe, especially Spain and Greece, has a greater renewable energy potential than the east (Kakoulaki 2021). Central and eastern Europe has the highest growth rates when one compares gross national incomes. But this growth is strongly inflation-driven, as the prices in the region have increased considerably more than in the rest of Europe. This was probably due not only to the global increase in energy and food prices, but also to the influx of Ukrainian refugees and the additional demand this caused.

Taking into account the terms of trade or measuring GNI at PPS (Table 6, columns 2 and 3), the picture is again similar to that of GDP. Changes in the terms of trade indicate prosperity gains or losses resulting, for example, from imports (such as gas and oil) becoming more expensive. These more expensive imports then reduce the corresponding adjusted GDP (compare columns 1 and 2 of Table 6) and worsen the current account balance (lower surplus or higher deficit), as was the case for almost all countries except Estonia and Ireland between 2021 and 2022 (see Table 6, last column).

Higher inflation in poorer Member States that want to catch up with the richer core of the EU is normal and necessary (Dauderstädt 2021c). Otherwise, the nominal incomes of employees providing non-tradable services, for example hairdressers, teachers and policemen, could never reach the level of the richer countries. But a thought experiment shows that this adjustment cannot proceed arbitrarily quickly, but must follow real productivity growth. If incomes in central and eastern Europe were doubled in nominal terms only in order to catch up quickly, a balance of payments crisis would soon ensue, as the prices of exports would double and their sales would fall, while imports would rise sharply because of the doubled purchasing power. This is exactly what can al-

¹⁰ The growth rates in the Ameco database differ from more recent data for individual Member States. For example, the rate of 0.78 for Germany is much lower than the rate of over 2 per cent reported by other sources in January 2023.

¹¹ For a detailed overview see Sgaravatti et al. (2022).

Table 6
GDP and GNI, inflation and current account balance (change 2021–2022)

Country/Region	GDP	GDP/ToT	GNI	GNI PPS	Inflation (2015=100)	Current account balance (% of GDP)
Eurozone	2.45%	0.00%	7.24%	7.60%	9.2	n.a.
EU27	2.71%	0.34%	7.36%	7.69%	10.1	n.a.
Belgium	2.07%	-1.55%	8.92%	6.87%	11.6	-3.1
Bulgaria	3.95%	6.10%	16.00%	7.73%	14.0	-0.7
Czech Republic	-0.21%	-4.24%	13.62%	4.61%	17.9	-3.3
Denmark	2.27%	-1.94%	5.38%	6.92%	8.3	-2.3
Germany	0.78%	-1.56%	6.03%	5.46%	9.7	-3.7
Estonia	-2.67%	-2.09%	12.16%	2.95%	22.2	2.2
Ireland	6.09%	7.31%	17.24%	11.72%	8.6	4.0
Greece	6.47%	5.99%	16.57%	12.14%	10.2	-0.5
Spain	3.39%	0.42%	7.42%	8.39%	9.2	-0.1
France	2.05%	0.88%	5.04%	7.20%	6.3	-1.8
Croatia	6.47%	3.62%	11.26%	10.82%	10.7	-2.8
Italy	3.17%	0.35%	7.49%	9.27%	9.2	-2.3
Cyprus	3.53%	-1.18%	8.61%	8.65%	8.1	-2.9
Latvia	1.33%	0.00%	12.85%	6.36%	19.0	-3.9
Lithuania	1.83%	-5.00%	19.27%	7.25%	21.9	-5.0
Luxembourg	-1.03%	-2.51%	4.19%	3.24%	9.2	-1.8
Hungary	5.16%	0.81%	5.23%	10.13%	17.7	-3.6
Malta	3.59%	2.31%	7.66%	7.80%	6.6	-0.5
Netherlands	4.14%	0.23%	7.97%	9.18%	12.8	-1.5
Austria	3.43%	2.23%	8.55%	7.09%	9.6	-0.2
Poland	1.35%	-0.50%	11.72%	6.64%	15.2	-2.7
Portugal	6.91%	5.29%	10.19%	11.67%	8.3	-0.2
Romania	6.71%	5.06%	17.74%	11.21%	13.6	-2.2
Slovenia	6.28%	2.25%	13.11%	11.11%	9.8	-4.5
Slovakia	0.61%	-1.89%	8.38%	5.43%	13.2	-3.8
Finland	1.68%	1.19%	6.72%	6.20%	7.7	-0.8
Sweden	2.49%	1.62%	4.33%	7.02%	8.9	-2.1
North West	2.40%	0.59%	7.44%	7.09%	9.27	-1.33
CEE	2.80%	0.37%	12.85%	7.66%	15.93	-2.75
Mediterranean	4.51%	2.20%	9.66%	9.65%	8.60	-1.08

Source: Ameco and author's calculations; for GDP and GNI, percentage change of per capita values; for inflation, difference in index values of the price level (2015=100); for current account, difference in percentage points (of GDP)

ready be observed to some extent in central and eastern Europe, where the current account deteriorated more significantly from 2021 to 2022 than in the other two regions (see Table 6, last column). In countries with their own currency at flexible exchange rates, inflation would trigger a devaluation

that would offset the nominal income increases in international comparison. However, many CEE countries are in the Eurozone (or have their currencies firmly pegged to the euro), making devaluation impossible. In such circumstances, prolonged high inflation differentials can trigger a crisis.

2.2 INCREASING INEQUALITY WITHIN COUNTRIES BECAUSE OF DECLINING REAL INCOMES

Within countries, development is more difficult to assess. As during the pandemic, the shocks have been caused primarily by government restrictions (now sanctions on trade of gas, oil and coal), which in some countries, however, were imposed in an already slightly inflationary economic environment (pandemic-related supply chain problems, high pent-up demand). But rising energy prices account for the li-

on's share of inflation (OECD 2022; Figure 1). Accordingly, government protective measures were well justified. All Member States and the EU have adopted mitigating policies for which more than €600 billion were approved by November 2022, €264 billion in Germany alone. They include price controls and transfers to affected households and companies (Sgaravatti et al. 2022). Price controls reduce the inflation rate and benefit all consumers (businesses and households) regardless of their other income, but the benefits or savings are significantly higher for the rich than for the poor. Annual heating costs can reach more than two months' net

Table 7
Price increases and expenditure share (2022; ordered by rising inflation – first column)

Country/Region	Price increase	Expenditure share
EU27	8.9%	15.9%
Ireland	3.6%	10.8%
France	4.3%	15.2%
Finland	5.1%	14.0%
Belgium	5.5%	15.5%
Luxembourg	5.5%	10.9%
Italy	6.7%	17.9%
Sweden	6.7%	13.8%
Denmark	7.7%	12.7%
Austria	8.1%	12.0%
Germany	8.5%	11.1%
Netherlands	8.5%	14.2%
Slovenia	9.5%	15.8%
Malta	9.8%	15.8%
Spain	10.3%	20.6%
Portugal	10.7%	20.4%
Czech Republic	11.2%	18.6%
Greece	11.3%	19.8%
Cyprus	12.3%	14.1%
Poland	12.3%	16.7%
Croatia	13.6%	18.6%
Slovakia	14.3%	21.0%
Romania	14.8%	28.3%
Estonia	14.9%	19.2%
Hungary	17.3%	19.3%
Latvia	17.7%	23.4%
Bulgaria	21.0%	20.6%
Lithuania	22.1%	19.2%
North West	6.4%	13.0%
CEE	15.3%	20.1%
South	10.2%	18.1%

Source: Eurostat and author's calculations.

income for low-income households, but only a fraction for richer ones (Frondel et al. 2023). Unfortunately, many direct payments have also been poorly targeted (OECD 2022). In addition, in some Member States there is an additional poverty risk group, namely refugees from Ukraine. In Germany, this has already increased the proportion of children and young people who are dependent on social assistance (Funcke/Menne 2023).

Inflation and high energy prices affect everyone, but are a particular burden on poor people. In 2015, households in the lowest income quintile spent over 7 per cent of their income on domestic energy. This share falls to just over 4 per cent for the richest quintile (Blake/Bulman 2022). Rising food prices also hit poorer households harder, as they spend a higher share of their income on food. This is also evident in the European comparison (see Table 7), where the corresponding expenditure shares in central and eastern Europe average 20 per cent compared with 13 per cent in the richer countries and 18 per cent in the south of the EU. At the same time, food prices increased most in central and eastern Europe (Destatis 2022).

High and rising rents increase inequality even more, as the income tends to go to richer property owners, and people who live in their own housing also tend to be richer. To what extent the various government support programmes can cushion these problems remains to be seen. In any case, de-

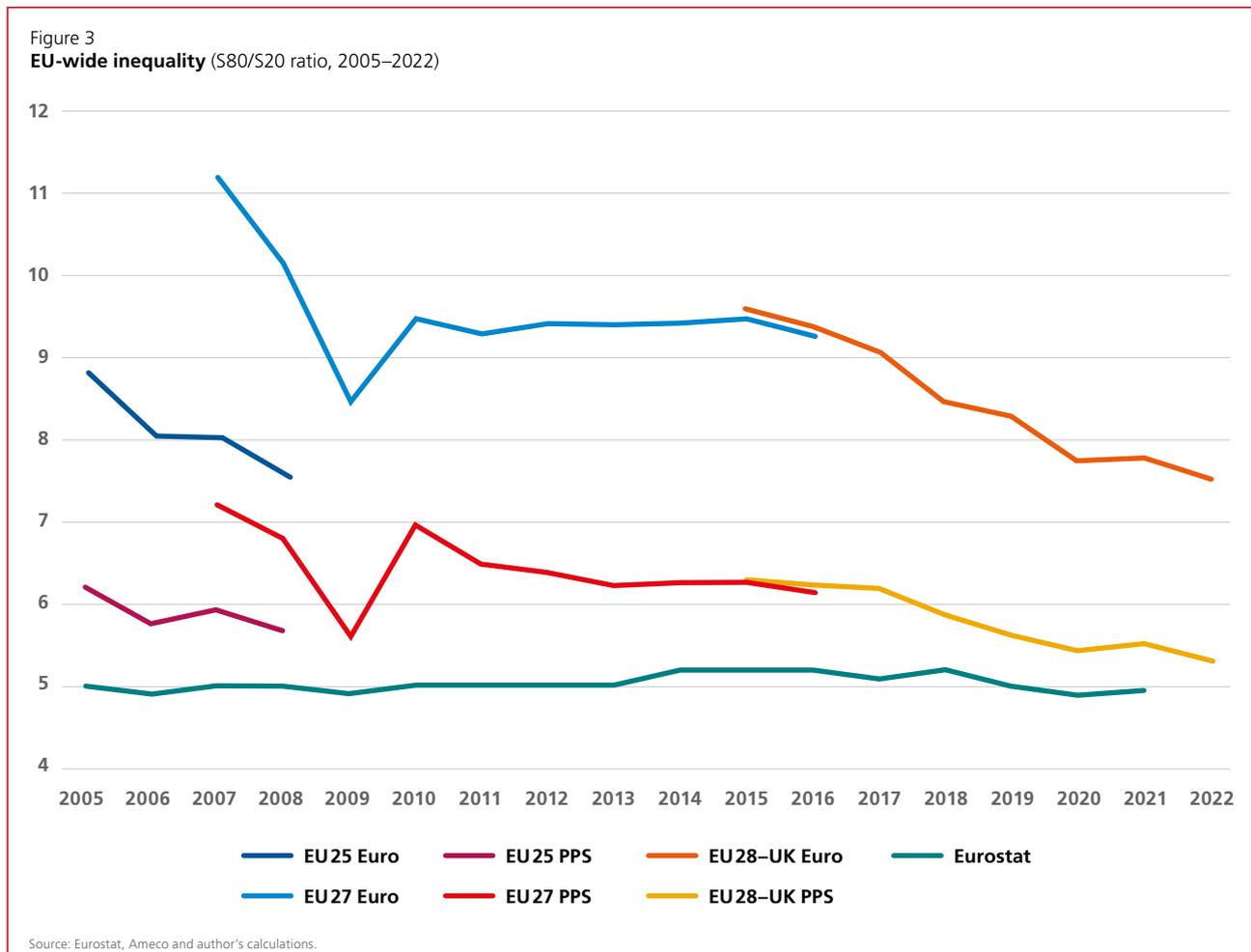
tailed analyses for Germany show that poorer households suffer more from the various price increases than richer ones (Dullien/Tober 2023).

For 2022, no reliable data from household surveys are yet available across the EU. In any case, the household survey methods used by Eurostat (EU-SILC) might not be very suitable for adequately depicting losses in purchasing power (Wagner 2022). But from the data available so far (see above) one may conclude that the (real) income differences within countries have increased. This is also supported by the fact that the wage share in Europe fell by an average of two percentage points from 56.8 per cent to 54.8 per cent in all countries between 2020 and 2022.¹² Real wages have fallen, while corporate profits have risen sharply in many cases.

2.3 LOWER EU-WIDE INEQUALITY THANKS TO HIGH NOMINAL GROWTH IN THE PERIPHERY?

How this will affect EU-wide inequality in the aggregate is difficult to estimate, but it will probably turn out to be more critical than during the pandemic. If anything, inequality between countries has continued to fall, as can be seen from

¹² The figures also come from the Ameco database.



the higher GDP and GNI growth rates (excluding terms of trade) for central and eastern Europe and – unlike during the pandemic – also for the southern periphery (Table 6). The relatively good performance of the southern periphery as a European middle-income group does not affect EU-wide inequality much more than its previous poor performance. But the economic recovery after the pandemic seems to have had a stronger impact in the South than the shocks of the energy crisis.

Unfortunately, data are lacking on income distribution within countries. This inequality is likely to rise if the trends discussed above (Section 2.2) and the anecdotal evidence reported are halfway reflected in the EU-SILC data when they become available in autumn 2023. But for the estimation presented here (Figure 3), the within-country distribution of 2021 was not changed (that is, constant inequality was assumed). Instead, the respective income of all quintiles was assumed to have changed with the rate of change of the national aggregate disposable income, which was taken from Ameco. A change in quintile incomes differentiated by income level, which takes into account, for example, the greater impact of inflation on poorer quintiles, would be very arbitrary without a relevant data basis.

Therefore, the values for the S80/S20 ratio shown in Figure 3 are likely to be too optimistic (EU-SILC will show more details in autumn 2023). They show a further, even accelerated decline in EU-wide inequality between 2021 and 2022. The values at exchange rates fall from 7.77 to 7.52, those at PPS from 5.49 to 5.31. For the lowest curve (Eurostat) there is naturally no value yet, as Eurostat will only calculate it in autumn 2023 as an average of the national rates on the basis of the EU-SILC results.

As in the case of the pandemic, it is also possible to estimate the development of the poverty risk ratio. It, too, is fraught with the same problems as the estimate of the S80/S20 rate, because it was also calculated on the assumption of constant within-country distribution. Calculated at exchange rates, the figure of 22 per cent is lower than in 2021 (24 per cent); calculated at PPS, the figure of 18.4 per cent is also lower than in 2021 (19.4 per cent). The poverty rate thus confirms the trend in inequality.

3

CONCLUSION AND OUTLOOK

During the pandemic, income distribution in Europe changed little. Large income support measures prevented a rise of within-country inequality as the economic shocks were sectoral rather than class-specific. In a comparison between Member States, the southern periphery performed poorly. EU-wide inequality stagnated, putting an end to the decline observed since 2015.

Unlike the pandemic, the new crisis in the wake of the Ukraine war hit the economy in 2022 mainly through high inflation, terms-of-trade losses and rising current account deficits (or falling surpluses) rather than through massive recession. Thus, the real income distribution is driven mainly by changes in purchasing power, which cannot yet be clearly estimated for the different income groups. The poorer periphery shows much higher rates of price increases, but at constant exchange rates (especially within the Eurozone); incomes there look better in nominal terms. For EU-wide inequality, this implies a (seemingly?) welcome decline. But given the neglect of the probable rise in domestic inequality (see Section 2.2 above), this picture is likely to be too optimistic and will be corrected in autumn 2023 in the face of the by then better captured reality.

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