Chapter 1: Convergence to the Centre.

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Abstract

This chapter focuses on the main macroeconomic developments in the Emerging European Economies (EEE) group leading up to and during the Covid-19 pandemic. The emphasis is on economic convergence and crisis resilience, with a comparison of economic and social indicators during the current pandemic and the previous large economic shock, the global financial crisis of 2008-2012. The goal here is to set the stage for the more detailed analyses of the subsequent chapters, and provide a context in which those details can be interpreted. Our main message is that while the EEE overall has exhibited significant convergence to the more advanced EU member states, gaps remain, especially when we look at various social indicators. Crisis resilience has also improved after the global financial crisis, so there is hope that the EEE will emerge faster and stronger from the current crisis than it did from the previous one.

1 Introduction

This introductory chapter presents the overall macroeconomic situation in the various countries, compares them to each other and the previous (2008-12) crisis, and puts this in the long-term context of convergence. The specific, thematic chapters of the book then explore the full complexity of the events and developments, uncovering the different circumstances, country features, or policy reactions that are behind these differences.

The chapter connects the aspects of convergence (catching up in economic and social development) and resilience (crisis response and coping capacities). The historical convergence process

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is particularly relevant, because that is the trend relative to which shocks need to be interpreted. Moreover, potentially long-lasting implications of shocks can come from their impact on the main engines of convergence (like investment, human capital accumulation, and productivity). The previous crisis has apparently undone much of the convergence of Southern Europe. If shocks are weathered systematically differently by different EU countries, that poses a challenge for the overall convergence of the bloc. Fortunately, the past experience of the EEE group was mostly the contrary, their convergence might have even accelerated (though often only in relative terms). But it should not be taken as granted.

To be completed, also harmonised with main messages, approaches and lines to take from other chapters.

2 Convergence

The goal of this section is twofold. First, we discuss a few key methodological and conceptual issues that help us interpret the data we present in this chapter, and throughout the book. Second, we provide a very brief historical overview of the region. While the main purpose of the volume is to understand the impact of the Covid epidemic, the historical context is important to understand where the region is coming from and where it is expected to go.

2.1 A brief theory

Our interpretation of the region's historical experience draws heavily on *neoclassical growth theory* (NGT) (Solow, 1956; Mankiw et al., 1992). To understand the main assumptions and results from the NGT framework, we first need to define the concept of the *neoclassical production function*. The basic idea is that the productive capacity of an economy — as measured by Gross Domestic Product (GDP) — depends on (i) the amount of inputs into the production process, and (ii) the efficiency with which these inputs are used. While this approach may seem restrictive, both inputs and efficiency can and will be interpreted broadly to accommodate other factors such as human capital, institutions and social capital. Therefore we mainly use NGT to provide a convenient categorization of the many different factors that determine economic performance.

The main inputs of production are labor and capital. Both are combinations of various components, which together determine the overall quality and quantity available in a country at any given

point of time. Labor is a combination of the number of employed, the average hours worked per worker, and the skill level of workers. Countries can thus increase their labor inputs by increasing employment, hours worked, or the skill level of the workforce. The last component is particularly important as economies mature, and it is what economists call *human capital*. The main sources of human capital accumulation are formal schooling through the education system, and the experience and training people receive on the job. Successful economies provide broad-based opportunities for learning both for children and for adults through life-long education. General skills, such as computer literacy that can be adapted flexibly are particularly useful during times of big shocks and economic realignments, such as the Covid epidemic.

The capital stock is a composition of all the equipment, buildings and infrastructure used in production, broadly defined. While the measurement of capital at the aggregate level is problematic, conceptually it is accumulated via *investment*. Capital accumulation plays a crucial, if limited role in the neoclassical framework. Countries that start with an initial level of capital stock that is lower than in comparable countries will grow faster for a while. This is highly relevant for the EEE group, where central planning may have led to fast capital accumulation, but much of that became obsolete during the transition to a market economy in the early 1990s (Campos and Coricelli, 2002). Replacing rusty factories and inefficient machines was therefore an important source of economic growth during the first decade of the transition period.

The key contribution of neoclassical growth theory was to point out that capital accumulation on its own cannot be the source of long-run growth (Solow, 1956). The reason is that while investment and new capital increases GDP, it is subject to *diminishing returns*. Building a bridge, or buying an industrial robot are extremely useful when these are very scarce. But once there are many bridges and many robots, adding an extra one is unlikely to be very productive. In other words, sustained economic growth requires investment returns not to decline over time. Cautionary examples to the contrary include the Soviet Union and its former satellites, where high rates of capital investment were unable to keep the economies from stagnation.

To keep returns to investment from falling over time, countries have to improve the efficiency of how they use labor and capital. This is the elusive, but extremely important goal of increasing *productivity*. It is crucial to stress that productivity is a very broad concept. At its core, it includes technology and innovation: the discovery of new knowledge and the adaptation of it for production purposes. But aggregate productivity also comes from well-functioning institutions, management

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and organizational solutions, public goods, social capital and trust, and many other aspects of well-functioning, complex economies and societies (Hall and Jones, 1996).

To understand the experience of the EEE group, we therefore need to look at changes on the labor market, the capital market, and the various aspects of productivity. A final, but crucial part of the picture is that almost all economies — and EEE in particular — are highly open. Besides the obvious role of international trade in these economies, capital accumulation and productivity growth are also highly dependent on international conditions and interactions with the rest of the world. In our introductory overview we thus also take a quick look at a few key measures of openness as well.

2.2 Development and growth

The Central-Eastern European economies, including the EEE, have long compared themselves to the more advanced countries of the continent. In this section we provide a brief overview of the regions' experience, starting from 1980. We use Austria as a comparison point, since it has many common features with the EEE group: it is a small, open economy with many current and historic links to our eight countries. We start in 1950 to put the region's more recent economic performance into perspective.

Figure 1 plots the relative GDP per capita levels, adjusted for purchasing power parity (i.e. the fact that less developed countries typically have lower price levels) in the eight economies between 1950-2018, measured at constant 2011 international US dollars.[1] Each year, Austrian GDP per capita serves as a reference point, so for each country the figure plots the cross-sectional gap between Austria and the particular country.

There are four important observations that we want to make from the chart. First, while the EEE grew under central planning, in general there was very little convergence to Austria (and more generally, to Western Europe). The causes of this are well documented, and generally follow from the inefficient specializations and resource allocations that characterized central planning (Kornai, 1986; Kornai, 1992). The three exceptions are Croatia, Romania and Slovenia. The latter started from a very low level, so it is not surprising that at least for a while, the country experienced convergence. The case of Croatia and Slovenia is more interesting, and has to do

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[1]It is important to note that Czechia, Slovakia, Croatia and Slovenia did not exist as independent states before the 1990s. Since the Madison database provides separate data earlier, we just use these without questioning how they were constructed. That said, data for some of the countries start later, as the figure shows.

Figure 1: Relative development in the EEE group, 1949-2018
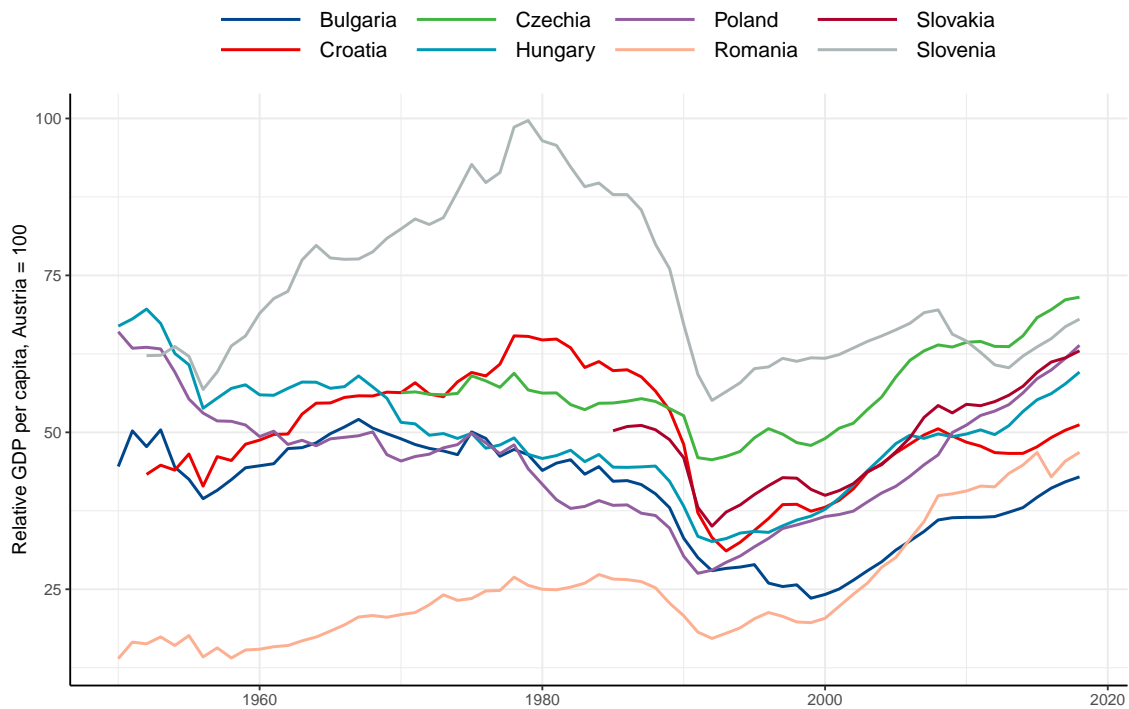
Source: Maddison Project Database 2020 (Bolt and van Zanden, 2020). GDP per capita: 2011 international dollars.

with the relatively more liberal Yugoslavian economic system that allowed more autonomy to individuals and corporations (Estrin, 1991).

Second, the 1980s were characterized by relative decline and economic stagnation.[2] The sources of *extensive growth* were exhausted, and capital investment was no longer sufficient to compensate for a lack of productivity growth (Easterly and Fischer, 1994). In some countries, the 1980s saw economic and social crisis, which ultimately led to political and economic transition in 1989-1990 (Kornai, 1992).

Third, the first years of transition led to major recessions in most countries, and the region as a whole fell significantly behind. Some of this may be due to measurement problems, since relative prices were very misleading under central planning, so GDP data before and after 1990 are not directly comparable (Maddison, 1998). But transition undeniably led to significant losses in employment and output, and it was a major disruption to economic activity.

The forth and final observation is that after about 1995 the region has experienced convergence. With respect to Austria, by 2018 all countries have surpassed their relative position in 1990. To

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[2]Throughout the entire period Austrian GDP per capita grew at an average annual rate of 1.8%. Austrian growth was fairly stable over the four decades, so the relative positions in Figure 1 are not driven by the denominator.

Figure 2: The convergence process between 1995 and 2019
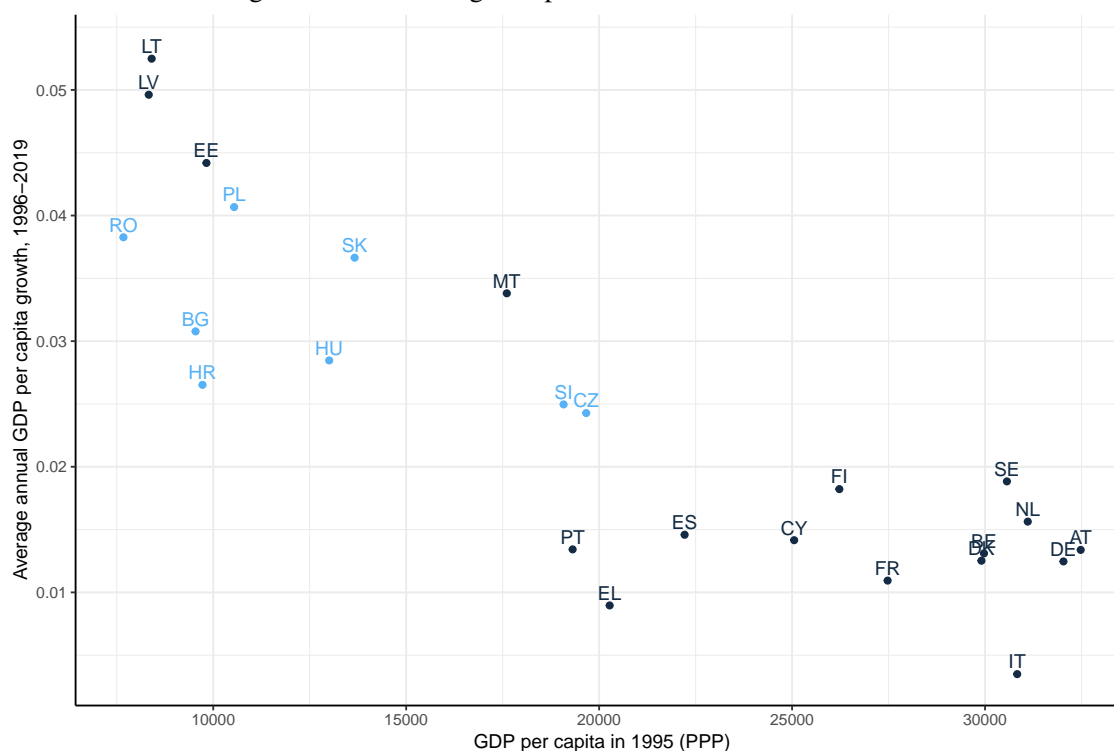
add more details on the recent convergence process, Figure 2 plots average annual growth rates among the 27 current members of the European Union against initial GDP per capita, measured at current PPP in 1995. Neoclassical growth theory predicts that countries starting out at a lower level of development grow faster subsequently. This prediction assumes that the countries in question are fundamentally similar, and it is only some historical accident that made some fall behind, and others to pull ahead. By and large we expect this to hold for the EU27 countries, so the expectation is that we do find convergence between the EEE group and the older, more advanced EU member states.

The figure strongly confirms this prediction, as the EEE (in blue) grew significantly faster between 1995-2019 than the older member states. The other fast-growing economies were the Baltics, who started out the poorest and managed to grow the fastest subsequently. Moreover, there was also convergence within the group: countries that started out initially poorer caught up faster. This is particularly clear for the Visegrad economies of Czechia, Hungary, Poland and Slovakia. The convergence process was briefly interrupted by the global financial crisis in some cases, but resumed relatively quickly afterwards. Interestingly, there was no convergence within

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the "old" EU, which is mostly explained by the financial crisis experience of the Mediterranean member states (Greece, Italy, Portugal and Spain) (Lane, 2012; Frankel, 2015).

We calculated average growth rates for 1995-2008, 2009-2012 and 2013-2019, presented in Table 1. It is clear that the growth gap between the EEE and Austria remains in the third sub-period. Although all countries grew somewhat slower, the decline is more pronounced for Austria than for the EEEs. Convergence, if anything, sped up in the past few years. There are two main exceptions: Croatia and Slovakia, but it is beyond the scope of this chapter to explain the individual reasons for why this has happened.

Table 1: Growth rates in three sub-periods

	1995-2008	2009-2012	2013-2019
Austria	2.46	1.79	0.50
Bulgaria	2.81	1.08	2.20
Croatia	3.83	-1.31	0.87
Czechia	3.26	1.12	2.10
Hungary	3.17	0.55	2.71
Poland	4.43	3.21	3.20
Romania	3.84	-0.02	3.23
Slovakia	5.05	3.46	1.94
Slovenia	4.11	-0.16	2.07

Source: Eurostat, Annual National Accounts (Eurostat, 2021a).

2.3 The sources of growth

As we discussed earlier, we can think about economic growth — especially the convergence process — in terms of the main factors of production (capital and labor) and total factor productivity. It is beyond the scope of this chapter to provide a rigorous analysis, but we try to shed some light on this issue with a few simple observations. For detailed studies on the convergence process in the European Union, see Cuaresma et al. [2014], Borsi and Metiu [2015] and Estrada et al. [2013] (among many others).

Capital accumulation is driven by capital investment. Figure 3 plots investment-GDP ratios for the EEE and for Austria between 1995-2019, which is one way to see how much growth is driven by capital accumulation. This ratio has been very high in many East Asian countries, and it is particularly high in China (Chang et al., 2016; Prasad, 2011). An interesting debate that analyzed the East Asian experience highlights the difficulties of measuring productivity, and the potentially

crucial role of factor accumulation and mobilization in economic development over an extended period of time (Young, 1995; Hsieh, 1999).

Figure 3: Investment shares in the EEE group
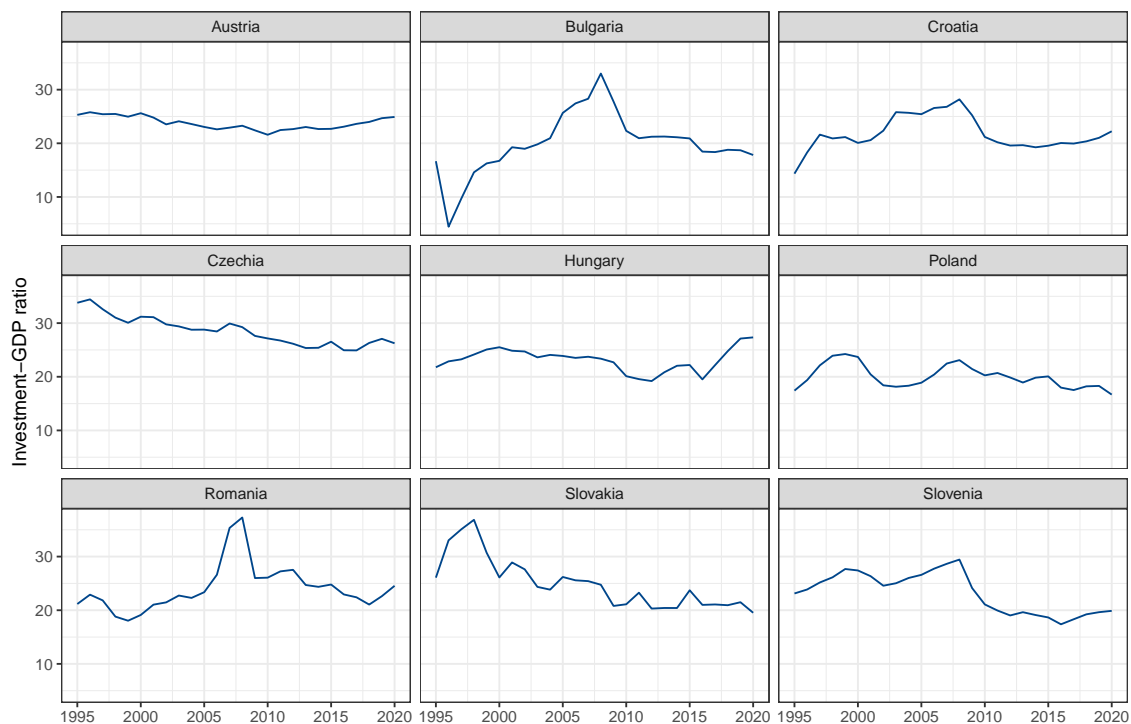
As the figure shows, and in contrast with the East Asian experience, investment rates were not particularly high in the EEE group, both compared to Austria and in a global context. Investment rates between 20-30% are consistent with the steady accumulation of physical capital, but do not indicate a growth process driven by capital. Part of the reason for this may be that capital accumulation was in fact fast under central planning, especially before the 1980s. Much of the capital stock became obsolete after transition (Gerling and Schmidt, 1997; Kónya, 2018), but overall the task was upgrading and replacing existing capital. There is some evidence that capital-output ratios were inefficiently high before 1990, so not all of the existing capital stock had to be replaced.[3]

The second important contributor to economic growth and convergence is the labor market. Figure 4 plots employment rates (as a share of the population aged 15-74 years) from 1995. The

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[3]The Penn World Table 10.0 reports capital-output ratios for Czechia and Poland for 1990 that are higher than in the United States. For measurement problems and some new evidence that questions these figures, see Vonyó and Klein, 2019.

Figure 4: Employment rates relative to the population (15-74 years old)

impact of the transition recession (not shown) was huge in the majority of our countries, also driven by the 'hidden unemployment' of the socialist era. In Bulgaria and Hungary, the employment rate dropped by about 15 percentage points, and in Poland by about 10 percentage points. Czechia is the only economy where employment held up reasonably well throughout the entire period. While each country is different, employment broadly increased in the years before the financial crisis, fell again during the crisis, and increased again significantly after 2012. By 2019 employment has reached levels last seen at the beginning of economic transition. Note that employment rates are still mostly below the Austria level, with the exceptions of Czechia and Slovenia, and with Bulgaria and Hungary catching up quickly. Also, while not shown explicitly, hours worked tend to be higher in the EEE, so total hours worked are more similar to the Austrian values than the employment rates suggest. Measuring hours worked, however, is subject to more measurement error, so we decided to include employment rates instead.

An interesting feature of the labor market is that employment growth was much stronger in many countries in the 2010s, after the global financial crisis was over. Bulgaria, Czechia, Hungary, Poland and Slovakia saw substantial increases in their employment rates between 2013-2019.

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Hungary is a particularly interesting case, where the employment rate increased by around 10 percentage points. There are some statistical problems that qualify this statement, but the main message remains: employment growth was particularly strong in the last decade in Hungary and in many other countries.[4]

A major determinant of labor input is the skill level — or *human capital* — of workers. Workers with better skills are more productive, and contribute more to production than their less skilled counterparts. One way that this statement can be verified empirically is to observe that higher levels of education lead to substantial wage premia (Katz and Murphy, 1992). In fact one way to measure levels of human capital is to use (relative) wages at different levels of education (Mulligan and i Martin, 1997). Here we follow a simpler approach, and show the average education levels directly. It must be noted that education is an imperfect proxy of human capital. First, much of skill acquisition happens at the workplace, either formally (through training) or informally (via experience). Since measuring these aspects is even more difficult than quantifying formal education, we focus only on the latter. Second, the general level of health in a population also influences how efficiently and how long skills can be utilized in the workplace. Therefore, we also present a very simple measure of health in addition to two indicators of human capital.

Table 2: Education and health indicators

	Years of schooling			Higher education			Life expectancy		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
Austria	8.36	8.97	9.60	5.09	11.80	15.36	75.8	78.3	80.7
Bulgaria	8.42	9.28	11.24	13.07	15.99	21.11	71.2	71.6	73.8
Croatia	8.57	9.71	11.30	5.37	10.10	17.58	NA	NA	76.7
Czechia	10.83	12.69	12.80	11.70	10.29	14.83	71.5	75.1	77.7
Hungary	8.79	11.20	11.85	8.77	10.98	17.18	69.4	71.9	74.7
Poland	9.06	10.26	11.32	5.89	10.76	18.98	70.7	73.8	76.4
Romania	9.32	10.04	10.67	5.59	7.81	10.63	69.9	71.2	73.7
Slovakia	10.69	11.20	12.82	7.90	9.71	18.32	71.1	73.3	75.6
Slovenia	10.77	11.35	11.89	9.00	12.90	19.86	73.9	76.2	79.8
Sweden	10.58	11.38	11.64	18.05	22.57	24.89	77.7	79.8	81.6

Source: Barro-Lee dataset (Barro and Lee, 2013) and Eurostat [2021n]. Years of schooling: ages 15 and above. Higher education: % of population with some tertiary education.

Table 2 shows average years of education and the fraction of population with at least some ter-

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[4]The figure uses data from the Labor Force Survey, which includes some workers who still have residence in their home country, but work abroad. At least in Hungary, this led to a potential overestimation of domestic employment growth in the mid 2010s. For more details, see **?**.

tiary education (ages 15 and above). Since Austria — the reference country before — is somewhat atypical with its relatively low levels of average school years, we also added a leading nation, Sweden. Data come from the Barro-Lee dataset (Barro and Lee, 2013), and it contains these measures for every 5 years. Fortunately the yearly variation is low for these variables, so the table shows values for 1990, 2000 and 2010 (the last data point). Our measure of health is life expectancy at birth.

The general message is that the EEE group is quite well educated, at least according to average years of education. This is true not only relative to Austria — a laggard —, but relative to Sweden as well. Cross-country differences are sizable, but Poland and Slovakia being ahead, and Romania somewhat behind the group average. Average years of education might be somewhat misleading, however, if different skill levels are not perfect substitutes. One can make an argument that convergence in today's skill-intensive environment requires a significant number of highly educated workers, and not necessarily a large number of employees with average education levels. Therefore we also look at the fraction of over 15 year olds who have completed at least some tertiary education. Here the picture is more mixed: relative to Austria, the region is still doing quite well. But relative to Sweden, there is a considerable gap, especially for Romania, but also for the other countries. We conclude that while well suited to the types of tasks required for the first, more extensive phase of convergence, the EEE group is less prepared to enter the second, more intensive phase, where knowledge generation and absorption are increasingly important.

Life expectancy is not only a direct measure of welfare itself, but it is also related to human capital investment, since a longer life span means more years to enjoy the returns of higher skills. Overall, the EEE group is still lagging behind Austria, and there ares no obvious signs of convergence. In fact, due to stagnation in the 1980s — before transition —, and at least in some countries due to the transition shock, the gap is often larger than it was in 1990. Relative to its level of economic development, Hungary is doing particularly badly. We leave the detailed analysis of the health system for Chapter 8, but this is an area where the region is not doing well relative to its economic performance.

To summarize our indicative findings on the supply side, the EEE group — after a deep transition recession — experienced fairly strong growth and convergence since 1995. The global financial crisis interrupted this process, but convergence resumed after the crisis was over. Relative to the Austrian level of development, our countries have closed on average about 20 percentage

points of the initial gap in 1995. The most successful one, Czechia, started at about 45% of the Austrian level and reached almost 75% of Austrian GDP per capita by 2018.

The two phases of convergence — before 2008 and after 2012 — differ in one notable aspect. Capital investment was not a major driver on its own in either period, but employment growth became a strong contributor to economic growth only after 2012. This implies that in the first phase, it was mostly productivity growth — the residual — that drove convergence. After 2012 employment growth became a major driver of growth, and as a flip-side, productivity growth declined. If we calculate labor productivity growth for the pre-2009 and post-2012 periods, we see a clear and significant decline in most countries.[5] It is premature to draw strong conclusions from a simple statistical observations, but as successful convergence ultimately depends on productivity growth, one of the challenges after the Covid crisis will be to increase its currently low level.

## 2.4 External finance and the demand side

While in the long-run GDP and economic development are determined by the supply side, in the short-run demand conditions are also important. Economic growth can also be temporarily driven by cyclical factors, such as consumption or investment booms. Such growth is unsustainable if it leads to the build-up of various imbalances, either or both external and internal. In this section we briefly look the main trends of a few key indicators, such as budget balance, the net foreign asset position, and the main items on the expenditure side of GDP. We also briefly discuss the possible role of EU funds in the growth performance of the EEE.

An important aspect of capital accumulation concerns the extent to which it is financed from abroad. As we noted above, the EEE countries are highly open to international capital flows. Figure 5 gives a broad overview of the evolution of net foreign assets (NFA)[6]. The NFA position (relative to GDP) summarizes the external position of a country, including various types such as foreign direct investment (FDI) stocks, debt and central bank reserves. Overall, three observations stand out. First, in each country the NFA position has worsened over time, indicating substantial capital inflows. This is in line with our conceptual framework, which predicts that in open economies foreign sources of funding (and in case of FDI, know-how) can contribute significantly

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[5]The growth rates of labor productivity in the two sub-periods are the following. Bulgaria: 2.18 -> 2.08, Croatia: 2.94 -> -0.69, Czechia: 3.11 -> 1.36, Hungary: 2.96 -> 0.805, Poland: 3.96 -> 2.38, Romania: 5.5 -> 3.38, Slovakia: 4.55 -> 0.65, Slovenia: 3.48 -> 0.48.

[6]We plot the NFA positions from 1997 for Bulgaria, because the numbers for 1995 and 1996 seem particularly unreliable.

Figure 5: Net foreign asset positions
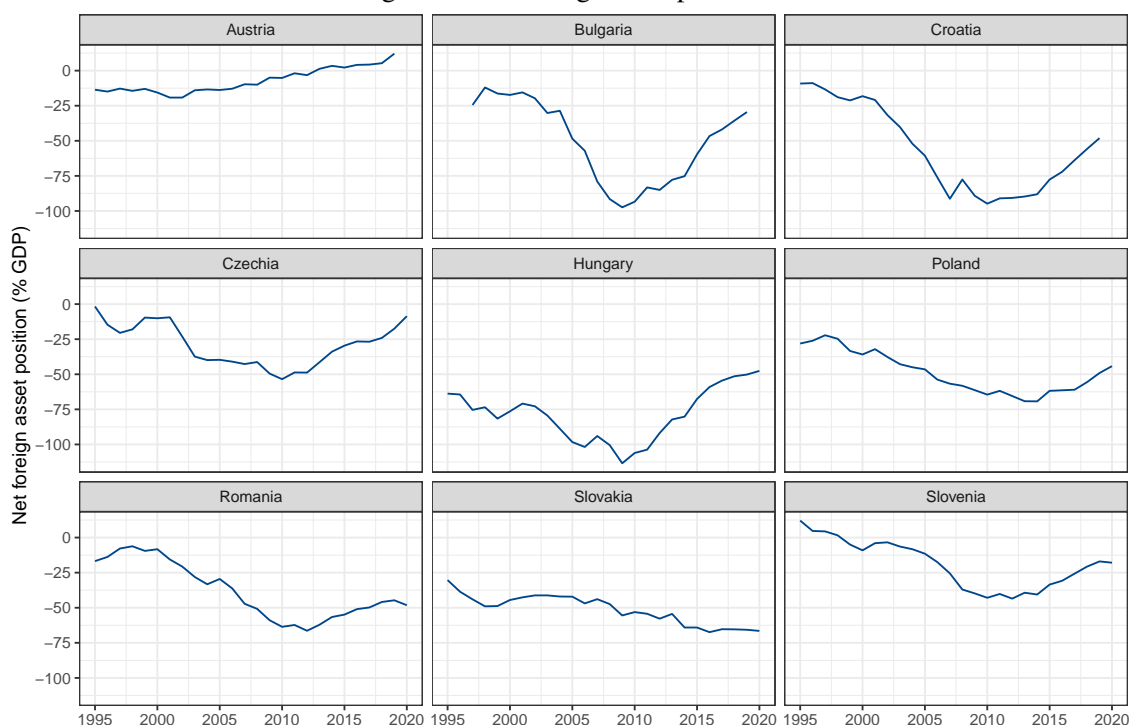
to the convergence process.

The second observation is that initial positions in the early 1990s were quite different across the eight economies. Bulgaria, Hungary and Poland were already relatively indebted, while the other five countries had hardly any net liabilities. These relative positions remained largely unchanged over time. The external position thus seems highly persistent, and may be an important determinant of how economies respond to shocks, and what policy space is available to them during economic difficulties like the Covid crisis.

Third, these inflows did not always fund investment, but were also used for consumption purposes. This was especially true in the years preceding the global financial crisis of 2008-2009 (Fund, 2010; Coudert and Pouvelle, 2010). While investment shares were fairly similar across the countries (Figure 3), debt dynamics were quite different. The net foreign asset positions deteriorated much more in Bulgaria, Croatia and Hungary than the did in Czechia, Poland or Slovakia. The former three economies reached quite high debt levels by 2008, which was especially problematic in light of the subsequent crisis. Not surprisingly, these three countries experienced the largest reversals in their current account positions, which then led to a significant reduction of

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foreign exposure by the end of the 2010s.

Table 3: Main GDP components

	Consumption			Investment			Trade balance		
	95-08	09-12	13-19	95-08	09-12	13-19	95-08	09-12	13-19
Austria	1.84	0.95	-0.51	1.81	1.57	1.71	1.76	3.11	3.38
Bulgaria	2.74	2.04	3.37	12.42	-7.37	0.98	-5.62	-3.48	2.03
Croatia	3.85	-0.96	0.62	9.40	-7.50	3.18	-8.20	-2.66	-1.09
Czechia	3.26	0.22	2.00	3.63	-0.66	2.51	-0.61	3.87	6.50
Hungary	3.08	-0.89	3.31	5.07	-4.76	6.09	-1.45	5.54	5.77
Poland	4.49	1.95	2.81	7.59	2.19	2.22	-3.30	-1.52	3.42
Romania	6.53	-0.72	4.83	10.28	2.07	4.50	-8.37	-6.06	-2.21
Slovakia	4.72	-0.24	2.65	5.02	3.50	1.67	-4.65	1.43	2.72
Slovenia	2.94	-0.15	1.12	6.61	-9.47	2.21	-1.45	1.77	7.97

Source: Eurostat [2021a].

Consumption: household and NPISH consumption, chain-linked growth.

Investment: gross fixed capital formation, chain-linked growth.

Trade balance: % of GDP, based on nominal values.

To shed more light on these developments, Table 3 presents information on private consumption, investment and the trade balance for the three sub-periods defined earlier. The main finding is that the trade balance swung from significant deficits in the first period to surpluses or much lower deficits in the third period. This is consistent with Figure 5, and indicates a strong balance sheet adjustment. In most countries, this was accompanied by a slowdown in investment growth (Hungary is an exception, at least after 2015 — see also Figure 3). Household consumption growth also declined in the majority of our countries, but less than investment (again, Hungary — along with Bulgaria — is an exception). Overall, these numbers suggest that the financial crisis led the EEE group towards a more export-oriented growth path. This is a welcome development for some of the countries whose external position was particularly vulnerable before the financial crisis. The slowdown of investment and low productivity growth discussed in the previous section casts some doubt on the sustainability (and return to) the high growth rates of the second half of the 2010s, once the Covid recession over.

We now turn to the question of EU funds, which became significant in the EEE group after 2010. We collect data on EU funds from the European Commission, using the dataset "Historic EU payments — regionalised and modelled". Data are presented in annual payments in Euros for NUTS2 regions, which we aggregate up to the country level and express the resulting figure as

Figure 6: Government investment and EU funds
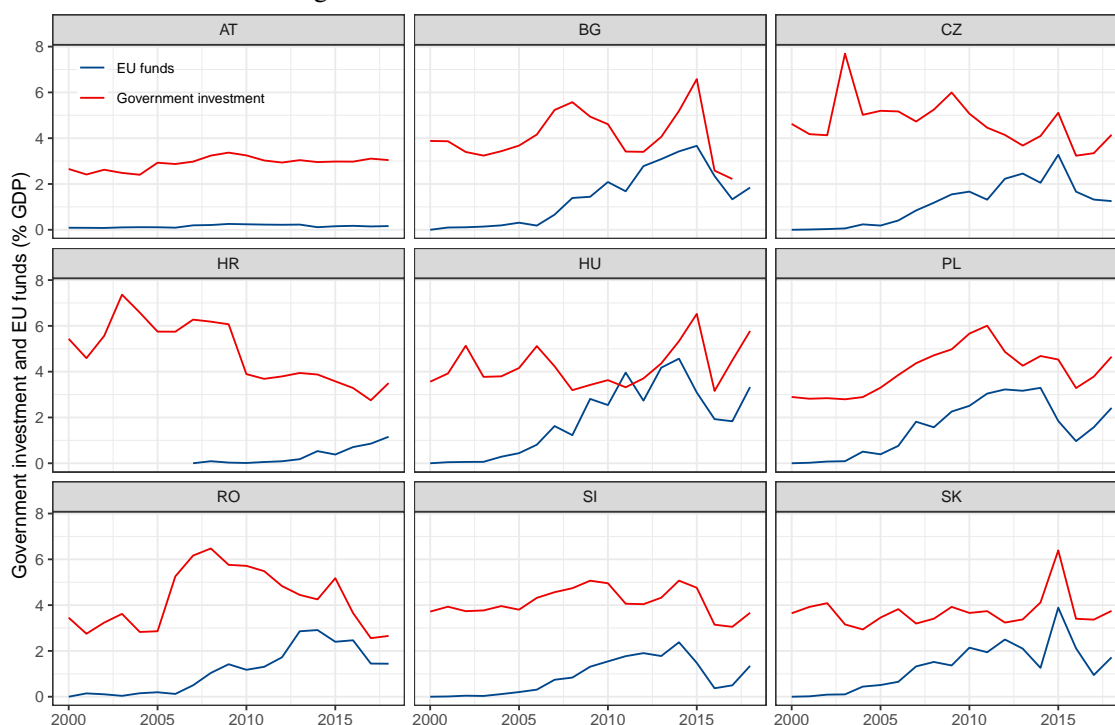
a percentage of annual GDP. We combine this information with data on government investment
(also as a percentage of GDP), downloaded from the Eurostat Annual Sector Accounts. Figure 6
plots the two time series for each country.

Two striking observations emerge. First, EU funds received reached 2-4 % of GDP by the
mid 2010s in the EEE countries (with the exception of Croatia, who joined the EU only in 2013).
The relationship between external funds and growth is complex (Easterly, 2002; Becker et al.,
2012), but at least in the short-run, EU support must have contributed positively to GDP growth.
This qualifies the earlier statement that the EEE countries turned towards a domestically financed,
export-oriented model of economic development after the financial crisis. The fact that growth
slowed down somewhat in the 2013-2019 period also questions the efficacy of EU funds to speed
up convergence.

The second striking feature of the data is the very strong co-movement of annual EU funds
and government investment expenditure. There is not such relationship in Austria, mostly because
it receives very little EU support as a developed economy.[7] In the seven EEE countries that joined
the EU before 2010, EU funds and government investment mirror each other very closely. This

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[7]Also, it is too early to see this pattern in Croatia, where EU funds are just starting to arrive in significant numbers.

means that about 10% of annual investment expenditure is basically driven by the availability of EU support. There is general agreement among economists that public investment financed by foreign aid is less effective than investment disciplined by financial markets (Pritchett, 2000). The extent of this inefficiency is difficult to quantify, but it is very likely that the post-2012 investment figures overstate the true increase in useful capital stock. The good news is that in a "correct" growth accounting exercise the measured role of capital would decline, and that of productivity would increase. The bad news is that at least some, and perhaps a large share of measured capital expenditure fuels GDP growth in the short-run, but expends the productive capacity of the economy less than the headline numbers suggest.

2.5 Social convergence

Broadening the analysis from macroeconomic developments to social and distributional aspects is an important extension, as there is an increasing recognition that policies need to look beyond averages, transitioning towards an economy that is felt as fair and works for the people.[8] Moreover, there are important differences relative to the dynamics of the usual macroeconomic aggregates. In terms of levels, while some EEE are already at par with EU averages, most of them still fall behind.

Table 4 displays an assessment of the social performance of the EEE group in the time period. The variables span important socio-economic areas: employment and activity patterns of specific subgroups (the young and the long-term unemployed), income inequality, poverty, and access to health care. The table adopts the methodology of the Social Scoreboard, introduced in 2017 by the European Pillar of Social Rights.[9] As explained in the Annex of every year's Joint Employment Report, every country-year cell (of the Pillar's main indicators) is assigned into five categories, based on the underlying distribution of the variable at hand.[10] The table presents classifications for 2008, the worst crisis year, and the latest pre-Covid year, 2019. In its last three columns, it also reports the average values across the five variables.

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[8]As indicated among the priorities of the 2019-2024 European Commission, see https://ec.europa.eu/info/strategy/priorities-2019-2024_en

[9]The Pillar sets out 20 key principles which represent the beacon guiding us towards a strong social Europe that is fair, inclusive and full of opportunity in the 21st century. On May 7, 2021, during the Social Summit in Porto, partners signed up to the three 2030 headline targets set in the Commission's European Pillar of Social Rights Action Plan.

[10]The intervals are defined by the standardized value (distance from the EU27 average value, divided by the standard deviation). The cutoffs are -1, -0.5, 0.5, 1. The actual Joint Employment Report methodology is one step more complicated, as it takes into account the change in the latest year as well. Though the cutoffs are defined separately for every year, here we employ their latest values (2021 Joint Employment Report), for the entire period.

In 2008, there were three main groups within the EEE. Czechia and Slovenia were doing much better than the EU average, exceeding even the performance of Austria. Slovakia was around the EU average, with Hungary and Poland following closely. Bulgaria, Croatia, and Romania were exhibiting a much worse performance. With the exception of Bulgaria (almost homogeneously in the bottom category in 2008), all EEE have recorded an overall deterioration in these five variables during the 2008-12 crisis. Hungary and Slovenia have shown a larger worsening than Austria or the EU average, while the other four countries fared similarly to EU patterns. By 2019, all EEE have returned to their pre-crisis performance, or have even improved. Bulgaria, Croatia and Poland have improved the most, with the latter two reaching or even exceeding the EU27. Despite its improvement, Bulgaria still lags behind the EU27 levels, together with Romania.

Table 4: Assessment of social performance

	NEET			Long-term unemployment			Income inequality			Poverty			Unmet health needs			Total		
	08	Max	19	08	Max	19	08	Max	19	08	Max	19	08	Max	19	08	Max	19
Austria																3.8	3.4	4.0
EU27																3.0	2.0	3.0
Bulgaria																1.4	1	2.0
Croatia																2.0	1.2	3.0
Czechia																4.4	4.0	4.6
Hungary																2.6	1.8	3.0
Poland																2.4	1.8	3.4
Romania																1.8	1.2	1.6
Slovakia																3.0	2.6	3.4
Slovenia																4.2	2.8	4.2

NEET (Eurostat tesem150): young people (aged 15-24) who are neither in employment nor in education and training.
Long-term unemployment (Eurostat tesem130): people aged15-74 who have been unemployed for at least 12 months.
Income inequality (Eurostat tessi180): the ratio of total income received by the top and bottom income quintiles.
Poverty (Eurostat tepsr_lm410): share of people who are at risk of poverty (equivalised disposable income below 60% of the national median), severely materially deprived or living in households with very low work intensity.
Unmet health needs (Eurostat tespm110): a self-assessment of health care need not received or seeked, due to financial reasons, waiting lists, or distance from the service.
The colours refer to social performance, ranging from the weakest (red, a score of one) to the strongest (blue, a score of five), through orange, yellow and green. The total is the average of the individual scores.

3 Potential lessons from the 2008-12 crisis: a resilience analysis

The notion of resilience has been receiving an increasing role in policy thinking recently. The narrow concept of economic resilience refers to an economy's vulnerability to shocks, its capacity

to absorb them and its ability to quickly recover from them.[11] By now the focus has been extended to include aspects beyond recovery, in particular to 'bounce forward' and accelerate the ongoing green and digital transitions and the drive towards 'an economy that works for people'.[12] This broader notion of resilience underlies the narrative of Next Generation EU, the Recovery and Resilience Facility, and has been expressed in the 2020 Strategic Foresight Report of the European Commission (SFR). It defines resilience as the ability not only to withstand and cope with challenges but also to undergo transitions, in a sustainable, fair, and democratic manner. This way it establishes a clear link between the concept of resilience, ongoing societal transformations, and the notion of sustainable development.[13]

This new focus on resilience makes its measurement and monitoring a key imperative. To this end, the SFR proposes the development of resilience dashboards. These tools present a holistic collection of key vulnerabilities and resilience capacities of EU countries. Their ready-to-use indicators mostly reflect expert judgment and consensus, informed by qualitative assessments of observed behavior during distress episodes. Instead of looking at these tools under development, we draw on the results of a two-step measurement strategy, propagated in Alessi et al. [2020], among others.

The objective is to understand whether differences in some pre-crisis country features can be associated with the observed differences in crisis performance. Such variables would then inform about the status of the resilience of countries: were a (similar) crisis to hit a country, should one expect it to weather the storm better or worse than previously? Of course these are rather weak signals, but they can nevertheless highlight important developments or vulnerabilities.

This emerging literature typically looks at univariate or multivariate regressions of observed crisis performance (like the maximum impact of a shock, or the speed of recovery) in EU countries on candidate resilience characteristics. Due to the small number of potential observations (one per country per crisis episode), such studies have important limitations, and their results should be interpreted cautiously.[14] One can nevertheless select a couple of plausible candidates for resilience

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[11]See EC [2017], OECD [2016], IMF [2016], ECB [2016].

[12]Though it would be premature to assess how the crisis-hit economies use this opportunity to transform and bounce forward, it is a widely-shared view that this will be a key task for policymakers and society at large. See, for example, Giovannini et al. [2020].

[13]This notion can be traced back to Manca et al. [2017]. It is also closely related to the specific, more environment-oriented notion adopted in Chapter 7.

[14]One can try to look at regions instead. There is indeed a burgeoning literature on regional economic resilience, summarized, for example, in Bristow and Healy [2020]. During the 2008-12 crisis, however, the dominant part of data variation was at the between-country level (see Benczur et al., 2020). This means that a regional extension has a limited

characteristics from them. Table 5 shows the situation for ten characteristics from Jolles et al. [2018], WB [2019] and Alessi et al. [2020], before the two crises.[15]

Given that Croatia and Romania were hit particularly hard and long during the financial crisis, it is comforting that they have improved the most along these ten indicators (for them, out of 8 and 9). Bulgaria also seems to be in a stronger position than previously. It is nevertheless alarming that three core measures of institutional quality (government effectiveness, regulatory quality and control of corruption) have deteriorated in Hungary and Slovakia.

The situation has improved substantially in terms of financial sector liabilities, product market regulation, active labour market policies, and resolving insolvencies. Patterns of wage developments (in terms of changes in the ULC), the net international investment position, and overall institutional quality are rather mixed.

As a final element, we present some additional factors that are important determinants of how households may cope with losses of income, or other emergencies. In terms of liquid financial buffers, EEE households were not in a particularly strong position before the onset of the Covid-19 shock.[16] The median value of the number of monthly incomes saved was rather low (first block of Table 6). Not surprisingly, the share of EEE citizens who agree with the statement that they can return to normal quickly when things go wrong in their life is in the lower half of all Member States in both periods, with a stable or weakly declining trend. For most EEE, the situation of household finances was nevertheless more favorable than before the 2008-12 crisis: except for Romania, the ratio of households who would be unable to face unexpected difficulties was significantly lower in 2017-19 than in 2005-07. The values, however, have remained alarmingly high in Bulgaria, Croatia (with no information available before 2010) and Romania.Arrears show a slightly different situation: their frequency has increased in Bulgaria and Romania, declined in Czechia, Hungary and Poland, and stayed nearly flat in Slovakia and Slovenia. The levels are the highest for Bulgaria and Croatia (again, with no data before 2010).

The Covid-19 crisis experience has underlined the importance of local communities, trust and social cohesion. It is interesting to see that interpersonal trust (fifth block of Table 6) among EEE citizens was below the EU median for both time periods, with the exception of Czechia (both

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potential to improve the estimates.

[15]The sources are Jolles et al. [2018] for characteristics 6-9, WB [2019] for characteristics 2, 9-10, and Alessi et al. [2020] for characteristics 1, 3-5.

[16]Unfortunately, this measure is not available for the 2005-07 period, as the first wave of the ECB's HFCS survey was conducted in 2019 and released in 2013.

Table 5: Resilience characteristics: then and now

	BG	CZ	HR	HU	PL	RO	SK	SI
Expenditures on social protection								
2005-07	10.50	11.97	14.17	17.00	16.50	10.03	13.43	17.03
2017-19	11.93	12.43	14.50	13.17	16.43	11.73	14.47	16.73
Active labour market policies (ALMP)								
2005-07	340	385		548	416	138	250	483
2017-19	387	1486	998	3213	1705	514	577	675
Unit Labour Cost (nominal, 3 year change)								
2005-07	12.37	3.53	6.77	13.33	-0.67	38.27	7.57	7.27
2017-19	17.10	11.10	0.27	10.93	6.73	23.97	11.30	5.93
Net International Investment Position								
2005-07	-58.57	-29.03	-75.90	-94.47	-45.33	-37.47	-60.60	-17.73
2017-19	-37.40	-23.07	-57.80	-52.00	-55.50	-44.93	-68.03	-19.53
Financial sector liabilities								
2005-07	30.47	10.23	21.63	25.50	20.27	38.50	12.33	19.87
2017-19	6.60	12.10	5.07	6.70	4.07	7.30	10.50	6.43
Government effectiveness								
2005-07	0.04	0.97	0.50	0.78	0.41	-0.28	0.85	0.93
2017-19	0.29	0.94	0.48	0.50	0.64	-0.24	0.73	1.13
Regulatory quality								
2005-07	0.62	1.08	0.47	1.16	0.78	0.40	1.11	0.83
2017-19	0.58	1.25	0.52	0.61	0.93	0.46	0.88	0.75
Control of corruption								
2005-07	-0.07	0.38	0.11	0.65	0.28	-0.20	0.42	0.98
2017-19	-0.16	0.53	0.15	0.05	0.66	-0.09	0.30	0.86
Product market regulation								
2005-07		1.51		1.54	2.04		1.62	1.89
2013	1.57	1.41	2.08	1.33	1.65	1.69	1.29	1.70
Resolving insolvencies								
2005-07	52.56	42.34	52.93	51.58	56.71	47.01	58.06	59.50
2017-19	56.89	79.80	55.64	54.72	76.85	59.60	67.84	83.78
Number of improvements								
	6	7	7	6	7	8	5	6

Expenditures on social protection: Eurostat variable gov_10a_exp, as percentage of GDP.

ALMP: expenditures on category 2-7 LMP per person wanting to work, DG EMPL series LMP_EXPSUMM$TPS00076

Unit Labour Cost (nominal, 3 year % change), Eurostat variable TIPSLM10. Improvement means a decline.

Net International Investment Position, as percent of GDP. Eurostat variable TIPSII10.

Financial sector liabilities, annual percentage growth. Eurostat variable TIPSFS10. Improvement means a decline.

Government effectiveness, regulatory quality and control of corruption are from the Worldwide Governance Indicators dataset. They are on a scale from -2.5 (weak) to 2.5 (strong).

Product market regulation: the overall index of the OECD. A lower value reflects a more competition friendly regulatory stance, so improvement means a decline.

Resolving insolvencies: is the coresponding sub-score of the World Bank's Doingbusiness index.

Table 6: Household finances and social cohesion before the two episodes

	BG	CZ	HR	HU	PL	RO	SI	SK	AT	EU27
				Households with little liquid savings						
2017			72.65	57.33	38.28		54.62	41.09	17.15	34.07
				Ability to bounce back						
2006	26.00			39.70	46.90		37.60	38.10	45.2	49.10*
2017	22.90	32.34	36.14	28.78	34.32	33.55	43.98	31.10	40.1	39.80*
				Inability to face unexpected difficulties						
2005-07	77.60	40.57		58.90	58.00	46.20	42.63	50.57	27.27	
2017-19	40.60	24.53	53.60	32.60	31.93	47.57	34.40	32.03	19.73	32.37
				Arrears						
2005-07	25.07	8.33		17.77	22.43	10.70	14.47	9.70	3.60	
2017-19	31.50	3.00	18.73	13.23	8.47	16.40	13.67	9.17	5.03	8.80
				Trust in people						
2005-07	13.71	30.25	19.34	17.76	17.01		20.95	19.49	31.48	25.31*
2018	12.05	30.74	19.01	27.67	18.48		24.11	19.43	38.68	27.99*
				Voluntary work						
2007	10.73	21.52	6.98	20.22	9.33	13.48	30.12	26.34	42.08	21.52*
2019	10.46	21.30	23.47	12.02	14.08	14.87	24.63	16.25	35.30	23.47*
				Trust in institutions						
2005-07	17.72	25.94	20.50	35.94	19.22	27.22	35.17	29.89	29.28	41.50*
2017-19	21.06	31.06	17.72	46.94	31.78	27.94	23.94	27.83	58.72	36.56*
				Number of improvements						
	2	3	1 (of 3)	4	5	2 (of 4)	4	2	3	2 (of 4)

Household savings refers to the median number of monthly incomes saved. It draws on

Le Blanc and Thiemann [2021], using the ECB's Household Finance and Consumption Survey,

Ability to bounce back: those who disagree or strongly disagree with the statement "When things go wrong in

my life it takes a long time to get back to normal" (European Social Survey 2006)

and those who agree or strongly agree with the opposite statement (Special Eurobarometer 471, 2017).

Inability to face unexpected difficulties: using EU-SILC, self assessment. Reported as Eurostat variable ilc_mdes04.

Arrears: arrears in mortgage or rent, utility bills or hire purchase, using EU-SILC. Reported as Eurostat variable ilc_mdes05.)

Trust in people: European Social Survey, answers 7-10 to the question Most people can be trusted or you can't be too careful.

Voluntary work: Share of the population participating in formal or informal voluntary activities, European Quality of Life Survey.

Trust in institutions: Average of the share of people who tend to trust the national legal system,

the national government, and the national parliament. Eurobarometer, various issues.

periods) and Hungary (2017-19). Voluntary work is less frequent than in typical EU countries and tended to decline, with a few exceptions. Finally, trust in institutions is rather low, though it has increased or stayed constant since 2005-07. The highest value is observed in Hungary in 2017-19, well above the EU median but still below the level observed in Austria.

4 The Covid shock

In this section we shift our focus to the impact of the Covid shock on the main macroeconomic variables. Since changes during 2020 were fast and dramatic, we switch to a quarterly frequency. It is important to stress that the shock may still not be completely over, and every quarter brings new developments or important turns. Still, a preliminary analysis and stock-taking of the impact is already possible. We also try to see whether the previous crisis lessons on the resilience of the EEE are informative about the current experience.

4.1 Cyclical positions

Before we turn to the shock, we present a few key indicators that describe the starting positions the countries were in when the crisis hit. This is important because the cyclical positions in 2019 influenced how much (real or perceived) fiscal and monetary space each country had to fight the recession. We also look at lessons learned from the previous crisis about the possible resilience (ability to resist, cope with and recover from crises) status of our eight economies. These can be viewed as more deep-seated features of these countries, capturing their ability to act and cope, at the level of governments, households, and society at large.

Table 7 contains indicators of the real economy, the nominal stance, and the fiscal stance for 2019 for the EEE and for Austria (as a comparison). The first block shows that the regions entered the Covid recession with moderate to strong growth, and generally low unemployment. The external position — as measured by the trade balance — does not indicate significant external imbalances, with the possible exception of Romania.

The picture is more heterogeneous if we look at the monetary indicators. After years of very low inflation, price pressure were increasing in most countries. The inflation rate was above 2% in six economies, and exceeded 3% in two. Wage growth (measured by the labor cost index of Eurostat based on compensation of employees plus taxes minus subsidies) indicates signs of

Table 7: Cyclical indicators in 2019

	AT	BG	CZ	HR	HU	PL	RO	SI	SK
Real									
GDP growth	1.40	3.70	2.30	2.90	4.60	4.70	4.10	3.20	2.50
Unemp. rate	4.50	4.20	2.00	6.60	3.40	3.30	3.90	4.50	5.80
Trade balance	3.37	3.21	6.02	-0.25	2.81	4.76	-4.14	8.46	0.40
Monetary									
Inflation	1.50	2.50	2.60	0.80	3.40	2.10	3.90	1.70	2.80
Wage growth	2.30	10.80	6.60	3.20	10.10	6.10	12.30	4.80	7.30
Interest rate	-0.39	-0.49	1.92	0.29	0.06	1.56	2.52	-0.39	-0.39
Fiscal									
Budget bal.	0.60	2.10	0.30	0.30	-2.10	-0.70	-4.40	0.40	-1.30
Public debt	70.50	20.20	30.30	72.80	65.50	45.60	35.30	65.60	48.20

Source: Eurostat [2021a], Eurostat [2021f], Eurostat [2021g], Eurostat [2021h], Eurostat [2021i]. and Eurostat [2021d]

[a] GDP growth: chain-linked measure. Unemployment rate: 15-74. Trade balance: % nominal GDP.

[b] Inflation: HICP. Wage growth: labor cost index, % change. Interest rate: day-to-day money market, annual averages of monthly data.

[c] Budget balance: % nominal GDP. Public debt: gross debt, general government.

overheating in at least Bulgaria, Hungary and Romania. The latter two are also the ones with the highest inflation figures. Short-term interest rates remained very low in most cases, with Czechia, Poland and Romania being the exceptions.

The budget balance was above the Maastricht limit of -3% (with the exception again being Romania), but coupled with strong growth the deficit in Hungary indicates a loose fiscal stance. Public debt was not particularly worrying in the EEE, but Croatia, Hungary and Slovenia showed relatively high figures. These are still lower than Austria, but sustainable levels of public debt seem to increase with the level of development (Konya and Maduko, 2020). This means that financial markets may be less tolerant with similar levels of indebtedness for the EEE than for the older, richer EU member states.

To sum up, there seems to be a clear case that by 2019 Romania was overheating with significant external and fiscal imbalances (and under an Excessive Deficit Procedure, which have been lifted temporarily during the pandemic). The country, with its relatively low public debt and high interest rate, however, entered 2020 with some fiscal and monetary space to fight the recession. The other country with signs of overheating, Hungary, had less favorable options. With an interest rate still close to zero and with relatively high public debt, its policy options appeared more

limited. That said, the external and internal balance in Hungary is better, so some fiscal policy measures were likely to be affordable.

Croatia and Slovenia entered 2020 with low growth, relatively high public debt, and low interest rates. These economies are in a less favorable cyclical position, and have fairly little policy room left. Again, there are more options on the fiscal side, since their budgets were balanced in 2019. The same is true for Bulgaria, where the currency board arrangement means no monetary independence, but there is ample room for fiscal measures. Czechia, Poland and Slovakia all had fiscal options, and for the latter two economies — who are not in the Euro Area — there is also some scope for monetary loosening.

It is important to make a few additional observations. First, in hindsight we know that what seemed to be tight fiscal constraints at the beginning of 2020 turned out not to constrain fiscal policy much, at least at the time of writing. If and when interest rates return to higher levels, fiscal considerations again become more pressing. Second, we restricted attention to a few headline indicators, which may paint a partial or possibly misleading picture of the true cyclical positions of our countries. This was intentional, since Chapter 7 of this volume provide a detailed description and analysis of monetary and fiscal policy before and during the pandemic. For more details and nuances we refer the reader to the discussion in Chapter 7.
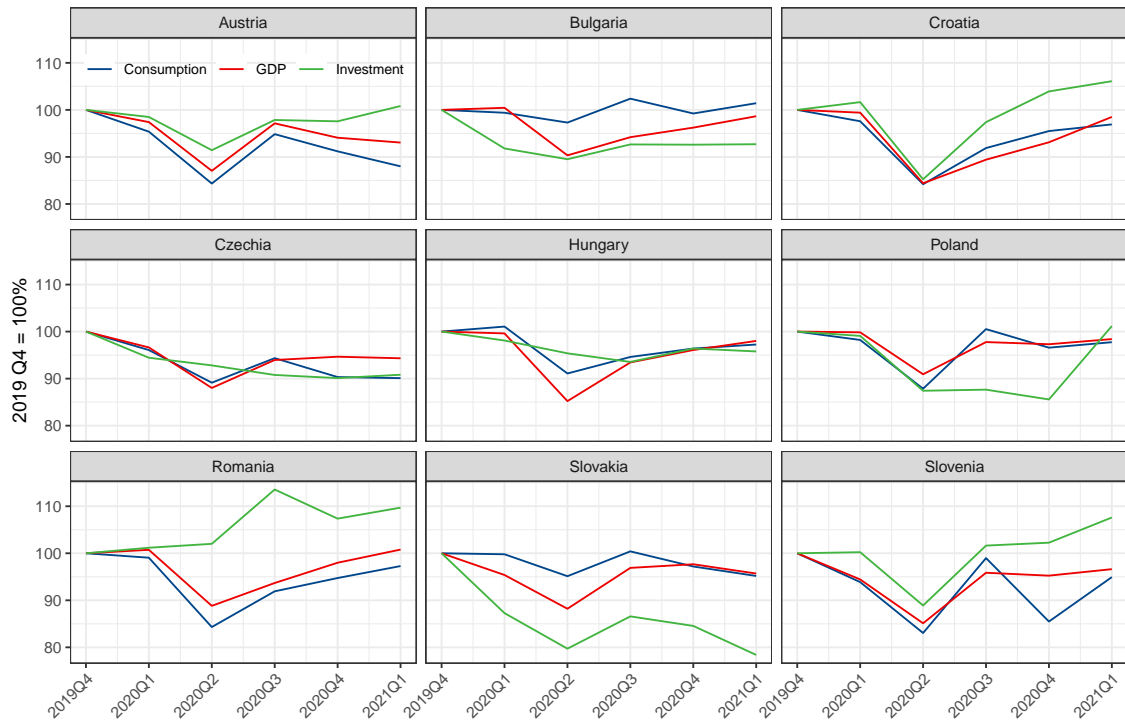
4.2 Macroeconomic developments

We now turn to several macroeconomic indicators to highlight the main developments in the EEE group during the pandemic. As already indicated, we use quarterly data wherever possible to zoom in onto the key developments. The first set of variables includes GDP and its two domestic components: household consumption and gross fixed capital formation (investment). Figure 7 presents the details.

GDP fell significantly in all eight economies (and in Austria). The magnitudes are quite similar: GDP was 10-15 percent lower in the second quarter of 2020 than in the last quarter of 2019. The largest declines were in Croatia and Hungary. The Covid epidemic, therefore, led to a major decline in economic activity.

The bottom of the recession was the second quarter of 2020, where major restrictions were imposed on households and many sectors of the economy simply seized up. The recovery so far has been relatively quick but uneven. There was a sharp rebound in most countries in the third

Figure 7: GDP and its components

quarter, but with the second wave of infection in the Fall output growth again slowed down or even turned negative (Czechia and Slovakia). Overall, GDP growth was negative for the year of 2020, but the first quarter of 2021 brought major improvements. With no data yet available beyond the first quarter of 2021, it is unclear how the recovery will continue. The third wave of the pandemic is just finishing at the time of writing. Though vaccinations are progressing steadily, their uptake is less than complete. Normal GDP growth will likely not restart until 2021Q3 or possibly 2021Q4.

Private GDP components mostly fell along with total GDP. Consumption held up better in Bulgaria, Hungary and Slovakia; Romania is the only country where it fell significantly more than GDP. In Croatia, investment fell along with GDP and consumption, but rebounded much more quickly. This is also true for Slovenia, especially from the forth quarter of 2020. Interestingly, investment growth in Romania remained strong throughout the year, a major exception to the general picture.

The next step is to look at what happened on the labor market. Figure 8 plots two measures of labor input to highlight some interesting issues. First, the blue line shows total employment relative to the level of employment in 2019Q4. Second, we also plot the change in the total

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Figure 8: Employment and hours
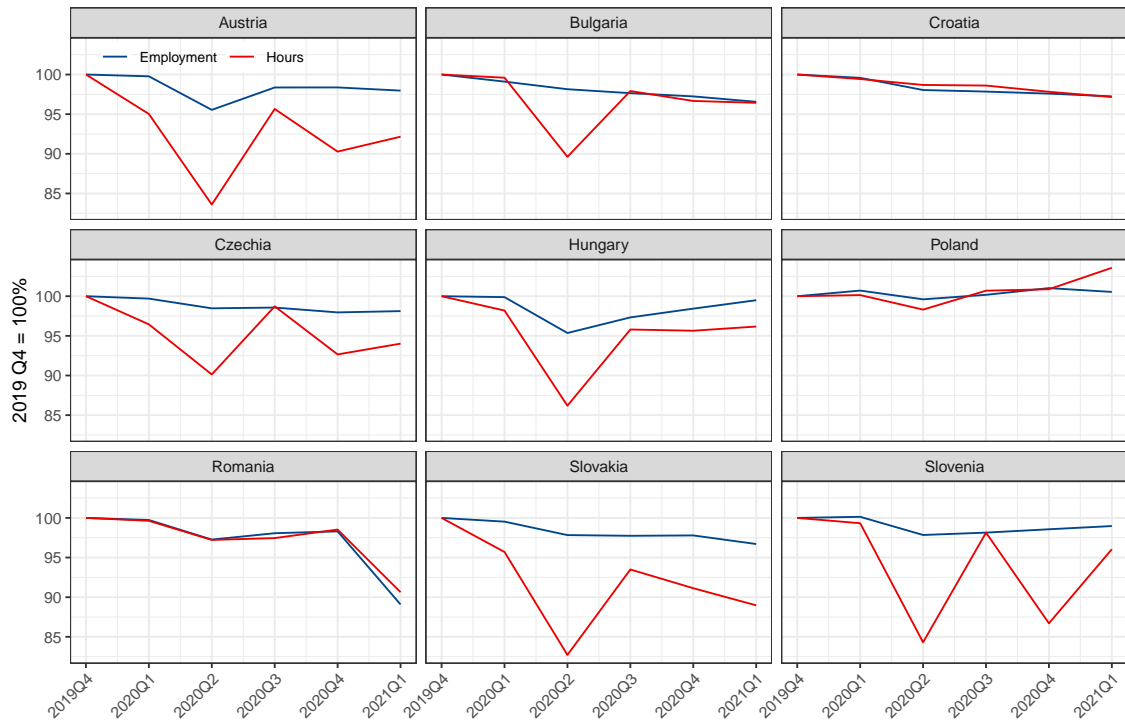
number in hours worked. The motivation is to see the extent to which firms have responded to the crisis by cutting hours instead of firing workers (Gaudecker et al., 2020; Gros and Ounnas, 2021). We expect hours adjustment to be particularly important in this recession, since in many sector the decline was expected (and proved to be) temporary. Differently from our earlier discussion, we used employment and hours data from the National Accounts, mostly because the LFS figures are not yet available for 2021 Q1.

As expected, in the majority of our countries hours fell much more strongly than employment. There is a clear "seesaw" pattern in hours: a sharp fall in 2020 Q2, a strong rebound in the third quarter, a pause or a second decline in Q3, and varying degrees of slow improvements afterwards.With the exception of Poland, hours worked were still well below their pre-Covid levels by 2021 Q1, by about 5-10 percentage points.

While hours responded more strongly, employment also fell significantly, but less dramatically. There is significant heterogeneity across countries in both the decline on impact and the overall fall. In Hungary, Poland and Slovenia, employment almost recovered by the beginning of 2021. In Bulgaria, Croatia, Romania and Slovakia it was still well below the pre-Covid level. Overall,

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the labor market adjustment appears to have been dramatic, with a still tentative but promising recovery in most countries.

The recession was also strongly imbalanced across different sectors of the economy (Papaniko-laou and Schmidt, 2020). The first wave in the Spring hit both manufacturing and personal services (hospitality, travel and entertainment) hard. The Summer brought general improvements, but the second and third waves again led to a selective decline in many service industries. This was due to recurring and continued lockdowns, to which manufacturing was able to adjust much more, so the sectoral gap widened significantly.

Figure 9: Sectoral value added
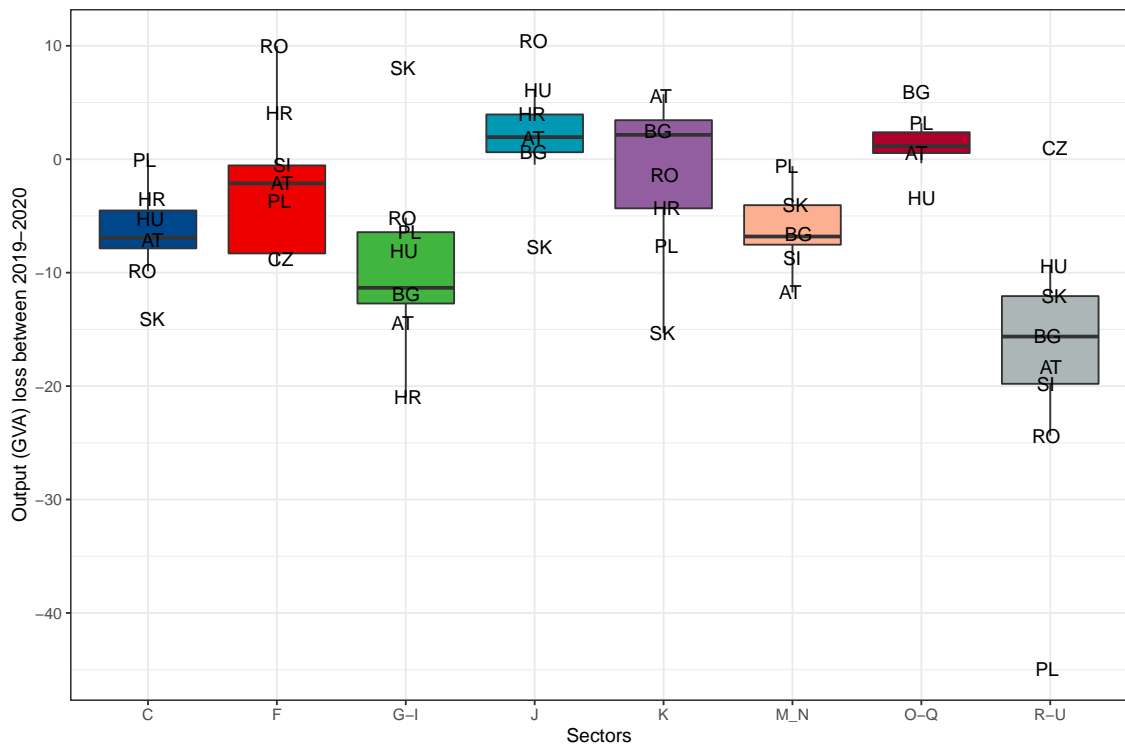
Source: Eurostat [2021l]. Chain-linked volumes.

Figure 9 provides an overview of sectoral developments by presenting the distribution of gross value added (GVA) changes between 2019 and 2020. Data for 2020 are available for the basic dis-aggregation see on the figure, so we cannot distinguish some service industries within the category G-I.[17] For each industry, the boxplot shows the middle two quartiles (the colored boxes), and 1.5

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[17]The available industries are as follows. A: Agriculture, forestry and fishing; B-E: Industry (except construction); C: Manufacturing; F: Construction; G-I: Wholesale and retail trade, transport, accommodation and food service activities; J: Information and communication; K: Financial and insurance activities; L: Financial and insurance activities; M_N: Professional, scientific and technical activities; administrative and support service activities; O-Q: Public administration, defense, education, human health and social work activities; R-U: Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organizations and bodies. We omit sectors A, B-E and L

times above and 1.5 times below the interquartile range (the "whiskers"). Countries outside this overall range are considered outliers and are labeled individually (along with some, but not all of the other countries).

As expected, there is strong heterogeneity across sectors. The worst affected sectors are R-U, dominated by arts, entertainment and recreation. These activities — with a brief summer break — were essentially closed throughout 2020. Sector G-I also declined significantly, driven mostly by transport, accommodation and food services. Manufacturing declined as well, but overall much less so than these two broad service activities. Sectors J and O-Q, on the other hand, even grew on average (the median is slightly positive). This is not surprising, since info-communication powered home office work for many other activities, and the public sector acted as an automatic stabilizer in most economies.

Given these average development, however, we also see significant heterogeneity across countries. Manufacturing did not decline in Poland, but fell by 14% in Slovakia. The likely explanation is the car industry, unfortunately we do not yet have detailed data for 2020 to see what happened inside manufacturing. Construction fell in Hungary, but grew in Romania. Even within the public sector, where dispersion is relatively low, there was a declined in Hungary, as opposed to the other countries. Arts and entertainment declined dramatically in Poland, which held up better in many other industries.

To shed a bit more light on the divergent sectoral patterns, we plot the quarterly evolution of GVA in two sectors, manufacturing (C) and recreation (R-U). The figure visually confirms the patterns discussed above. Manufacturing fell significantly in 2020 Q2, but rebounded over the Summer, and continued — albeit more slowly — its recovery over the Fall and Winter. Recreation, however, while also rebounding in 2020 Q3, experienced a "double-dip" in 2020 Q4 and 2021 Q1. At the time of writing, while the sector is again expected to recover over the Summer of 2021, there are still many question marks considering a possible forth wave in 2021 Q4 and beyond. We therefor expect the service sectors where personal contact is important to recover only slowly, with a very uncertain speed and timing.

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from the figure: manufacturing is mostly representative of sectors B-E, while agriculture and real estate were relatively unaffected by the crisis.

Figure 10: Manufacturing and recreation
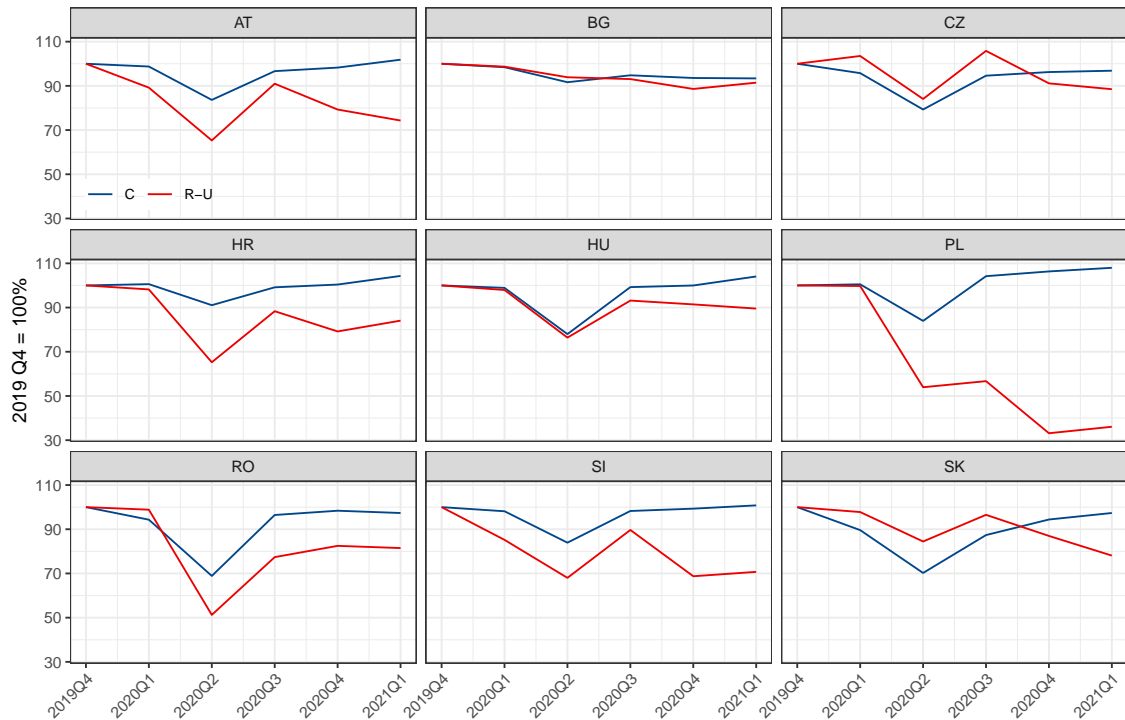
4.3 Social developments: a first view

Information on social and distributional aspects usually requires detailed micro-level data, the collection of which tends to be slower than that of macroeconomic statistics. This is particularly true about aspects of the distribution of income, like inequality or poverty indicators: those are based on EU-SILC, and the data from the 2020 fieldwork are only being released by the Fall of 2021. Moreover, its income variables refer to the previous full year (i.e., 2019).[18] There are nevertheless many preliminary results using simulations or innovative data to nowcast social developments (like Caperna et al., 2020, using Google search data). Inequality and poverty are expected to rise (Palomino et al., 2020; Furceri et al., 2020), much more than in the 2008-12 crisis. The simulations often show that extraordinary transfer steps might have cushioned the income loss of households substantially (Almeida et al., 2020).

Employment-related indicators come from the quarterly EU-LFS data collection, which is more frequent and hence the lags are shorter. It is thus already possible to look at the 2020 behavior of three indicators from Section 2.5: youth unemployment, long-term unemployment and

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[18]Except for Ireland, see https://ec.europa.eu/eurostat/cache/metadata/en/ilc_esms.htm

the NEET (Figure 11). Not surprisingly, long-term unemployment did not show a clear pattern at such a short horizon, so to save space, we do not report its behavior. The NEET indicator increased at least slightly in most countries, except for Croatia, and to a smaller degree, Romania (two countries with particularly high starting values). The initial increase has been reversed quickly in Bulgaria, Slovakia and Slovenia, while it has stayed high in Czechia, Hungary and Poland. Youth unemployment exhibited an even more marked pattern: except for Romania (who had the second highest starting value among the EEE), it has increased substantially in all the EEE; and except for Hungary, it has not yet reversed.

Figure 11: NEET and youth unemployment
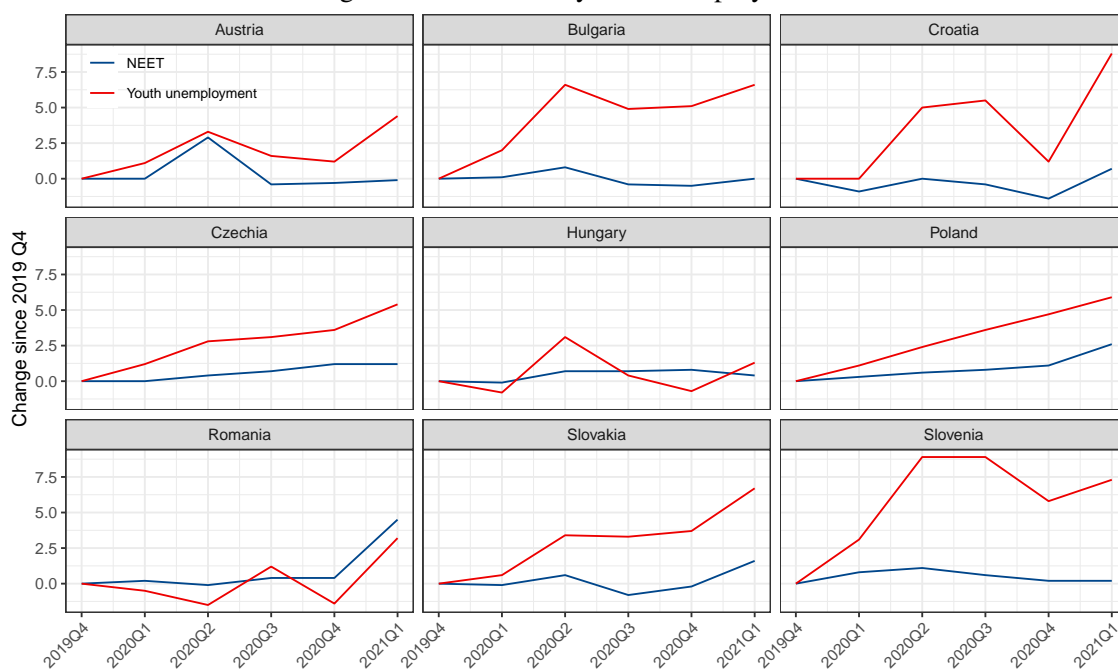
Source: ? and ?. NEET: not in education, employment or training. Youth unemployment: ages 15-24.

4.4 Comparing the 2008-12 and the Covid-19 shocks

In this section we compare the trajectories of a few key indicators during the Covid crisis and the previous financial crisis. While the causes of the two events are very different, it is still illuminating to contrast the two recessions. The global financial crisis originated in the United States, and was caused by an overextended financial market and housing sector. Its main propagation channels were global banks and other financial institutions. In Europe, a second waive of sovereign crises

started in 2011. Empirically, financial crises tend to lead to deeper recessions and slower and more protracted recoveries than other economic disturbances (**?**). The Covid crisis, in contrast, can be viewed as an exogenous event, with a strong but indirect effect on economic conditions.

We present the evolution of GDP and employment as outcome variables, and the evolution of government expenditure and the short-term interest rate as policy variables. For the latter two, Chapter 6 provides many more details. Since data for the current crisis are still lagging behind events, we also show forecasts from the OECD 2021 June Economic Outlook (OECD, 2021) to complement the short time series. There are two reasons while we think this is useful. First, we can compare the expected trajectory to the actual one during the financial crisis. Second, since the OECD forecast is also behind current data (it was prepared during the second quarter of 2021), we can also see how actual events evolved relative to expectations based on mid-2020 data.

Figure 12: The evolution of GDP in the two crises
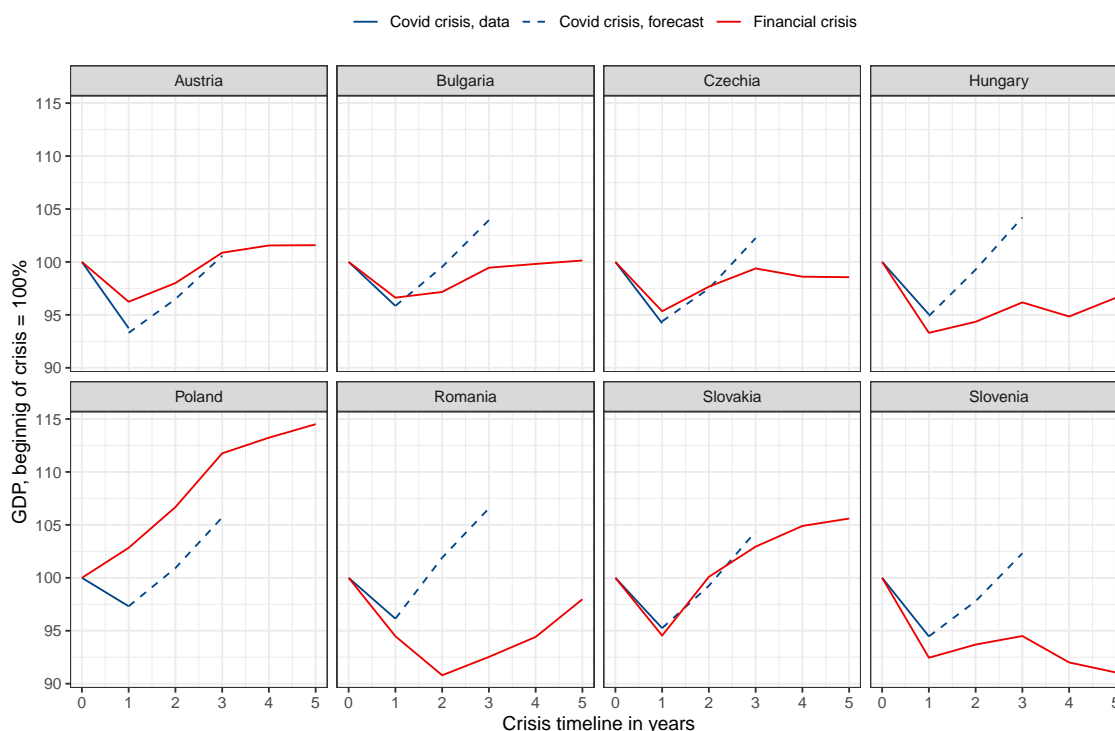
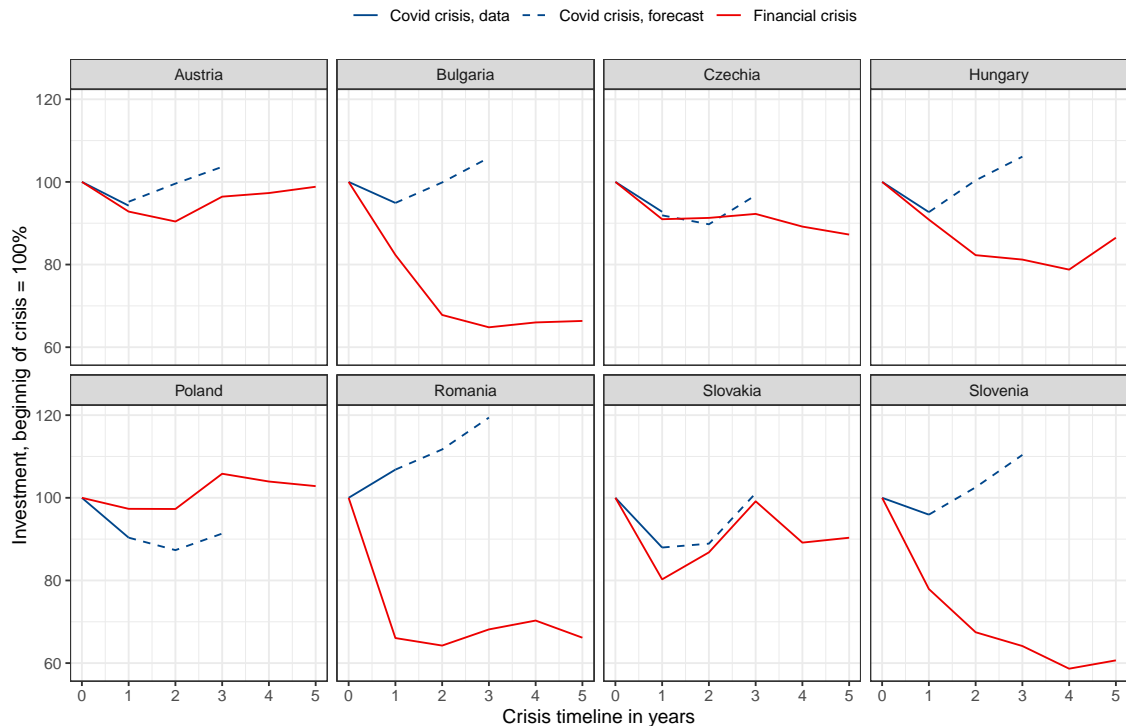Source: Eurostat [2021a] and OECD [2021]. Chain-linked volumes.

It is not quite clear when the two recessions began. We experimented with various starting points, and settled on 2008 Q3 for the financial crisis, and 2020 Q1 for the Covid crisis. The reference points, where applicable, will be therefore 2008 Q2 and 2019 Q4 as the last "peaceful" periods. For GDP, employment and government expenditure we normalize values such that they

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are equal 100 in these pre-crisis quarters ($t = 0$). We leave the short-run interest rate as it is, since there we are also interested in the levels. Since there is no OECD forecast for Croatia, we omit it from this analysis. We use annual data, because they are available for all other countries. Quarterly forecasts are only available for some countries and some variables. Another option would be to interpolate the annual data to fill in for the missing observations. In the end we opted for the simpler option, since we already presented quarterly facts for the current recession earlier.

Figure 12 presents the paths of GDP for the EEE and Austria. For most countries, the recession impact was similar in the current crisis than in the previous one. There are differences in the quarterly paths (not shown), but these seem to have smoothed out at the annual frequency. The main exception is Poland, where GDP performance is significantly worse in the current crisis than in the previous one. Note, however, that Poland did exceptionally well over 2008-2009, and its output drop in 2020 is still lower than for most of the other countries.

The OECD expects recovery to be quick in most countries. In Bulgaria, Hungary, Romania and Slovenia GDP performance is forecasted to be significantly better, than after the financial crisis. In Czechia and Slovakia, the path of GDP is projected be roughly similar to the earlier episode. For Poland, the pace of recovery is expected to be similar than from 2009.

Figure 13: The evolution of investment in the two crises

Source: Eurostat [2021a] and OECD [2021]. Chain-linked volumes.

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Notice that the countries that are doing relatively better this time mostly had deeper recessions in 2009 and afterwards. These economies were particularly vulnerable to the shock of the financial crisis. This time is different, both because of substantial balance sheet adjustments in the 2010s, and also because the Covid recession has a different nature. Financial factors are less important, and the short-run disruptions to supply chains and international trade proved to be highly temporary. Their overall resilience characteristics have also improved, including active labour market policies, financial sector liability growth, and to a smaller degree, net international investment positions.

To further highlight these differences, we present additional comparisons. Figure 13 looks at the trajectory of investment in the two crisis. The differences are dramatic for the four countries discussed in the previous paragraph, Bulgaria, Hungary, Romania and Slovenia. They experienced massive drops in investment activity after 2008, due to the balance sheet adjustment required by financial markets. This time no such adjustment is necessary, and investment is expected recover much more quickly. With the exception of Hungary, data for 2020 already show a much smaller drop, or even an increase (Romania).

Figure 14: The evolution of exports in the two crises
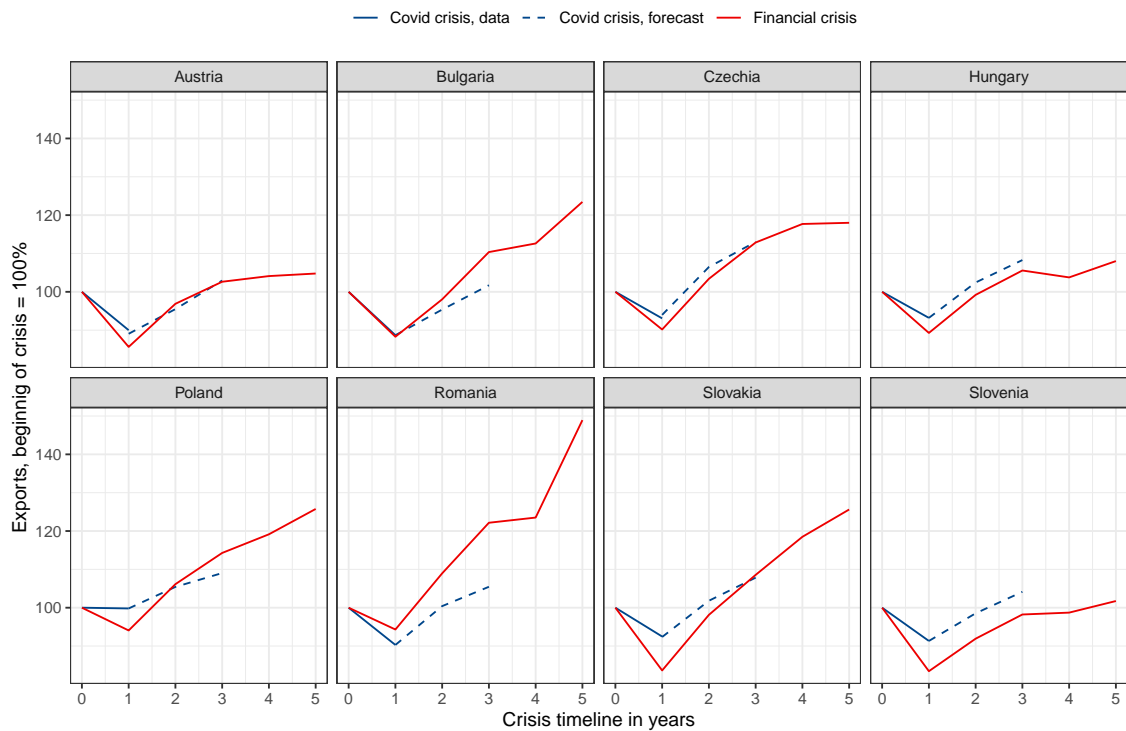
Source: Eurostat [2021a] and OECD [2021]. Chain-linked volumes.

Figure 14 shows that export behaved — and are expected evolve — remarkably similarly over the two crises. After a significant drop in the first year, they rebounded quickly in the financial crisis, and projected to follow the same pattern in the current Covid recession. While the causes of the two crises are different, both led to short-run disruptions in international trade. During the financial crisis, the channel through which this happened was trade credit. In the current crisis, it is supply chain disruptions due to the restrictions in the movement of goods and people. Once these short-run disruptions were dealt with, export activity in the EEE region was (and is expected to) recover.

Figure 15: The evolution of imports over the two crises
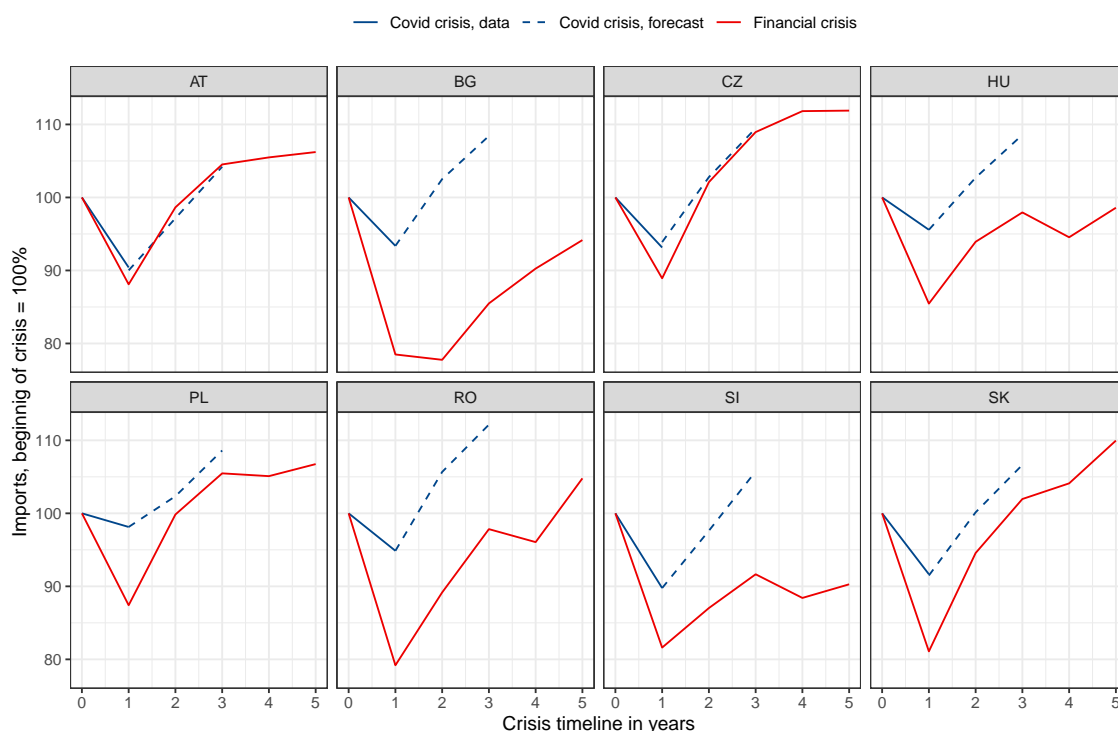
Source: Eurostat [2021a] and OECD [2021]. Chain-linked volumes.

Figure 15 plots the evolution of imports, and paints a very different picture, especially over the financial crisis. Imports dropped in all countries on impact but the decline was particularly persistent in the previously identified four economies. Besides investment, imports were the main channel of balance sheet adjustment in Bulgaria, Hungary, Romania and Slovenia. Things are very different in the current crisis for these countries compared to 2008-2013, whereas heterogeneity across economies during the Covid recession is low. In fact, import growth is projected to be very strong, and compared to exports on the previous figure, indicates a potentially significant

worsening of the trade balance.

5   Looking beyond: expected recovery

5.1   Forecasting uncertainty

At this stage, it is premature to assess the eventual speed and degree of recovery. New waves
in the EEE or in their trade partners may lead to new setbacks for certain sectors and activities.
There are nevertheless many forecasts at a national or global scale. These are informative about
likely outcomes, conditional on the information set at the time of their creation, and of course the
adopted assumptions and methodologies.

Figure 16: The evolution of the OECD forecasts

Source: OECD [2021]. Chain-linked volumes.

Not surprisingly, these forecasts have been continuously revised as the crisis has enfolded
and new waves and lockdowns emerged. Figure 16 shows the last four editions of the OECD
Economic Outlook. To highlight the changes, we now switch to a quarterly frequency, which
restricts the analysis to four countries: Czechia, Hungary, Slovakia and Slovenia. We only show
GDP, as our goal here is to illustrate the forecasting process and not to draw conclusions on the

forecasts themselves.

Relative to the November 2019, pre-shock forecast, the first two quarters of 2020 brought a decline in GDP. The two scenarios from the June 2020 projections showed a reasonably quick recovery (single hit scenario), or a second hit and then a parallel recovery path. Recovery has proved to be even faster than expected. Still the December 2020 forecasts expected a slight reversal and then relatively slow progress. This has materialized for some but not all EEE. By May 2021, the situation and the outlook seem brighter. The forecasts are even heading back towards the original, pre-shock path. For now, it seems that the aggregate impact of the Covid recession will be temporary, and recovery much faster than in the previous financial crisis. That said, these conclusions are still fragile. Also, there are many changes at the more disaggregated level that are likely to prove more persistent. In the next section we finish the chapter by commenting on some of these changes, and their likely impact on the EEE region.

5.2 Persistent changes

As the previous section highlighted, it is difficult to forecast with any precision under an economic crisis, when external circumstances change constantly. Nevertheless, broad outlines of the post-Covid economic world are already visible, both globally and in the EEE region. Also, history teaches important lessons that are worth briefly discussing. We start with what we can learn from the past, and then move on to what we can expect for the future.

Past pandemics   In an interesting study Jordà et al. [2020] collected the key lessons from past pandemic induced recessions, starting from the 14th century. What is particularly useful is that the authors are using long time series to focus on the subsequent decades after a large disease outbreak. They study 19 pandemic, which include their so-called "super pandemics", the Black Death in medieval Europe and the Spanish Flu that followed World War I.

The study evaluates the impact of past pandemics by looking at two price variables. First and foremost, they use real interest rates for a selection of European countries. Real interest rates are useful guides because they signal persistent, but not necessarily permanent changes that result from significant health crises. These are most likely to come from changes in labor supply, and the desire to save and invest. Neoclassical growth theory, discussed at the beginning of the chapter, has strong implications on how the real interest rate responds to such shocks. It is important to

look at medium-run behavior, since short-term interest rate movements are contaminated by high frequency events. As an additional, but more limited source of data, the authors also use real wages for the United Kingdom. The economic mechanisms linking real wages to pandemics are analogous to those influencing the real interest rate.

Using local projection methods (Jorda, 2005) to identify the natural real interest rate (which can be thought of as a medium-term average of short-run rates), the article finds that pandemics lead to a large and persistent decline in this indicator. The average estimate is a decline of 1.5 percentage points, which last for up to four decades. Real wages in the United Kingdom are estimated to have risen by a cumulative 15% over 40 years. Moreover, economic growth (as measured by GDP per capita) is estimated to be higher in the medium run after pandemics, in contrast to wars that destroy physical capital.

How can these results be interpreted, and what can we learn from them during the current crisis? Taking neoclassical growth theory as a guide, the paper argues that the observed effects come from (i) the large-scale decline in labor supply due to high death rates, and (ii) depressed demand for investment, and (ii) an increased desire to save due to precautionary motives. Fortunately, while the Covid epidemic has led to many unnecessary deaths, the overall toll is much lower than in previous pandemics. Labor supply is unlikely to decline significantly, which attenuates the large historical decline in the real interest rate. Precautionary motives, however, may well operate and prove to be significant. It is therefore likely that the natural rate of interest remains low for the foreseeable future. A key indicator of debt sustainability, the difference between the natural interest rate and the growth rate of real GDP per capita, is expected to remain low (and possibly negative) for many years to come. Overall, this indicates that fiscal sustainability will not be a strong constraint on governments, and timely and sustained fiscal action to restart economies will be financially feasible.

Global value chains One of the initial impacts of the Covid crisis was a severe disruption of global supply chains (Meier and Pinto, 2020). This raised the possibility that at least some manufacturing activity that European multinationals have outsourced to Asian countries (typically China) might be brought back to Europe ("reshoring"). The majority of the EEE are already major suppliers of Western European firms (Pellényi, 2020), so they seem likely targets for such reshoring activities.

That said, there are some reasons to be skeptical about the large-scale relocation of industrial jobs to the region. Pellényi [2020] discussed the advantages and disadvantages of the main EEE countries (Czechia, Hungary, Poland, Romania, Slovakia and Slovenia) as participants in global supply chains (GVCs). Their membership of the European Union, geographical closeness to the main European markets and producers, relatively skilled workforce and light regulation makes them attractive as assembly locations. Low innovation activity and the relative lack of high-skilled workers[19], however, prevent the region from upgrading into higher value-added activities.

Darvas [2020] also casts doubt on the extent to which the EEE can benefit from reshoring. Using international trade data during the first wave of the pandemic, Darvas [2020] finds that trade volumes declined more between EEE countries and Western Europe than they did between Western Europe and China. He also raises the issue of quality upgrading and the lack of necessary innovation activities and higher education spending that would facilitate this in the EEE.

Finally, in a survey of leading companies, Maqui and Morris [2021] report that those firms for whom supply chains are important do not foresee major changes in their current arrangements. In particular, the majority of the survey companies did not plan on making their supply chains more diverse or more localized. All these indicate that major reshoring is unlikely to benefit the EEE, at least in the short-run.

Scarring   There are many reasons why deep recessions may have a persistent impact on economies. Perhaps the most important one is what the literature calls "scarring": those who experience protracted unemployment see their job prospects and wages persistently deteriorating (Arulampalam et al., 2000). Long-term unemployment spells lead to a loss of human capital, either general or specialized, which lead to lower employability for the affected (Ljungqvist and Sargent, 1998). As we saw earlier (Figure 8), employment has rebounded in some of the EEE, but it is still — in some cases, significantly — below the pre-pandemic levels. The upcoming quarters will be crucial to see whether long-term unemployment remains a threat for a sizable proportion of the labor force. The observed increase in the use of labor market policies relative to the financial crisis (5) may warrant some optimism, though the overall low level of social performance (4), household financial buffers and social cohesion (6) may indicate severe social consequences.

Another reason why loss of human capital may be expected is that some of the new jobs may

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[19]Recall Table 1, which noted that while average education levels in the EEE are relatively high, the picture is less favorable when we focus on tertiary education.

be in different sectors (Hensvik et al., 2021). This means that specialized human capital may be lost due to job switches. A waiter who turns to food delivery is likely to experience lower pay and worse job conditions. Again, the coming months will reveal how persistent the observed sectoral reallocation will prove to be. Tourism was a major source of income for Bulgaria and Croatia before the Covid crisis, and it was also significant for other economies (Czechia, Hungary, Slovenia). The summer of 2020 saw a quick rebound, but after two additional waves of infections, and still possible forth one due to new mutations, foreign travel may remain persistently depressed for a while.

A third reason why we may expect a lasting impact on labor markets and human capital is through education and training (Agostinelli et al., 2020). The protracted closure of schools and universities effected all students, but there was a disproportional impact on children from low-income families, for whom digital learning options and the home environment were less supportive or were often completely missing (Bacher-Hicks et al., 2021). The lack of company training for more than a year and the reduced scope for personal interactions must also have reduced skills usually acquired on the job. Unfortunately detecting these effects will be difficult, and especially when operating through the quality, and not the quantity of education.

Past evidence offers some guidelines, and we already discussed historical data earlier. Fuentes and Moder [2021] provide a brief overview of the possible channels through which scarring occurs, and also look at evidence from past crisis. The good news is that potential output seems to have recovered relatively quickly after previous epidemics, in contrast to financial crises that left a more persistent mark. They also caution, however, that given the unusual natural and global scope of the Covid crisis, labor market effects may prove more lasting.

Overall, the IMF's April 2021 World Economic Outlook warns that the prospects of scarring from Covid-19 are sizable, though smaller than after the financial crisis (IMF, 2021). Sectoral asymmetries, spillovers and future reallocations are likely to play a crucial role in this. To contain permanent losses, effective policy support will remain necessary, particularly in the human capital domain.

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