



INVESTMENT REPORT
2021/2022



Recovery as
a springboard
for change

Chapter 1

**The macroeconomic context:
Pandemic shock and policy response**

EUROPEAN INVESTMENT BANK INVESTMENT REPORT
2021/2022

Recovery as a springboard for change

Part I Taking stock of macroeconomic,
policy and investment trends

Chapter 1 **The macroeconomic context: Pandemic shock and policy response**

Investment Report 2021/2022: Recovery as a springboard for change.

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About the Report

The EIB annual report on Investment and Investment Finance is a product of the EIB Economics Department. It provides a comprehensive overview of the developments and drivers of investment and its finance in the European Union. The report combines an analysis and understanding of key market trends and developments with a more in-depth thematic focus, which this year is devoted to Europe's progress towards a digital and green future in the post-COVID-19 era. The report draws extensively on the results of the annual EIB Investment Survey (EIBIS) and the EIB Municipality Survey. It complements internal EIB analysis with contributions from leading experts in the field.

About the Economics Department of the EIB

The mission of the EIB Economics Department is to provide economic analyses and studies to support the Bank in its operations and in the definition of its positioning, strategy and policy. The director of Economics Department, Debora Revoltella, heads a team of 40 economists.

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Chapter 1

The macroeconomic context: Pandemic shock and policy response



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Table of contents

Executive summary

Introduction

Part I **Taking stock of macroeconomic, policy and investment trends**

- 1. The macroeconomic context: Pandemic shock and policy response**
2. The state of investment in the European Union: Government, corporate, infrastructure, climate

Part II **Recovery from the COVID-19 pandemic, scarring and asymmetry**

3. Firms: Policy support, asymmetry and risks of scarring
4. Regional and social cohesion: Widened gaps and how to close them

Part III **Recovery as a springboard for structural change**

5. Investing in Europe's digital transformation
6. Living up to Europe's green ambitions

Data annex

Glossary of terms and acronyms

Chapter 1

The macroeconomic context: Pandemic shock and policy response

The European Union's timely response to the pandemic enabled member governments to absorb most of the household income lost because of COVID-19 restrictions and closures, and to prevent companies from going out of business. The pandemic triggered the steepest decline in gross domestic product (GDP) in the history of the European Union. When the crisis hit the EU economy, more exposed countries had less financial headroom to address it. Three key measures at EU level created the fiscal space governments needed to fight the crisis: the suspension of the deficit and debt rules of the Stability and Growth Pact, grants and subsidised lending facilities, and the European Central Bank's (ECB's) large-scale purchases of euro area government bonds. As a result, government funding costs remained low or even declined despite the increase in debt. This enabled governments to borrow heavily to offset much of the loss in household income.

As much of the global economy started to recover, supply trailed demand and price pressures started to emerge. In the European Union, and even more so in the United States, household income was bolstered by policy support while consumer spending slumped. Households built up significant levels of savings. As the pandemic receded, consumer spending recovered while the composition of demand changed. Frictions emerged in supply chains, holding back production at some businesses. Steep increases in food and raw material prices amplified the pressure on consumer prices. How long these pressures will last — and whether repeated price shocks, even if they prove short-lived, will raise inflation over time — is being widely debated and may differ across countries. While the ECB retains its highly accommodative stance, the central banks of some EU members have begun to tighten monetary policy, ending years of ultra-low interest rates.

The pandemic provides an opportunity for the European Union and its members to coordinate policies to push green and digital advancements. The benefits of a coordinated response to the crisis created the opportunity to align not only the direction of fiscal stimuli but also the composition of fiscal spending. The result was that recovery programmes focused on investments to mitigate climate change and to support digitalisation. These coordinated efforts were strengthened by the **Recovery and Resilience Facility**, which is making €723.8 billion in EU-backed loans and grants available for reforms and investments by Member States. At the institutional level, the joint initiatives have led to a stronger role for the European Commission in coordinating and monitoring EU members' public investments, and in issuing and managing common EU debt. The recovery efforts planned in the next few years will test the durability of this coordination. The role of the public sector in the economy, the sustainability of public debt and the possible adaptation of the rules designed to ensure that EU countries pursue sound public finances will all present substantial challenges.

Introduction

As economies emerge from the pandemic, the focus of fiscal policy is shifting back from fighting the crisis to ensuring that growth is sustainable. This chapter provides an overview of macroeconomic developments, examines the fiscal policy response to the pandemic and discusses past achievements and the challenges ahead.

The European Union's timely response to the pandemic enabled member governments to absorb most of the household income lost due to COVID-19 restrictions and closures, and to prevent many corporate bankruptcies. As a result, government debt increased sharply while households built up significant savings. The release of those household savings is likely to boost economic growth as the recovery unfolds. That growth, however, risks deflating when governments begin to react to the debt accumulated during the crisis by cutting spending or increasing taxes. Less expansionary monetary policy will also curtail growth.

Maximising the catalytic impact of public investment and protecting public investment when governments begin to consider spending cuts will be key for the recovery. An essential tool to do this is the Recovery and Resilience Facility. The facility is a good example of how fiscal policies can be successfully coordinated at the EU level, by aligning fiscal stimuli and by selecting common investment priorities. Making the most of the facility requires strong implementation capacity, good strategic planning and the removal of the barriers that prevent private investment. If these conditions are met, the facility's impact on GDP could be substantial in the short and in the long term. How best to coordinate fiscal policies will remain a key topic for discussion.

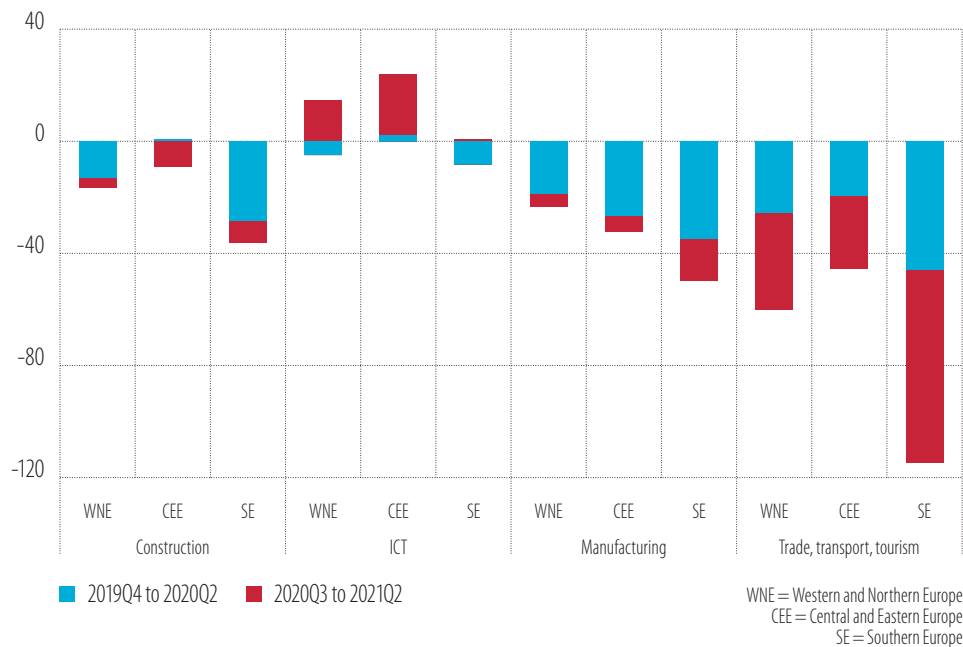
The following sections review the economic shock caused by the COVID-19 pandemic before analysing the fiscal and monetary policies adopted to combat the crisis. They discuss the main features of the economic recovery, examine EU programmes that aim to ensure sustainable growth, and assess the fiscal challenges ahead.

The pandemic shock

The pandemic triggered the steepest recession in the history of the European Union. The measures adopted to contain the spread of COVID-19 forced firms to close or to reduce working hours, thus limiting opportunities to earn and to spend. In the second quarter of 2020, EU real GDP was 14% lower relative to the same quarter in 2019, while households' primary income had declined by 7.3%.

Despite its global nature, the pandemic affected portions of the EU economy differently. Personal services were hit the most and recovered more slowly as doubts lingered about contagion risks. Manufacturing, in contrast, soon returned to pre-crisis output in many countries, benefiting from demand from world regions where the pandemic had receded. Large firms, which had easier access to finance to bridge revenue gaps, tended to be less affected than small firms. The composition of the economy matters when assessing the impact of the crisis. Southern Europe, where the share of personal services and small and medium enterprises is larger, was hit more severely, regardless of the sector (Figure 1).

Figure 1
Changes in output before and after the first pandemic wave (% change compared with the fourth quarter of 2019), by sector and region



Source: Eurostat, authors' calculations.

Note: Bars show the cumulative change in output, measured as a percentage of fourth quarter 2019 output, between the fourth quarter of 2019 and the second quarter of 2020 (blue bars) and between the third quarter of 2020 and the second quarter 2021 (red bars). In each case, the bar shows the total change in output from the fourth quarter of 2019. For example, the total decline in output in Southern Europe in trade, transport, and tourism from the fourth quarter of 2019 to the second quarter of 2021 was equal to 1.2 times the output in the fourth quarter of 2019.

Fiscal and monetary policy responses to the crisis

National fiscal policy responses

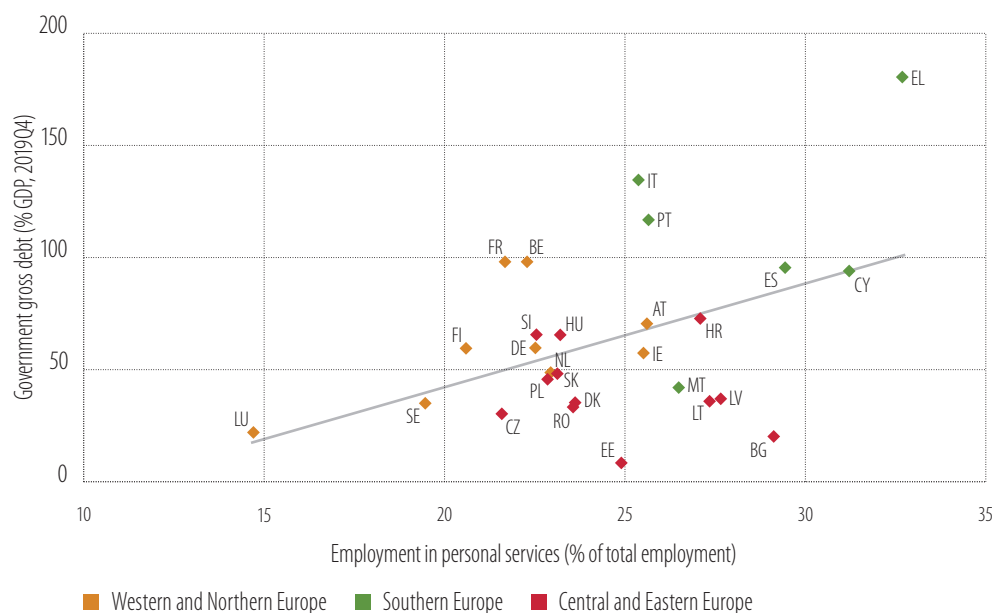
Countries that were more exposed to the pandemic also had less financial space to address the crisis (Figure 2). On the eve of the ECB's announcement of the Pandemic Emergency Purchase Programme (PEPP), the spread of Italian ten-year government bonds over their German peers had widened to 2.7 percentage points, almost twice their size three weeks earlier. Greater refinancing costs threatened to prevent highly indebted Member States from expanding fiscal policy, raising the spectre of a repeat of the 2011-2013 euro area sovereign debt crisis.

The European Union adopted three measures that brought national fiscal policy back into play. First, the European Union invoked the "general escape clause" in the Stability and Growth Pact.¹ Until the end of 2022, Member States do not have to keep budget deficits below 3% and public debt below 60% of GDP.

¹ Regulation (EC) 1466/97, Articles 5(1) and 9(1), state that, "in periods of severe economic downturn for the euro area or the Union as a whole, Member States may be allowed temporarily to depart from the adjustment path towards the medium-term budgetary objective, provided that this does not endanger fiscal sustainability in the medium term."

Second, the European Union announced fiscal support for Member States with the Support to mitigate Unemployment Risks in an Emergency (SURE) and **NextGenerationEU** packages. And third, the ECB established an additional asset purchase programme, the Pandemic Emergency Purchase Programme.

Figure 2
More exposed economies entered the pandemic with greater public debt



Source: Eurostat, authors' calculations.

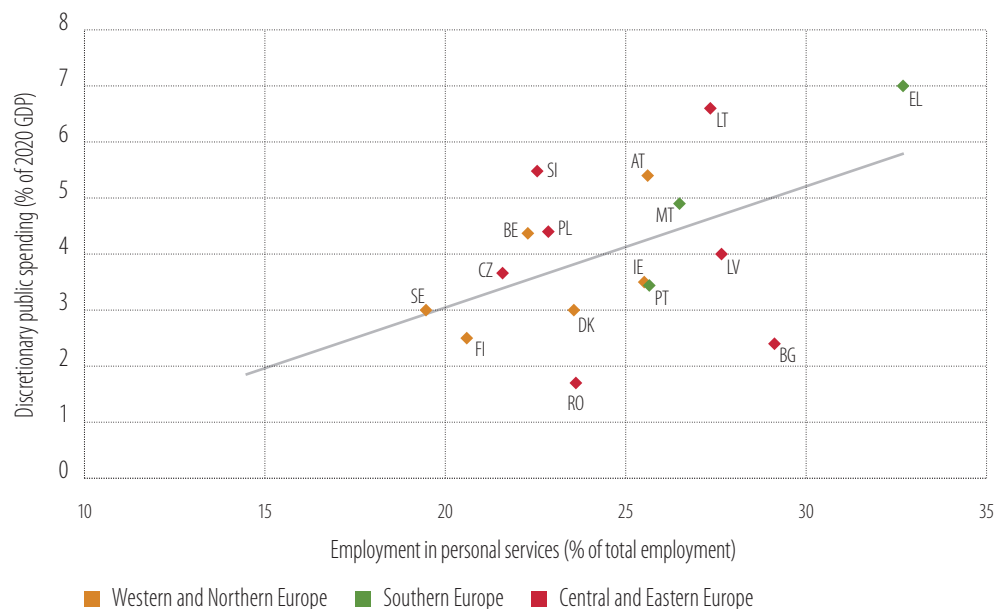
Note: Personal services are codes G to I under NACE (the EU classification system for economic activities). Colours indicate EU regions (Western and Northern in orange, Eastern in red and Southern Europe in green)

As a result of these measures, Member States that were more exposed to the pandemic were able to intervene with mandatory and top-up discretionary support measures, incurring larger primary deficits in the process (Figure 3). Despite their generally higher debt and deficits, EU members financing costs remained stable. In some cases, these costs were even substantially lower in December 2020, when many countries went through the second wave of the pandemic, than in January 2020 (Figure 4). The reverse situation happened in the 2007-2009 global financial crisis when financing costs increased in more exposed countries, ultimately leading to the euro area sovereign debt crisis.

National fiscal policy responses curbed losses in household income while protecting supply. Policy was informed by the experience of the 2007-2009 global financial crisis, when the initial shock to GDP caused long-lasting declines in employment and a jump in banks' non-performing loans. In 2020, policy boosted aggregate demand in roughly equal parts through automatic stabilisers (built-in policy features, such as unemployment benefits, that kick in during periods of economic downturn to ease its impact) and discretionary measures (deliberate government measures that change tax rates, social transfers and other government expenditure). Households' secondary income (provided by transfers such as social security benefits) rose by 6.5% in total, offsetting most of the decline in primary income.²

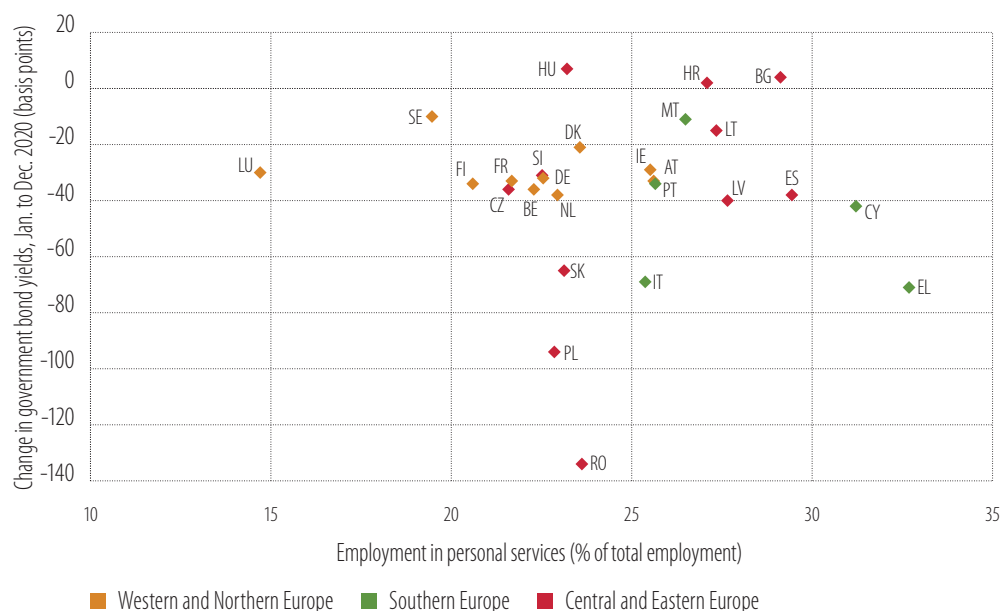
² Second quarter of 2020 relative to a year before. See Almeida et al (2021), for example, for the impact of the pandemic on households' income.

Figure 3
More exposed countries had higher discretionary spending...



Source: Eurostat, national Convergence and Stability Plans, authors' calculations.

Figure 4
... but their financing costs remained broadly stable or even declined



Source: Eurostat, ECB, authors' calculations.

Note: The graph plots the difference between the mean ten-year government bond yields in December and January 2020.

Discretionary fiscal measures aimed to ease the health crisis by subsidising employment, supporting households and providing liquidity to firms. Until June 2021, reductions in revenues and discretionary spending on health-related items made up about 1.5% of EU 2019 GDP, with non-health-related items accounting for 8.3%.³ Key non-health-related items included furlough schemes, wage subsidies, and reductions of social security payments for employees; income replacement for the self-employed; and subsidies and recapitalisation for badly affected sectors, such as transport. Governments also supported liquidity by extending deadlines for tax payments and accelerating spending by a total of 1.5% of EU 2019 GDP.

Job retention schemes avoided the costs associated with reintegrating unemployed people in the labour market and protected job-specific knowledge. But they came at a large fiscal cost. Those schemes paid a high portion of salaries for firms that kept their employees despite a decline in business activity.⁴ Although household income could have been stabilised using unemployment benefits, governments rolled out furlough schemes to protect jobs during what appeared to be a severe but short-lived economic downturn. Job retention schemes also provided additional liquidity to those firms that would otherwise have been unable to keep unoccupied staff. During April 2020, an average of 20% of jobs benefited from such schemes across the European Union. They were the key reason why unemployment in the European Union only rose gradually from 6.7% in 2019 to 7.1% in 2020, even though hours worked dropped by 15% in the second quarter of 2020 compared to the fourth quarter of 2019. Nevertheless, these schemes were costly. Germany, for example, paid EUR 61 billion (1.8% of GDP) in furlough benefits in 2020⁵, with France paying EUR 27 billion⁶ (1.1% of GDP) and Italy paying close to EUR 20 billion⁷ (1.2% of GDP) the same year.

Public credit guarantee programmes aimed to facilitate firms' access to bank loans. Demand for bank loans from firms soared as they scrambled to bridge the liquidity gaps caused by the pandemic. Firms also sought loans to build precautionary buffers or to adapt their businesses to the new environment. To help banks accommodate the surge in demand for loans under favourable conditions, most EU members introduced public guarantee schemes for bank loans (see also Chapter 3, Box B). Between the start of the pandemic and mid-2021, EU governments, in particular in the larger Member States,⁸ made available loan guarantees that were the equivalent of around 15% of 2019 GDP in aggregate. Guarantees were generally offered to banks for new lending only, and often for loans targeting small and medium enterprises.⁹ Typically, the guarantees did not cover the entire principal, but only around 80% of the amount. Leaving banks with some of the risk gave them an incentive to screen loan applications, but may also have excluded younger, riskier firms from the scheme. In the end, banks only took up a fraction of the total amount of guarantees available (about 3% of GDP in aggregate across the European Union by mid-2021).¹⁰ Even though uptake from firms was low in most EU countries, the availability of guarantees may well have helped cushion the impact of the pandemic by stabilising business confidence (see also Chapter 3, Box C).

EU fiscal policy response

The European Union introduced several fiscal policy programmes to combat the pandemic and target longer-term growth. Financial support was made available to fund pandemic-related expenditure for healthcare (via the European Stability Mechanism's Pandemic Crisis Support (PCS) programme) and furlough programmes (the European Commission's SURE scheme), and to support finance for small and

3 Authors' calculations based on International Monetary Fund (2021).

4 See Organisation for Economic Co-operation and Development (2021a) for details. In the European Union, subsidies paid for around one-half to two-thirds of wage costs for hours not worked in furlough schemes in May-June 2020, with the remainder shared to varying degrees between workers and firms.

5 <https://www.arbeitsagentur.de/presse/2021-07-haushalt-der-ba-rekordausgaben-im-jahr-2020>.

6 L'activité partielle a coûté 27 milliards d'euros en 2020, selon le ministère du Travail (lefigaro.fr)

7 Payments for the cassa integrazione COVID, Mar-Nov 2020, II-Mercato-del-lavoro-2020-1.pdf (istat.it), Table 6.1

8 IMF (2021), authors' calculations.

9 European Banking Authority (2021).

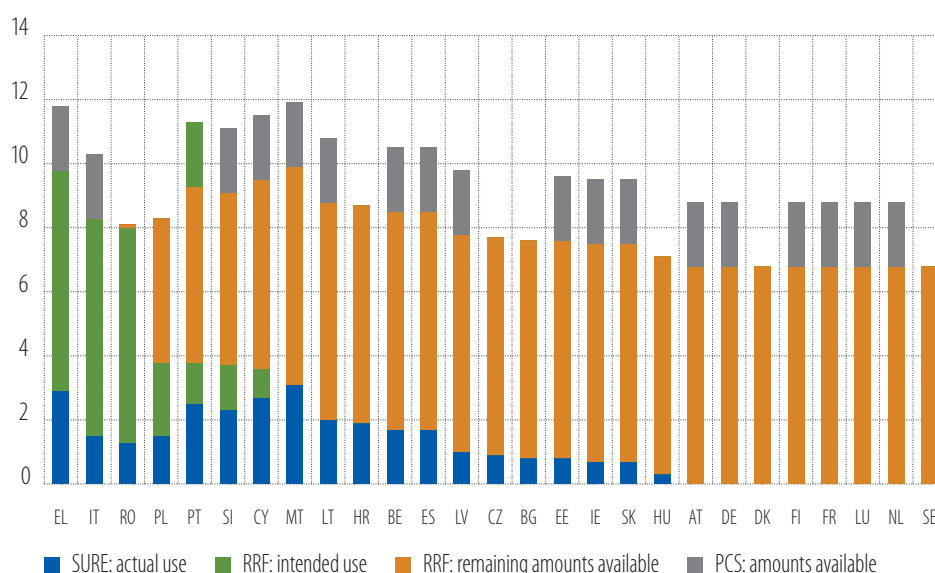
10 European Commission (2021a). Uptake was lower in Germany and higher in France, Italy, and Poland.

medium enterprises (the European Investment Bank's European Guarantee Fund). Promoting digital and green investments for longer-term growth was the focus of the European Commission's Recovery and Resilience Facility (RRF) and of the top-up for structural investment funds provided by Recovery Assistance for Cohesion and the Territories of Europe (REACT EU).

The European Union introduced loan facilities totalling 8-10% of GDP and, for some EU members, grants far in excess of that amount. SURE, the Recovery and Resilience Facility and the Pandemic Crisis Programme made loans available to each Member State that, combined, totalled about 8-10% of the member's GDP (Figure 5). Relative to GDP, Greece, Italy and Romania have made or intend to make the greatest use of these loans. With respect to grants, the Recovery and Resilience Facility adds to the substantial amounts available from the cohesion funds. For some countries in Eastern Europe, these grants add up to over 20% of their 2019 GDP (Figure 6).

Figure 5

Used and available loans for key EU programmes (% of 2019 GDP)



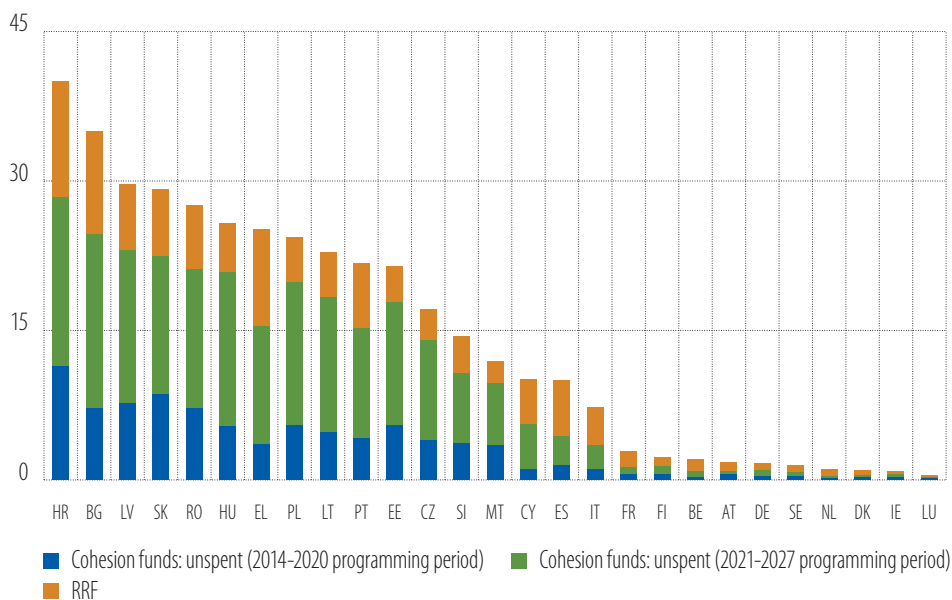
Source: European Commission, authors' calculations.

Note: The figure omits unused parts of SURE (about EUR 60 billion) because these are not pre-allocated to individual countries.

The take-up of loans differed across EU members and appeared to depend on how advantageous the financing terms were and how restrictive the loan conditions. For example, the Pandemic Crisis Support programme offered euro area members a pre-approved credit line of up to 2% of GDP in April 2020. As a credit line, one of its purposes was to alleviate any concerns about the rollover of Member States' debt. However, with the bond markets still calm and concerns lingering about the possible stigma attached to using this credit line, which was offered at a slightly higher cost than the European Stability Mechanism's own funding costs, no Member State had made use of it at the time of writing. In contrast, many members have taken out loans under the Commission's SURE programme, totalling over 40% of the overall budget of EUR 100 billion. Here, the Commission passed on its own funding costs to Member States in back-to-back lending operations. Member States that took out these loans saved close to EUR 6 billion in funding costs. Had they accessed financial markets directly, their funding costs would have exceeded those of the Commission.¹¹

¹¹ European Commission (2021b).

Figure 6
Available grants for key EU programmes (% of 2019 GDP)



Source: European Commission, authors' calculations.

Note: Unspent cohesion funds as of 10 October 2021. Funds from the 2014-2020 programming period need to be spent by end-2023.

Designed to create long-term sustainable growth, the Recovery and Resilience Facility sets comparatively tight conditions on the use of funds. The investments funded under the facility are subject to a large set of conditions, including the requirement that they contribute to digital and green objectives (see below). In addition, their payment is conditional on achieving milestones that Member States need to specify when applying for the loan. While all Member States intend to make use of the grants available under the facility, the take-up of loans is lower than for the SURE scheme, even though the European Commission will once again pass on its own funding costs.

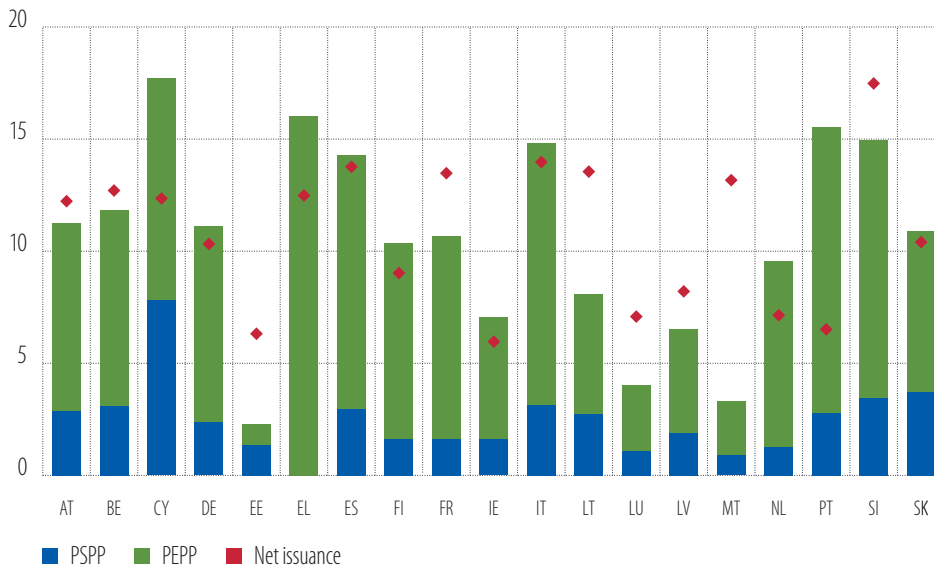
Monetary policy

In response to the pandemic, EU central banks and supervisors eased monetary policy and banking prudential requirements. The cornerstone of the ECB's response was the Pandemic Emergency Purchase Programme, which aimed to lower borrowing costs and increase lending in the euro area. This programme supplemented the asset purchase programmes in place since 2014, in particular the Public Sector Purchase Programme. Under both programmes, the ECB purchases of public sector securities from March 2020 to July 2021 were about equal to the net amount of government bonds issued (Figure 7). The announcement of the ECB programme substantially lowered the financing costs of more indebted EU members, and had an even greater effect than the announcement of the Recovery and Resilience Facility (Figure 8).¹² Throughout the pandemic, the ECB purchases helped ensure that sovereign funding costs barely moved despite growing public deficits. The ECB also eased the funding conditions for banks that increased certain categories of lending, in particular loans to small and medium enterprises, and broadened the eligibility conditions for its Corporate Sector Purchase Programme.¹³ Finally, European and national regulators softened certain rules to encourage banks to lend to firms.

¹² For the announcement effects on sovereign bond yields of various EU policy initiatives, including the Recovery and Resilience Facility and the Pandemic Emergency Purchase Programme, see also Corradin et al (2021).

¹³ For the effectiveness of the Corporate Sector Purchase Programme, see De Santis and Yaghini (2021), for example.

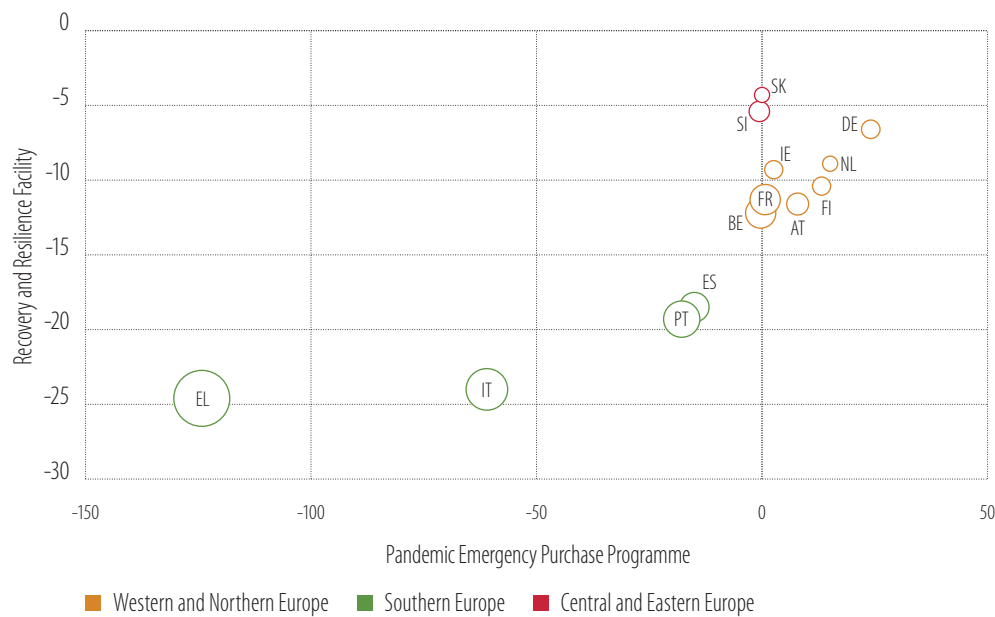
Figure 7
ECB purchases of public sector securities vs. net issuance of government bonds
(% of 2019 GDP)



Source: ECB, authors' calculations.

Note: The bars in the graph show the ECB's cumulative purchases of each country's public sector securities, and that country's net issuance of euro-denominated government bonds, from March 2020 to July 2021. PSPP stands for the public sector purchase programme, while PEPP refers to the Pandemic Emergency Purchase Programme.

Figure 8
Effects of the announcement of the Pandemic Emergency Purchase Programme and the Recovery and Resilience Facility on government bonds (in basis points)



Source: Bloomberg, AMECO (the European Commission's macroeconomic database), authors' calculations.

Note: Response of government bond yields in two-day windows starting with the announcement date (Pandemic Emergency Purchase Programme: 18 March 2020; RRF: 23 April 2020). Radius of circles are proportional to 2019 debt to GDP. Colours indicate EU regions (Western and Northern in orange, Eastern in red and Southern Europe in green).

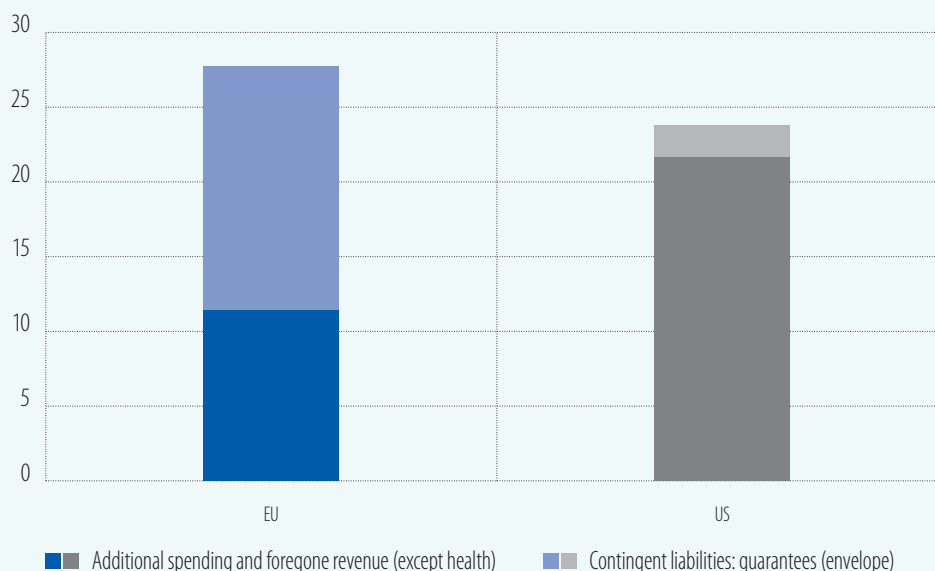
Box A

Fiscal policy design in the United States and the European Union: repercussions on savings, the labour market and the recovery

Fiscal support in the European Union and the United States was on about the same scale, but relied on different tools. While additional government spending and foregone revenue were about twice as high in the United States as in the European Union until mid-2021, EU members relied to a much greater extent on loan guarantees to support firms (Figure A.1; for guarantees, the available amount is shown, not their eventual uptake). Guarantees helped provide funding for firms without having an immediate impact on public finances — an advantage for the more indebted EU members.

Figure A.1

Fiscal measures in response to the pandemic (% of 2019 GDP)



Source: *International Monetary Fund (2021), authors' calculations.*

Note: *Includes measures taken until June 2021.*

Fiscal support stimulated demand in both the United States and the European Union, but the European Union focused on protecting existing jobs and firms. With a much less flexible labour market, EU members rolled out job retention schemes while helping firms avoid liquidity problems by offering credit guarantee programmes and increasing the flexibility of bankruptcy regimes.¹⁴ In contrast, the United States relied to a much greater degree on direct transfers to support households and firms while they were adjusting to the pandemic shock.

Transfers to US households overcompensated income losses during the first months of the pandemic, creating even larger excess savings than in the European Union.¹⁵ The closest equivalent of a furlough scheme, the USD 800 billion Paycheck Protection Programme, provided loans that could be forgiven if employment levels were maintained. The programme has forgiven an estimated USD 560 billion in loans. However, in contrast to the furlough schemes in the European Union, firms were under no obligation to keep the same employees.¹⁶

¹⁴ See European Banking Authority (2021) for a succinct overview.

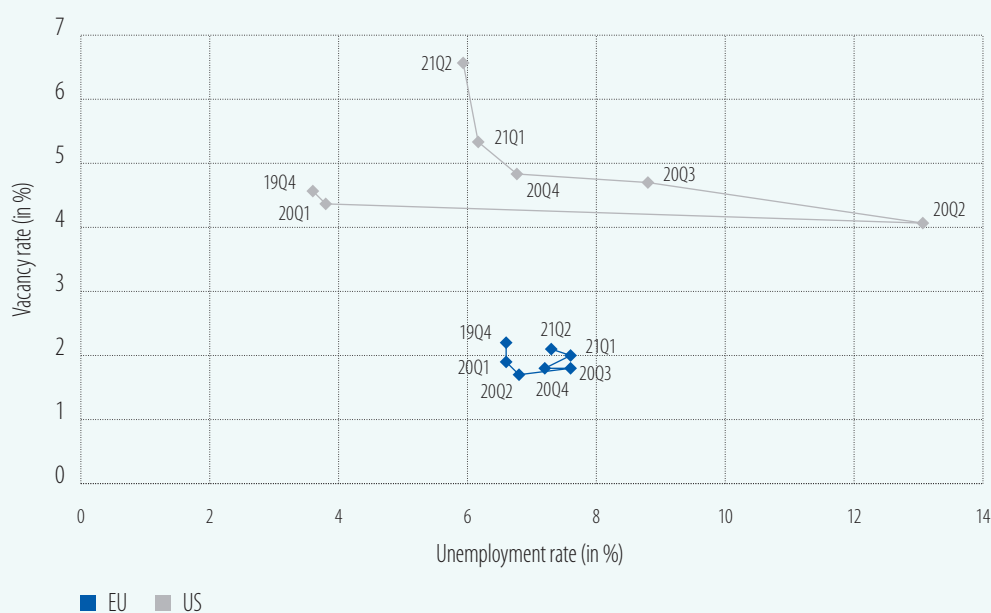
¹⁵ Congressional Budget Office (2021).

¹⁶ Data as of 3 October 2021. For forgiveness terms, see PPP loan forgiveness (sba.gov).

As a result, a similar decline in aggregate hours led to greater job losses (and later to greater employment gains) in the United States. Aggregate hours worked declined about 15% in the second quarter of 2020 compared with a year earlier in the United States and the European Union. Unemployment, however, increased much more in the United States (Figure A.2), while EU firms were able to retain unoccupied employees because of furlough schemes. This finding is in line with earlier evidence on the effectiveness of job retention schemes, as discussed in Chapter 3, Box C.

Figure A.2

Labour market frictions in the European Union and the United States



Source: Bureau of Labor Statistics, Eurostat, authors' calculations.

Note: Private sector vacancies for the United States, non-farm business vacancies for the European Union.

Firms in the United States also invested more in digitalisation during the pandemic. Controlling for firm characteristics, a US firm is 10% more likely to have invested in digitalisation during the pandemic than its EU peers. US firms' investment in digital technologies also responded more to changes in their sales, perhaps because cash flow at US firms was less cushioned by policy support than at their EU peers.¹⁷

Looking ahead, the pandemic could have a lasting impact by adding to structural shifts in the labour market and by ushering in early the changes required by the digital transition. More adjustments may therefore lie in store for households and firms in the European Union. During the crisis, the European Union's fiscal support may have taken off some of the pressure for firms to adjust, by increasing digitalisation, or for individuals to find new jobs or improve their own skills. As long as the main impact of the pandemic was to cause a large but temporary decline in demand, the approach in the European Union avoided the large costs associated with economic adjustment. But if the pandemic provokes longer-lasting structural shifts, EU firms and households may have to catch up to their US peers.

¹⁷ Source: EIBIS, Question 70: "As a response to the COVID-19 pandemic, have you taken any actions or made investments to become more digital (e.g. moving to online service provision)?" Changes in sales are instrumented by firm characteristics and the stringency of containment measures up to the date of the interview.

Impact on the EU economy

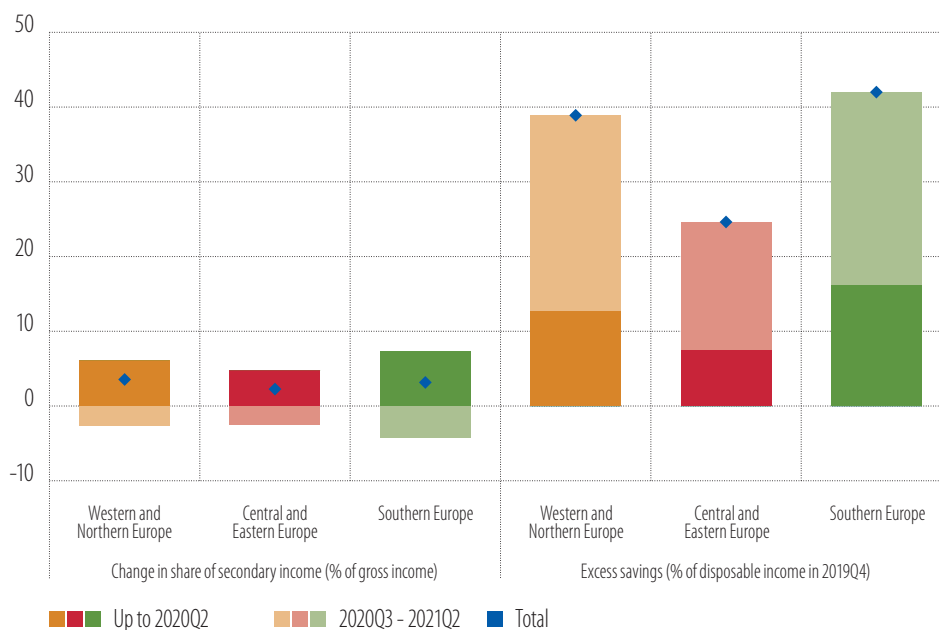
Aggregate developments

Fiscal and monetary policy measures softened the economic shock and laid the foundation for a strong, yet rocky, recovery. GDP declined sharply in the second quarter of 2020 — to 86% of its level before the crisis (the fourth quarter of 2019). By the third quarter of 2020, GDP in the European Union had recovered to 96% of its pre-crisis level, and it had reached 99.4% by the third quarter of 2021. As economic growth rebounded globally, price pressures emerged, signalling that the period of ultra-low interest rates could be coming to an end.

Governments largely absorbed the shock to income. Fiscal transfers led to an increase in EU gross government debt, to around 15% of GDP in 2019. Households' gross disposable income, meanwhile, had only fallen by 2.5% from the first to second quarters of 2020, as secondary income (from sources such as social security benefits) offset most of the loss in primary income (Figure 9, left panel). By the third quarter of 2020, households' gross disposable income had already recovered to its level before the crisis.

Figure 9

Outside sources stabilised household disposable income, swelling savings



Source: Eurostat, authors' calculations.

Notes: Secondary income is not seasonally adjusted, and therefore shows the annual change in income. Excess savings are seasonally adjusted; they show changes relative to the fourth quarter of 2019. Region-wide simple averages were used for Austria, Belgium, Germany, Denmark, Finland, France, Ireland, the Netherlands, Sweden (Western and Northern Europe), Hungary, Poland, and Slovenia (Central and Eastern Europe), and Greece, Spain, Italy, and Portugal (Southern Europe). Figures for excess savings also include the Czech Republic.

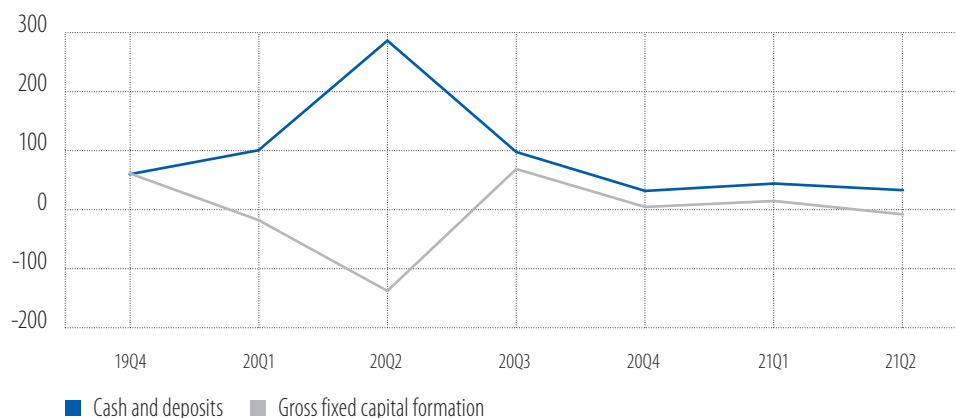
With income stabilised and opportunities for spending reduced, households built up substantial savings in highly liquid assets. While household income weathered the crisis well, consumer spending fell more than 15% in the second quarter of 2020, compared with its level before the crisis. Consumer spending picked up relatively quickly thereafter as the economy reopened, but it remained about 5% lower than before the crisis. As a result, households accumulated substantial savings (Figure 9, right panel). Households invested these savings mostly in highly liquid assets, particularly cash and bank deposits.

By the second quarter of 2021, euro area households had invested over EUR 1 trillion more in cash and deposits than before the crisis, just below the EUR 1.3 trillion channelled into the economy by the ECB during its purchases of public sector bonds. The accumulation of savings slowed as economies emerged from yet another lockdown in mid-2021, but the gross saving rate remained at around 18% of gross disposable income in the European Union — far above its pre-pandemic norm of 11-13%.

Firms cut investment and issued more debt during the first phase of the pandemic to prop up their cash buffers before turning to equity issuance as economic prospects improved. Corporate borrowing costs remained at record lows of 1.5% to 2%, even during the second quarter of 2020. Firms issued new debt and cut investment, leaving them with more cash than before the pandemic (Figure 10). Driven by low interest rates, the stock market boomed once economic prospects improved. Firms took advantage of this environment to issue more equity over the following months than in 2019 (Figure 11).

Figure 10

Euro area corporate gross fixed investment and holdings of cash and deposits
(change vs. previous quarter in EUR billions)

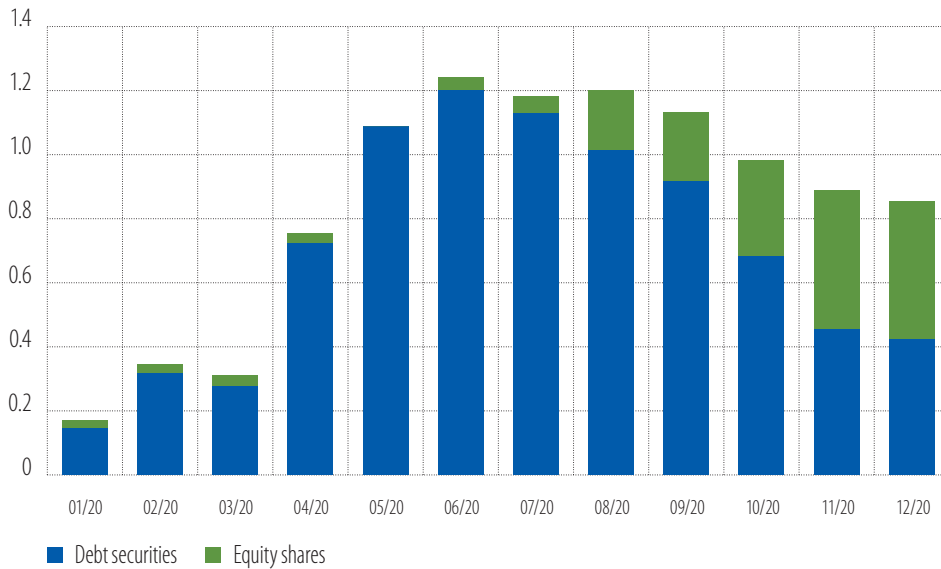


Source: Eurostat, authors' calculations. Gross fixed investment is seasonally adjusted.

As economic growth rebounded globally, price pressures emerged in most developed economies and key emerging markets, which could put an end to ultra-low financing costs. Raw material prices increased globally, feeding through to producer and consumer prices. Demand increased rapidly and its composition changed, overwhelming supply chains (see next section). Higher prices for energy and services pushed annual consumer price inflation in the United States and the European Union to its highest point in a decade — 5.4% in the United States in September and 4.1% in the European Union in October (Figure 12). This pressure on prices is expected to be temporary. How long these pressures will last and whether repeated price shocks, even if they prove short-lived, will push up inflation over time has become the subject of widespread debate.¹⁸ While the ECB retains its highly accommodative monetary policy, the central banks of some EU members (such as in the Czech Republic, Poland and Romania) have begun to tighten policy, ending years of ultra-low interest rates. Sovereign bond yields, still relatively low because of the ongoing increase in central banks' purchases, have started to pick up in the United States in 2021, and marginally so in the euro area.

¹⁸ Czech National Bank (2021), ECB (2021).

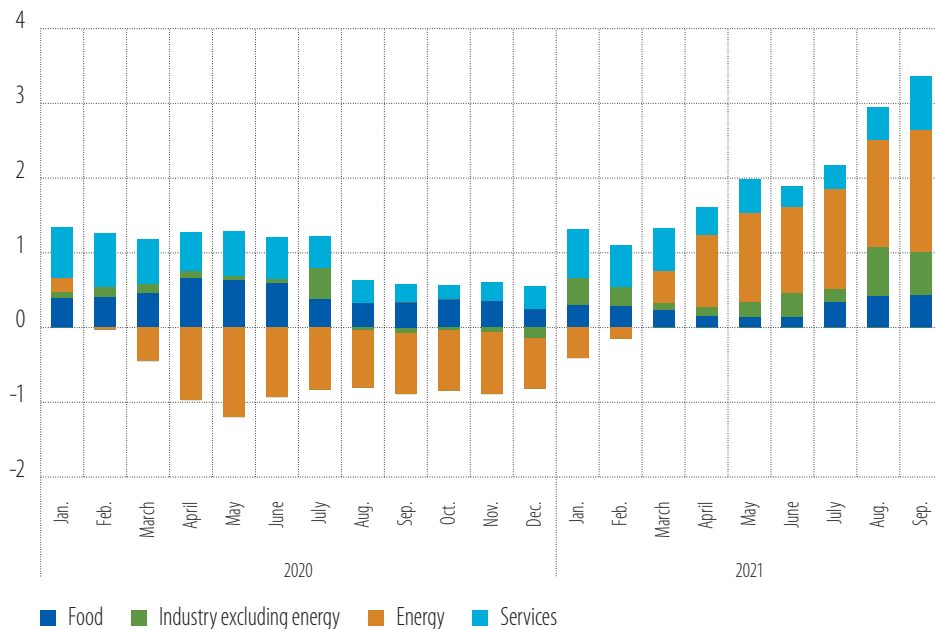
Figure 11
Changes in the issuance of corporate debt securities and equity (% of 2019 GDP)



Source: ECB, authors' calculations.

Note: The height of each bar corresponds to the year-on-year change in the net issuance of corporate debt and equity securities, with these net changes cumulated from January 2020 onwards.

Figure 12
Components of consumer price inflation in the euro area (annual change in %)



Source: Eurostat.

Differences among countries

Policy support prevented the pandemic from creating major economic gaps within the European Union, but the recovery is still asymmetrical. Aggregate figures for the European Union as a whole mask differences among members. In 2020, most members of the European Union experienced their largest decline in output since World War II. The European Union's GDP contracted by 6% with individual Member States suffering to varying extents, from -10.8% for Spain to -0.8% for Lithuania and -1.8% for Luxembourg. 2021 is the year of recovery. In the third quarter of 2021, EU GDP had reached 99.9% of its level in the fourth quarter of 2019. Some heterogeneity persists across Member States, possibly due to the different sectors and types of firms dominating the economy. For example, Spain's GDP is still at 93.4% of its pre-crisis level; Malta is at 97.1%; and France is close to 100%. The Baltics, along with 14 other EU countries, are already above 100%. By comparison, only 11 countries were above 100% in the second quarter of 2021.

Figure 13
Comparing EU members' decline and recovery



Source: Eurostat, authors' calculations.

The countries hit the hardest are taking more time to fully recover. The COVID-19 crisis was a global but asymmetrical shock and prompt policy intervention helped to cushion and curtail its effects. However, the correlation between the difference in GDP in the second quarter of 2021 and the fourth quarter of 2019, and the drop in GDP from the fourth quarter of 2019 to the second quarter of 2020, is extremely high (82%). In other words, the countries that suffered the most still have not fully rebounded, and they are the furthest from their pre-crisis GDP levels¹⁹. An active approach to economic policy is still needed to address the asymmetry generated by the crisis. Recently, economic performance has also been diverging for other reasons, such as different vaccination rates in the European Union.

Thanks to policy support, the differences are less pronounced in employment than in output. In August 2021, the number of unemployed people in the European Union declined by about 2 million from its peak 12 months earlier. The unemployment rate stood at 6.8% vs. 7.7% in August 2020 and 6.6% before the crisis. For persons employed, the decline from the pre-crisis level is just 1%, but in terms of hours worked, the slack is larger. This phenomenon is largely due to the furlough schemes that prevented layoffs and

¹⁹ As shown in Figure 2 above, these countries are also among those with larger public debts.

helped avoid knowledge losses in firms. Asymmetry in the EU labour market is less pronounced than it is in GDP. If the employment level in the fourth quarter of 2019 is 100, the European Union as a whole now stands at 99, while Spain is at 95.9 and, at the other extreme, Luxembourg is at 103.3.

COVID-19 is expected to have a more persistent impact on trade, possibly generating heterogeneity among EU countries. A number of changes are happening simultaneously. The COVID-19 crisis was a global shock, but it did not affect all areas at the same time. Supply sources were reshuffled as a result, and firms were often forced to change their products and services. The emergence of supply bottlenecks suggests that firms might be reconsidering the structure of their supply chains. A specific European shock also played a role in 2021. Since January, the transition period after Brexit for UK trade with the European Union came to an end. In the first eight months of 2021, imports from the United Kingdom declined 16.7% compared with the same period in 2020, and 30.9% compared with 2019. The European Union imported EUR 17.8 billion less from the United Kingdom than in 2020, and EUR 39.7 billion less than in 2019.

Exports and imports rebounded compared to 2020, with the trade balance worsening in late summer. This overall trend masks significant differences within the European Union. In the first eight months of 2021, the EU trade balance showed a surplus of EUR 93.4 billion vs. EUR 110.6 billion in the corresponding period of 2020. Exports to outside the European Union rose by 13.8% compared with the same period of 2020 and declined 0.2% vs. 2019. Imports from outside the European Union increased by 16.7%, and by 1.1% vs. 2019. Within Europe, diverging trends are emerging for exports of goods and services as reported in national accounts statistics and in monthly nominal goods exported²⁰. The standard deviation of export growth rates among EU countries has increased massively and has remained high during the recovery

Box B

Using trade data to measure the recovery's impact in EU countries

Heterogeneity among EU countries can be assessed by looking at trade in goods from three angles: changes in the trade balance, the growth in the pace of exports and changes in the country's share of world exports.²¹ The first indicator measures how the trade balance for each country evolved in the first nine months of 2021 compared with the same period of 2020.²² The second charts the growth of exports over the first nine months of 2021 compared with 2019 (the 2020 data cannot be used as the comparison because they were skewed by the lockdown).²³ The third measures the share of total world exports represented by each EU member. The export share is calculated using the International Monetary Fund's (IMF) Direction of Trade Statistics database (which includes all of the bilateral trade flows of goods in the world). The calculation uses monthly data and compares the average share of world exports for each EU country²⁴ in the first six months of 2021 with the average for the same period in 2019.

20 In this case, the reference is to each country's exports, including exports to other EU countries. Both the standard deviation of quarter-on-quarter growth in the national accounts' quarterly data on real exports and year-on-year growth in nominal exports from trade balance statistics at a monthly frequency show an increase in volatility.

21 The focus is on trade in goods and does not include services because of data availability and because trade in services is still severely influenced by the COVID-19 crisis.

22 For each country, a worsening in the trade balance is signalled in Figure B.1 if, irrespective of the surplus or deficit position, the negative change is greater than 1% of GDP.

23 For each country, a worsening in export dynamics is signalled in Figure B.1 when export growth vs. the same period in 2019 is lower than the pace of growth calculated by adding up all EU countries' exports (including within the European Union), which works out at 5%.

24 Again, the calculation of EU countries' share of world trade includes exports within the European Union. Here, the EU share is calculated by adding up the shares of the individual Member States to define a reference value, or average. Compared with the first half of 2019, the European Union's share declined from 31.8% to 31.2% in the first half of 2021, corresponding to a percentage decline of -1.9%. Using this decrease as a benchmark, ten countries are showing a greater decline in their share and 17 are displaying a lesser decline or an increasing share. The actual EU share (excluding trade within the European Union) is stable at around 12.8% from 2016 to 2019.

Figure B.1
International trade performance according to different indicators

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE	IT	LV	LT	LU	MT	NT	PL	PT	RO	SK	SL	ES	SE
Change in trade balance	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Export growth vs. 2019	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
World export share change	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Source: Eurostat, authors' calculations. A red dot indicates a worsening in the corresponding indicator, while a black dot indicates no change or an improvement.

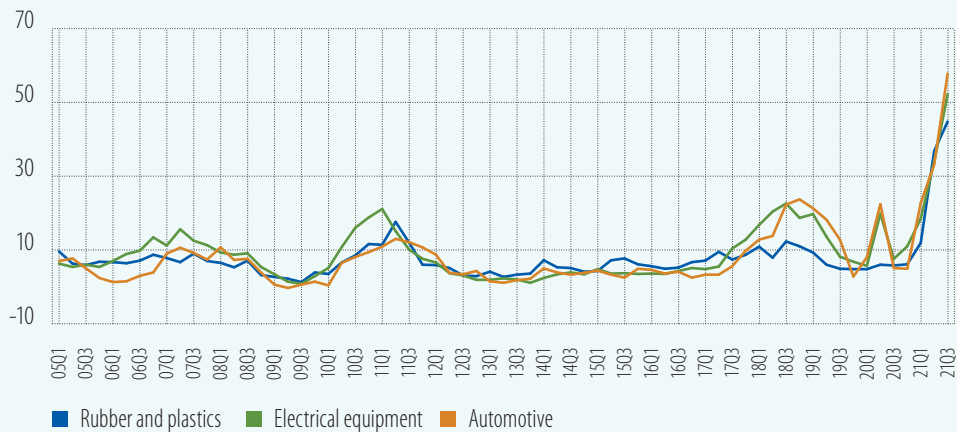
Using these three indicators to analyse trade (Figure B.1) highlights diverging trends among EU countries, with Member States clustering into groups where clear winners and losers emerge. A first group of countries performs well in all three indicators, signalling the countries' capacity to seize the opportunity offered by the recovery. The group includes Belgium, the Netherlands, Sweden, Italy, Poland, the Czech Republic and Slovakia. These countries include members of the euro currency union and non-members, have a strong manufacturing base and their exporters were able to respond to the shock caused by the pandemic. A number of countries, mainly in Central and Eastern Europe, are also improving on the export side, for goods exports and export market share. This group includes Bulgaria, Croatia, Hungary, the three Baltic countries, Slovenia and Greece. However, this second group is also integrated into global value chains and therefore depends heavily on imports, resulting in an overall deterioration in their trade.

At the opposite end of the spectrum, Cyprus, Malta, Luxembourg and Romania showed a deterioration in all three of the indicators. The first three countries are small, open economies, which suffered from the general disruption to trade. Other countries also showed declines in at least two of the indicators. Austria and Denmark were weak on exports and the trade balance. Germany, France, Finland and Portugal followed a negative trend with declines in their total goods exported and their share of world exports. The trends were also influenced by difficulties in specific sectors (for example aeronautics in France).

Most of the trade differences among EU members are likely crisis-related and will not persist over the long term. However, the pandemic and the digital and green transition are also triggering or accelerating structural shifts in demand for some sectors, along with adjustments in global value chains. The trade performance of EU members over the past couple of years probably does not reflect changes in competitiveness. It is more likely that the COVID-19 crisis caused trade bottlenecks that hit countries differently. If these bottlenecks and disruptions are temporary, their negative effects will disappear in a few months. That said, structural changes in supply and demand are also afoot, ushered in by the digital and green transition and economic shifts triggered by the pandemic. For example, the pandemic spurred an increase in demand for medical devices and pharmaceuticals, along with IT products. While cross-border trade in medical devices and pharmaceuticals might well recede when the health situation returns to normal, trade in IT products will likely rise permanently. The structure of supply is also under pressure, given the current difficulties in obtaining raw materials and intermediate goods (Figure B.2). The delivery times and prices of many products have been affected, and firms are increasingly focused on securing the supplies they need.

Total EU exports of goods to the rest of the world point to shifts in demand. Comparing the composition of EU exports shows a fairly large decline in the trade of machinery and machine tools (for countries outside the European Union) and vehicles. In contrast, prepared food, chemicals and precious metals have increased their share of total exports. While the automotive sector has been hit by specific issues, such as a shortage in semiconductor chips, the shifts in demand witnessed by other sectors might be structural. The European Union does not appear to be increasing its share of global exports of electronics or IT products.

Figure B.2
Shortage of materials and/or equipment as an obstacle to production (% of firms)



Source: European Commission, Business Survey: Industrial Confidence.

Note: Shown is the share of firms reporting that shortages limit their production.

Question: What main factors are currently limiting your production? Shortages of material and/or equipment?

The potentially changing structure of the global value chains was a subject of debate even before the crisis. The twin pressures of greater digitalisation and the need to become less dependent on imports of strategic supplies had already pushed some firms to bring manufacturing back home and to diversify their supply chains. Concerns about dependency on certain countries resurfaced at the beginning of the pandemic, when medical supplies were hard to secure. Similar supply issues then arose with semiconductors, chips, and electronic products in general, which suffered from supply bottlenecks.

Trade data provide an initial confirmation that global value chains are diversifying, while evidence of shortening of supply chains and of moving manufacturing back home is less clear. To make its supply chain more resilient, a firm can choose to diversify the portfolio of its suppliers or look for suppliers closer to home. Trade data provide some evidence of a move to find suppliers closer to home. The Herfindal index, which is calculated based on the geographical sources of EU imports, shows that the concentration of the sources is declining, both generally and in certain sectors (specifically, the automotive, electronics, machinery and rubber and plastics sectors, which have been the most affected by recent supply shortages).

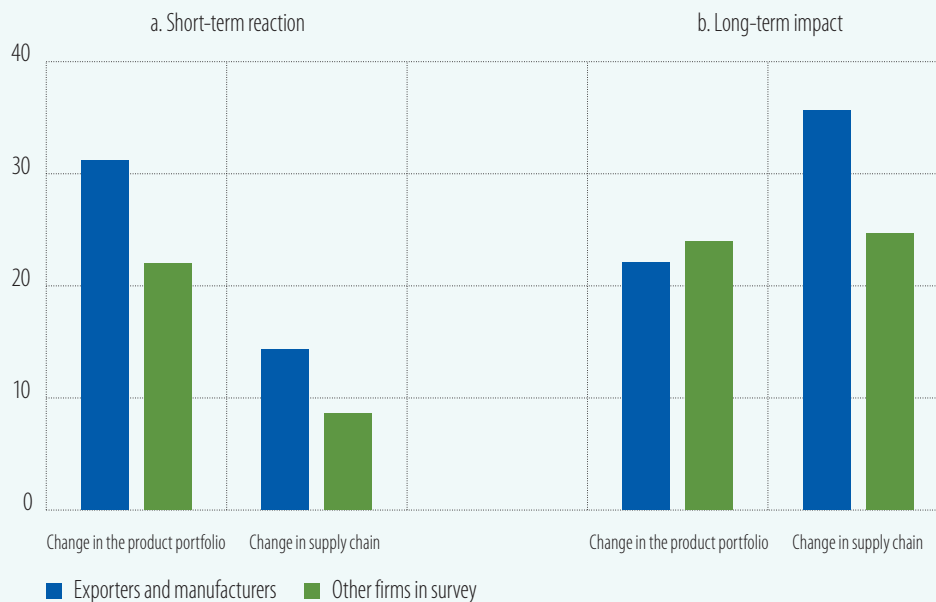
The evidence for refocusing production at home is more limited. If the phases of production were brought back inside a firm after having been outsourced, the aggregate impact would be a reduction in imported intermediate goods. The aggregate data show no signs of such a reduction in the European Union. In fact, the share of total imports represented by imports of intermediate goods from non-EU trading partners has climbed back to early 2018 levels. No clear evidence exists either for the shortening of value chains. The average distance travelled by EU exports and imports is calculated based on the distance in kilometres²⁵ between the capital cities of the countries involved in each bilateral flow, weighted by their share of total exports or imports. Exports from Central and Eastern European countries tend to travel fewer kilometres than those from Western and Northern Europe or Southern Europe. The same applies to imports. However, comparing the first six months of 2021 with the same period for 2019 shows that while the distance traveled by imports increased substantially for Central and Eastern European countries, it stayed constant for both Southern Europe and Western and Northern Europe.

²⁵ Notes on CEPII's distances measures: The GeoDist database (2011).

Evidence from the EIB Investment Survey confirms that firms perceive the COVID-19 crisis to be a catalyst for change in the structure of supply and demand, particularly for exporters of manufactured goods. As Figure B.3 shows, exporters in the manufacturing sector were more active in adjusting their supply chains and their product portfolios in response to the crisis. Moreover, around one-third of firms interviewed said they see long-term changes in their supply chains for manufactured goods destined for export. A mild but significant positive correlation is also emerging between a country's increased share of world exports and the share of firms that expect demand to structurally change. In other words, export performance is better in countries in which firms feel a greater need to update their offering. In the same vein, a mild negative correlation is emerging between a country's share of firms that expect changes in the organisation of their supply chain with the change in the concentration of import sources shown by the Herfindal index.

Figure B.3

Firms (in %) and the impact of COVID-19 on supply chains and product portfolios



Source: EIB Investment Survey (EIBIS) 2021.

Question: Chart A (left): And as a response to the Covid-19 pandemic, have you taken any actions or made investments to...?

Develop new products, services or processes

Shorten your supply chain

Chart B (right): Do you expect the Covid-19 outbreak to have a long term impact on any of the following?

Your service or product portfolio

Your supply chain (e.g. different organisations involved in producing and distributing your products and/or services)

Fiscal policy in the recovery phase

The need to place EU economies on a more resilient and sustainable path put the coordination of fiscal policies to the test — and the outcome has been successful. A large part of Member States' recovery programmes focuses on investments in health, digitalisation and climate change mitigation. A substantial part of the programmes is not funded by EU members or their normal contributions to the EU budget but through bonds backed by the EU budget, and therefore all EU members. This demonstrates the willingness of EU members to show additional fiscal solidarity during crises as long as controls are in place to help ensure that the funds are put to productive use. Recovery efforts have also laden governments with more debt, and for some, returning to a sustainable path will not be easy.

This section discusses how ensuring sustainable growth and coordinating policies might shape EU fiscal policy in the coming years. Both elements are present in the Recovery and Resilience Facility, the European Union's flagship recovery programme.

The impact of the Recovery and Resilience Facility on economic growth

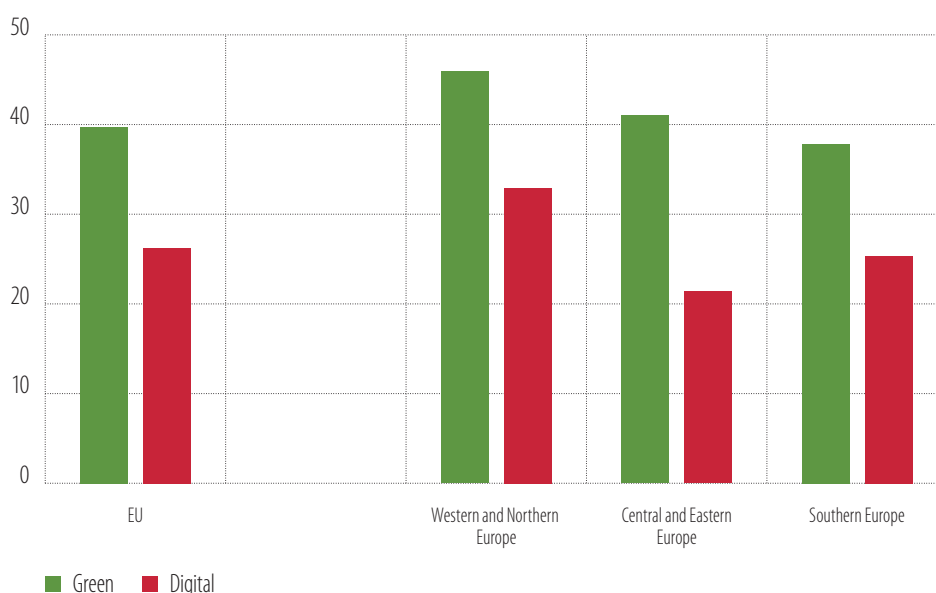
The Recovery and Resilience Facility stands out among the European Union's pandemic support programmes, not only for its size but also for the level of detail with which the European Commission is involved in coordinating, approving and monitoring countries' investments. The facility is the centrepiece of **NextGenerationEU**, the European Union's temporary recovery support plan. Member States intend to use about EUR 500 billion in loans and grants offered by the Recovery and Resilience Facility, equal to about 40% of the European Union's 2021-2027 multiannual budget.²⁶ To receive funds from the Recovery and Resilience Facility, EU members must prepare detailed investment plans. For example, the Italian government outlined over 130 individual projects in its Recovery and Resilience Plan. These projects included not only investments but also structural reforms, particularly in the areas of public administration, justice and competition. The European Commission had previously recommended many of these reforms, and its approval will be required. Achieving the milestones set within the plans will be a condition for continuing to receive RRF payments.

The economic emergency prompted the European Union to fund, for the first time, a large part of its budget via the issuance of common debt. Most of the EU budget had previously been financed using contributions from Member States (70%) and revenues from excises and value added taxes. This system of funding continued to be used for the European Union's new long-term budget (also known as the 2021-2027 Multiannual Financial Framework), which contains, for example, the grants made available through cohesion funds. Grants made available through the Recovery and Resilience Facility, by contrast, are funded through the issuance of bonds by the European Commission. Because this debt is guaranteed by EU members, the Commission's funding costs will be closely aligned with the highest-rated EU members. The Commission intends to use new sources of revenue to repay the bonds issued to fund the grants.

The Recovery and Resilience Facility focuses on investments that reduce the risk of climate change and support digitalisation. Member States must allocate at least 37% of their investments to green and 20% to digital investments. Many countries are exceeding those targets significantly (Figure 14). Notable public investment areas, many of which include green and digital components, include transport (such as railway tracks and electric vehicles for public transport), human capital formation (for instance, digitalisation of schools), and water and waste management.

²⁶ The final amount of the Recovery and Resilience Facility will depend on the extent to which Member States take out loans from the facility. The 2021-2027 multiannual budget amounts to EUR 1.2 trillion.

Figure 14
Green and digital investments (in %) funded by the Recovery and Resilience Facility



Source: European Commission, authors' calculations.

Note: Regional and EU averages are weighted by plan volumes.

Funds from the Recovery and Resilience Facility will stimulate investment in the public and private sectors. About a third of the facility's funds are expected to flow to the private sector through investment incentives. Funds will go to R&D, energy efficiency projects and investments in physical capital. The investment incentives also typically include requirements to involve private investors. The amount of investment generated by the facility might therefore exceed its financial contribution.²⁷

Southern Europe is set to receive the largest share of funds from the Recovery and Resilience Facility, relative to its GDP. Grants under the facility were allocated based on the size of population, pre-pandemic GDP per capita, pre-pandemic unemployment and the decline in GDP from 2020 to 2021.²⁸ Most of these grants are set to flow to Eastern and Central Europe and Southern Europe, and they represent a significant investment — 5.2% of 2019 GDP for Eastern and Central Europe and 4.9% of 2019 GDP for Southern Europe. In addition, Southern European countries have made greater use of the loans offered under the facility (4% of 2019 GDP vs. 1.9% of 2019 GDP for Eastern Europe).

The Recovery and Resilience Facility is expected to have the highest impact in Southern Europe. The facility will boost GDP during the implementation of the investments (2021-2026) by creating additional demand. Estimates for the size of these effects are outlined in Box C. In the following section, we focus on the impact on GDP once the investments are operational. By that time, GDP will rise because the capital stock will be larger and more productive. Over time, the effect generated by the large capital infusion will decline because capital depreciates. For example, newly built roads deteriorate over time without additional, yet unbudgeted, investments. Simulations suggest that the facility will push up Southern Europe's GDP the most, mainly because of the large investments planned. In Southern Europe, GDP is expected to rise about 5% by 2030 and about 2.7% by 2040 (Figure 15).²⁹ In Eastern Europe, the impact will be about half the size relative to GDP for both periods, and in Western and Northern Europe about 0.7% of GDP.

²⁷ The impact results reported in this section assume a co-financing requirement of 30%.

²⁸ See EU (2020), Annex 1, for details.

²⁹ Results obtained using the Rhomolo-EIB model; see Bending and Weiers (2021) for a description. Quest, another established macroeconomic model, yields qualitatively similar results (see the European Commission's analyses of national Recovery and Resolution Plans, for instance European Commission (2021c) for Italy).

The effects of extra investment will spill over to neighbouring regions. Such spillovers should account for about half of the facility's impact in Western and Northern Europe. Western and Northern Europe is a key exporter of investment goods. It is, therefore, expected to benefit substantially from the demand generated by the facility in other regions. About half of the facility's impact in Western and Northern Europe is expected to come from spillover effects (indicated by the light-coloured part of the bars in Figure 15). The importance of spillover effects is also high for Central and Eastern Europe but negligible for Southern Europe, primarily because the facility is expected to fund significantly more investments in the south than in its neighbouring regions.

Figure 15
Recovery and Resilience Facility's impact on GDP (in %)



Source: Authors' calculations using the Rhomolo-EIB model (see Bending and Weiers (2021) for a description) based on national Recovery and Resolution Plans as per end-September 2021.

Note: The bar shows the estimated impact the facility will have on regional GDP. The light-coloured parts of the bars show the estimated impact on GDP that originates from investments in other EU regions. Spillover effects are estimated by assuming that a region only contributes to the overall financing of the facility but does not invest itself. The model-generated impact on its own GDP is then only due to spillover effects from other regions' investments.

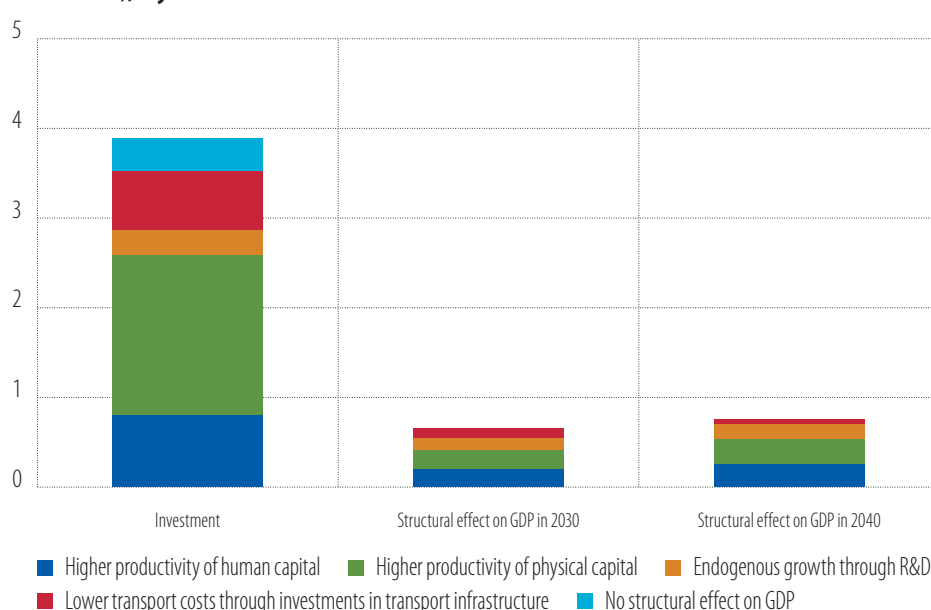
Investments in human capital and research and development are likely to have the highest return in the long run. While the effects of some types of investment gradually decline (transport costs tend to rise again as the quality of newly built motorways gradually deteriorates), the effects of other investments grow over time. Investment in human capital (educating and training people) lays the groundwork for the further acquisition of knowledge. Discoveries made through R&D investments often stimulate further advances. EU members intend to allocate about a quarter of their investment to human capital and to R&D. Over time, these investments are expected to account for about two-thirds of the facility's structural impact on GDP (Figure 16).³⁰

EU members need strong technical capacities to plan and execute investments if the Recovery and Resilience Facility is to meet its goals of improving the sustainability of the European economy. Countries should also ensure that investments catalyse change. The implementation of the European

³⁰ Strictly speaking, it is within the overall combination of investments set out in recovery and resilience plans that human capital and R&D have the highest long-run returns. This result could change if less money is invested in other areas. For more information on the split of the overall effect on GDP into a temporary investment effect (essentially the impact of increasing the amount of capital, net of financing) and longer-lasting structural effects (such as the impact of lower transportation costs through investments in transport, and greater knowledge through investment in R&D), see EIB (2018).

Fund for Structural Investment, the European Union's recovery plan following the sovereign debt crisis, offers some lessons. First, barriers to investment do not just stem from access to finance. The capacity to identify concrete projects and implement them is equally important. As the capacity to generate a pipeline of projects is likely to be a major constraint, dedicating enough resources to administrative functions is crucial. Second, public sector investment should be catalytic. EU members can amplify the impact of the Recovery and Resilience Facility by involving the private sector and national and supranational development banks in the funding of the projects. Many countries are planning to do just that for a substantial share of the funds provided under the facility.

Figure 16
Breakdown of the impact of Recovery and Resilience Facility investments
 (% of 2019 GDP), by effect



Source: Authors' calculations using the Rhomolo-EIB model (see Bending and Weiers (2021) for a description).
Note: The left column breaks down the aggregate size of facility-funded public investments without assuming any private sector participation. The two right columns show the impact of these investments on GDP that arises from greater quality of capital (the "structural" effect of the investments), assuming that the private sector co-finances one-third of investments in physical capital not related to transport. These benefits arise every year once the investments are completed; the graph illustrates their impact in 2030 and 2040. Not shown are the effects that originate from the greater quantity of capital, which depreciates over time.

Countries should also create a regulatory and policy environment that stimulates private investment. Investment plans should be accompanied by structural reforms. Public investments offset gaps that arise because market failures or barriers thwart private investment. Structural reforms can eliminate some investment barriers and raise economic growth substantially.

Box C

The potential impact of the Recovery and Resilience Facility using a panel vector autoregressive (VAR) model

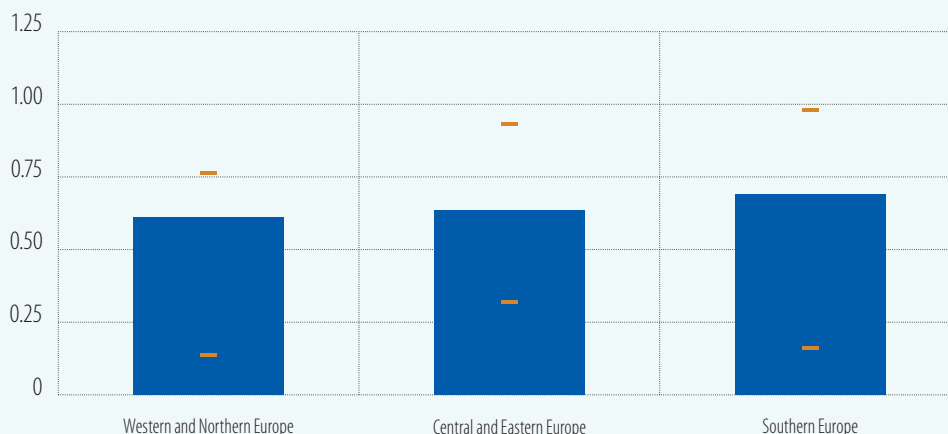
This box provides an analysis of the short-run impact of the Recovery and Resilience Facility on GDP and of the importance of coordinating national fiscal policies. It applies a Bayesian Panel vector autoregressive model to 2000-2019. This approach makes it possible to quantify the benefits of

coordinating the fiscal stance across EU members. It also helps assess the role of monetary policy in the facility's effect on GDP. In contrast to the structural approach in the main text, this autoregressive model does not differentiate between types of investment. It includes a handful of macroeconomic variables for each EU country: the long-term interest rate (as a proxy for the monetary policy stance), private and public gross fixed capital formation, and real GDP³¹.

In technical language, each EU country represents a unit in the panel and, as suggested in the literature (Canova et al., 2013), using a Bayesian setting is the only viable option³² for allowing for static and dynamic interactions³³ between units (countries) in the estimation process. Allowing for these interactions is a prerequisite for taking into consideration potential spillover effects. Using this autoregressive model provides evidence on multipliers and co-movements of variables. The impact of the Recovery and Resilience Facility is assessed using a conditional forecast.

The analysis shows that country-specific public investment multipliers³⁴ at the EU level range from 0.2 to around 1. Regional aggregation of the multipliers shows that regions with lower GDP per capita (Central and Eastern Europe and Southern Europe) benefit slightly more from public investment than the richer countries in Western and Northern Europe (Figure C.1). This finding is in line with the literature, which signals that the different effects of public spending depend not only on the stage of the business cycle, but also on different countries (Amendola et al., 2019).

Figure C.1
Fiscal multipliers across regions (in percentage points)



Source: Authors' calculations

Note: The fiscal multipliers are computed and standardised to represent the percentage change in GDP for each percentage change in public investment. Fiscal multipliers are aggregated based on country-specific estimates using nominal GDP weightings. The yellow lines represent minimum and maximum fiscal multipliers within regions. The panel VAR model includes 18 EU countries with the following variables: long-term interest rates, gross fixed capital formation, public capital formation and real GDP. The nominal series for total and public investment have been deflated using the GDP deflator. We use a Bayesian approach to account for the rather limited time sample, 2000-2019. The model allows for dynamic interactions between units (such as countries) to facilitate the assessment of spillover effects. We use quarterly annual growth rates and employ a four-lag specification. Estimates are conducted using the BEAR 5 Toolbox by Dieppe et al. (2021).

31 Total and public investment and GDP are quarterly and expressed in constant prices and in year-on-year growth rates. Four lags of the variables are included. The sources are Eurostat for these three variables and the ECB for long-term interest rates.

32 Allowing for these interactions involves estimating a large number of parameters.

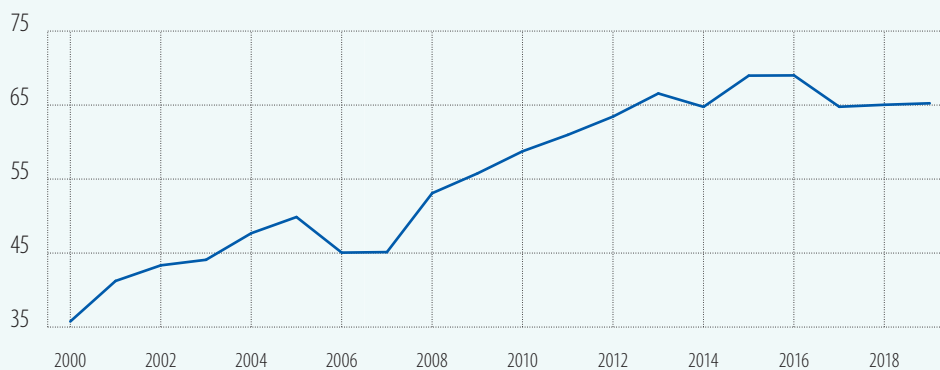
33 Static interdependencies are related to the potential non-zero correlations between contemporaneous error terms of equations for different units, for example common shocks can exist across units. Dynamic interdependencies are related to the fact that lags of investment in one unit can have effects (such as a non-zero coefficient) in the investment equation in another unit.

34 The fiscal multipliers are standardised so that they represent the increase in GDP for a 1% increase in public investment in the first four quarters following the shock. The sample over which they are estimated is 2000-2019.

Co-movements in EU investment policies have been stronger in recent years. As the estimation technique is based on reducing the number of parameters by using a common factor structure, it is worth considering public investment as common factor across EU countries. This factor shows the co-movements across countries over the years (Figure C.2) and tracks the aggregate variable for public investment in the European Union relatively well. The interesting point is that the variance explained by the common factor increases over time, from around 45% before the global financial crisis to 63% in 2019. The economic policies across the various EU countries therefore seem to be gaining in consistency.

Figure C.2

Variance in public investment in the European Union explained by the common factor



Source: Authors' calculations.

Note: The common factor is expressed in annual growth rates over the sample 2001-2019 according to the VAR model.

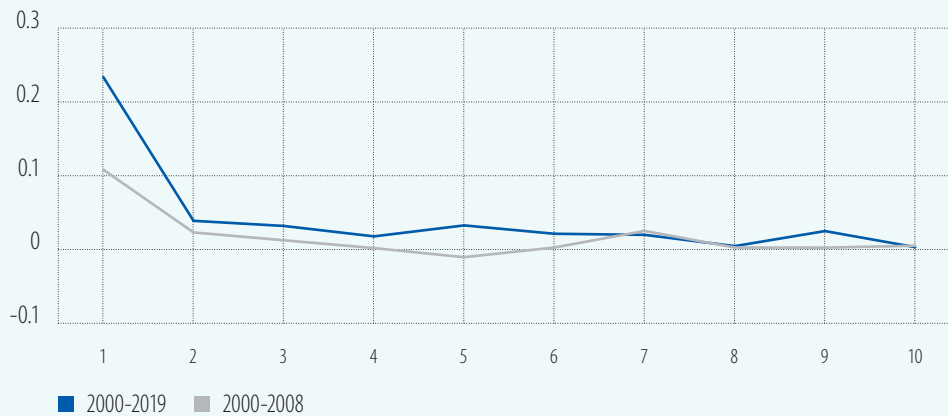
At the same time, the spillover effects across countries have also increased over time. The panel vector autoregressive model also gives a direct assessment of the effects at work among countries, through the impulse response functions. Figure C.3 (picking Slovenia and Germany as an example) shows that spillover effects have increased over the last decade compared to the period before the global financial crisis. While greater spillover effects can be expected in an environment of increasing trade and financial links, it seems plausible to consider that higher synchronisation is part of the EU convergence process.

According to the estimated model, the Recovery and Resilience Facility will increase regional GDP growth by 0.3 to 0.8 percentage points over the next few years (Figure C.4). GDP growth is projected (with a conditional forecast exercise) with and without investments under the facility using two assumptions for monetary policy: first, that long-term interest rates will remain constant, and second, that they will rise, in line with past patterns, as the facility is implemented. Unsurprisingly, the impact on GDP growth is somewhat larger when long-term interest rates remain constant. For the whole European Union, the impact would be 0.5 percentage points in 2022 vs. 0.38 percentage points if the conditional forecast is run without constraining long-term rates.

Spillover effects between countries add about 0.1 to 0.2 percentage points to the European Union's GDP growth, showing the benefits of coordinating fiscal stimulus among EU countries. Implementing the Recovery and Resilience Facility not only increases GDP locally but also in the other EU countries. The size of these spillover effects can be estimated approximately by comparing the results of the conditional forecast, which includes spillover effects, with what is yielded by a simpler, static exercise, which uses multipliers. The difference between these estimates is around 0.1 to 0.2 percentage points at the EU level, which could be interpreted as the benefit of coordinating fiscal stimulus across Member States. An alternative way to compute the role of spillover effects is to compare the results

of different paths for variables in the conditional forecast exercise, using a scenario that includes spending under the Recovery and Resilience Facility for Western and Northern Europe, and a scenario that excludes this spending (the facility is set to zero over the projection horizon). The difference in Southern Europe's GDP growth between the two scenarios represents the spillover effects and, in this case, the difference works out to be around 0.3 percentage points in 2022.

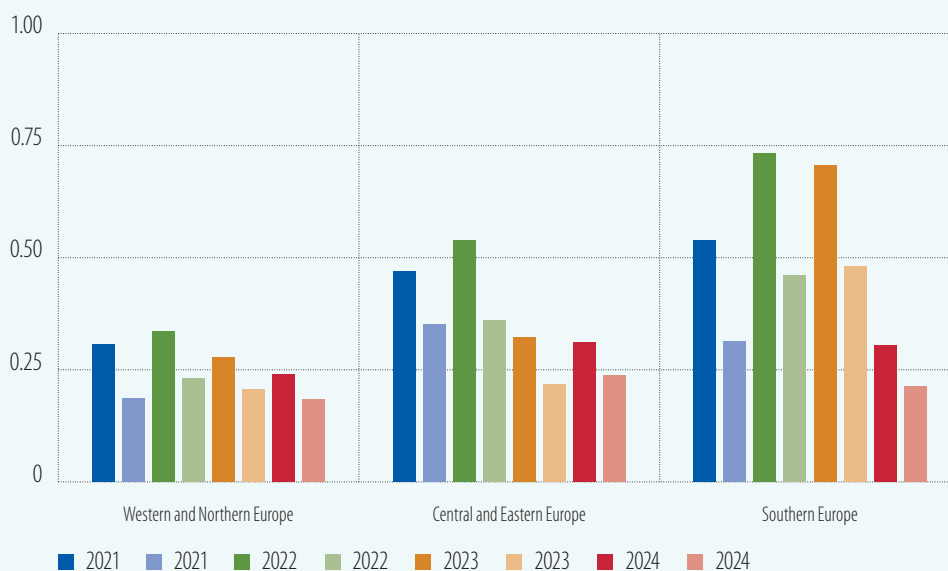
Figure C.3
Spillover effects on Slovenian GDP over time after a 1% shock in Germany public investment (in percentage points)



Source: Authors' calculations.

Note: The chart shows the response of Slovenian GDP to a shock of one standard deviation in German public investment for two sub-samples. Y axis: magnitude of response, X axis: quarters after the shock.

Figure C.4
Annual impact on regional GDP from the Recovery and Resilience Facility (in percentage points)



Source: Authors' calculations

Note: The impact is assessed using a conditional forecast exercise for 2021-2024, restricting the monetary policy to remain constant (dark colours) and free (light-coloured bars). The impact also includes spillover effects from one country to the others. The results across countries are aggregated at the regional levels using nominal GDP weightings.

This exercise shows that there is already an ongoing process of growing co-movements among public investments in EU Member States and of increasing spillover effects that will in turn amplify the positive effects of the spending planned under the Recovery and Resilience Facility. A coordinated package such as the Recovery and Resilience Facility could further enhance this process and, in turn, will benefit from the presence of such effects. Moreover, maintaining favourable financing conditions would strengthen the final impact.

Fiscal coordination in the recovery phase

The fiscal policy response to the pandemic was structured in two phases: the emergency response and the recovery phase. The general escape clause allowed EU members to act flexibly and to tailor their individual responses to the emergency. However, soon after the pandemic erupted, the European Commission deployed a range of fiscal tools that were coordinated and common to the entire European Union, the largest one being NextGenerationEU. The strategy now is to strengthen the recovery phase with spending and investment that improve the structural soundness of the European economy. The goal is to change the EU economy structurally, steering it towards the twin green and digital transition, while addressing some of its weaknesses and strengthening its potential. However, the success of this strategy will depend on the EU fiscal framework and the impact of the pandemic on the indebtedness of EU countries.

The decline in output in 2020 and the rescue and recovery efforts of 2020 and 2021 caused a notable increase in public debt. Debt levels in the European Union had peaked in 2014, due to the global financial crisis and the subsequent sovereign debt crisis. In subsequent years, debt levels declined, significantly in some countries, less so in others. The pandemic erased all the gains made after 2014 and debt rose massively in 2020 and 2021 (Figure 17). The number of countries with debt to GDP ratios exceeding the 60% threshold in 2014 was 15, while in 2019 it was 11, and in 2022 it will be 15 (according to the Commission's forecasts). In the European Union, the government debt to GDP ratio increased from 78.8% in 2019 to an estimated 92.1% in 2021. For the euro area, the corresponding numbers are 85.5% in 2019 and 100% in 2021.

Applying the debt rule included in the Stability and Growth Pact mechanically could provoke an extremely harsh fiscal correction for the most indebted countries. Figure 18 portrays the debt levels for the seven most indebted countries and compares the average primary surplus of 2015-2019 with the surplus needed to satisfy the debt rule (reducing the debt/GDP ratio to 60% in 20 years). These figures are computed using relatively benign hypotheses for the projected interest rate–growth differential: the average cost of debt in 2015-2019 is used for interest payments, and the average pace of nominal growth in 2000-2019 is used for growth. For these countries, the primary surplus required should be on average 3% of GDP (unweighted) compared with the 1% recorded in 2015-2019. These seven countries were also the hardest hit by the pandemic, collectively experiencing an 8.7% decline in GDP in 2020.

The European efforts to coordinate fiscal policy will also play an important role in the transition towards normality, after the likely deactivation of the general escape clause in a reformed EU fiscal framework. The general escape clause, which releases EU members from the financial obligations of the Stability and Growth Pact, will likely be deactivated in early 2022. The European Commission was clear³⁵ about making the deactivation conditional on the European Union's GDP returning to its level before the crisis. If real GDP in the fourth quarter of 2019 is set at 100, the European Union's GDP stands at 99.8, based on the available data (third quarter of 2021). It is likely that the European Union will meet this condition in the last quarter of 2021 or at the beginning of 2022, a little earlier than previously thought.

35 One year since the outbreak of COVID-19: fiscal policy response COMMUNICATION FROM THE COMMISSION TO THE COUNCIL Brussels, 3.3.2021 COM(2021) 105 final.

However, the Commission kept a clear reference to specific country conditions, stating that if a country does not reach the pre-crisis level, all the flexibility allowed by the Stability and Growth Pact will be used in setting future policy guidance. Having said that, the Commission has also reopened a debate on reviewing the EU fiscal framework.³⁶

Figure 17

Gross public debt levels (% GDP), by country and macro area

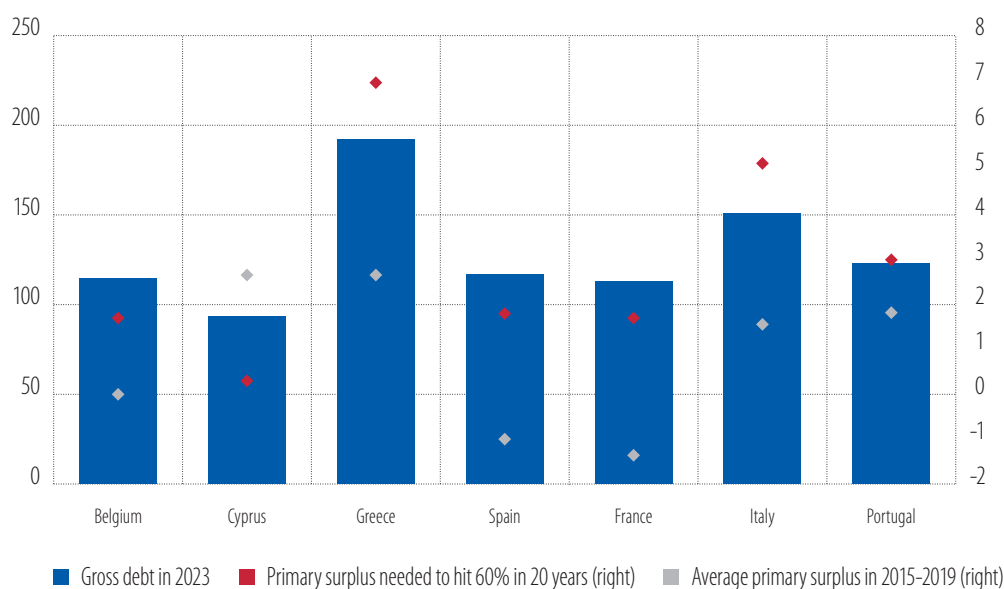


Source: AMECO (the European Commission's macroeconomic database), authors' calculations.

36 In the speech on the state of the Union, European Commission President Ursula Von der Leyen said: "But, as we look ahead, we also need to reflect on how the crisis has affected the shape of our economy – from increased debt, to uneven impact on different sectors, or new ways of working. To do that, the Commission will relaunch the discussion on the Economic Governance Review in the coming weeks. The aim is to build a consensus on the way forward well in time for 2023."

Figure 18

Recent primary surpluses and surpluses needed to comply with the debt rule (% GDP)



Source: AMECO (the European Commission's macroeconomic database), authors' calculations.

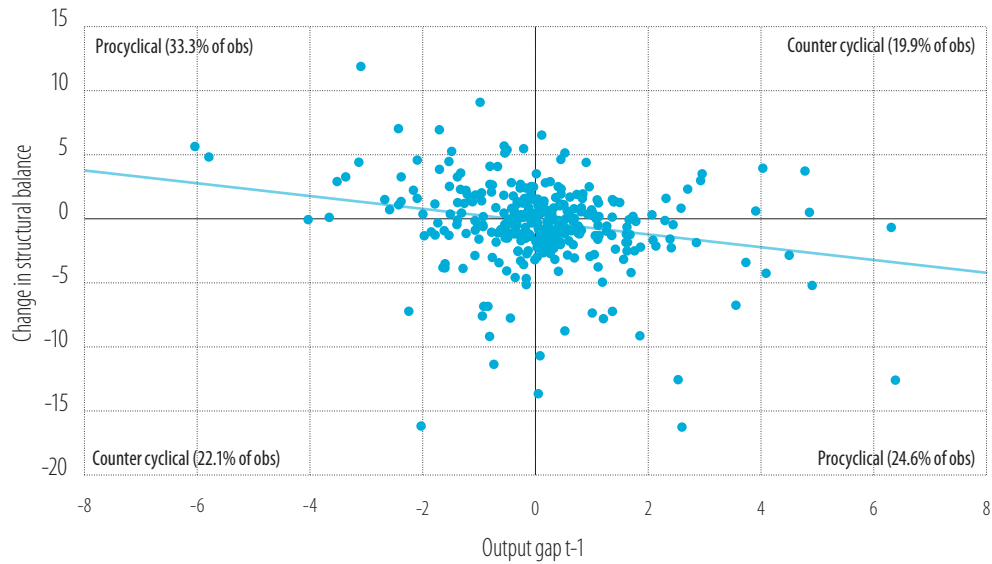
A public consultation on a reformed EU fiscal framework was launched at the beginning of February 2020, but it was soon put on hold due to the pandemic. As the EU economy recovers from the pandemic, the discussion has emerged again. While it seems unlikely that there will be enough time to make legislative changes before the end of 2022, it is useful to summarise the main arguments. Two of the most examined issues are the degree to which fiscal constraints aggravate economic cycles and how to best protect government investment.

The role of fiscal policy in stabilising fluctuations of economic activity, or at least remaining neutral to them, is widely accepted in academic and policy circles. A quick look at the available data, however, suggests that for euro area countries from 2001 to 2019, governments' fiscal stance tended to amplify economic volatility (Figure 19). In this period, more often than not, fiscal policy was contractionary when the economy was operating below its potential. Limiting the observations to 2012-2019 does not change the picture.

The prolonged decline in public investment in the European Union after the global financial crisis suggests public investment was not shielded from spending cuts. When governments consolidated their finances, public investment is treated as the other expenditures, despite its potential role in strengthening growth. The negative correlation between improvements in government finances and investment expenditure is similar to the negative correlation between government expenditures and business cycles. Public investment could be better protected by excluding it at least partially from the calculation of total primary expenditures, particularly for spending in areas with high social benefits (such as climate investments). Pro-cyclicality can be avoided through stronger coordination at EU level on fiscal and economic policy.

Through the Recovery and Resilience Facility, the European Commission's efforts in shaping and coordinating Member States' fiscal policy in the next few years will be invaluable. If the facility's implementation is successful, the help it will provide might prove decisive. The revenues generated by higher economic growth might help some EU members to reduce their debt levels by 20% in the next 20 years.

Figure 19
Fiscal stance and the economic cycle



Source: EIB calculations on the AMECO and the IMF's World Economic Outlook databases.
Note: The structural deficit and the output gap are expressed as a ratio of potential GDP.

Conclusion and policy implications

While continuing to fight the pandemic, EU members are also starting to plan investments and implement reforms to push the green and digital transition. Some countries are set to receive substantial loans and grants from cohesion funds and the Recovery and Resilience Facility to support their investments. The Recovery and Resilience Facility is not only a source of funding for investment, but also a tool to coordinate policy priorities, for example by setting minimum thresholds for green and digital investments. These investments alone could lift the European Union's output for a long time after their implementation. Many recovery plans also include needed structural reforms.

For EU support to have the desired effects, governments must have the technical capacity necessary for projects to succeed. Given how large the funds are, and how short the eligibility period is for receiving them, governments will be under considerable pressure to plan, implement and evaluate their investments. The implementation of the European Fund for Strategic Investments shows that technical assistance can play an important role in ensuring that investments are a success.

Once the pandemic subsides, some EU members will need to address the sustainability of their sovereign debt. Sovereign debt rose sharply when governments stepped up to cushion the pandemic's impact. The countries most exposed to the pandemic were already facing high levels of debt. Returning to a sustainable path will not be easy.

In the European Union, fiscal policies will need to be coordinated during the recovery, not least to protect public investment. The European Union's decision to invoke the escape clause of the Stability and Growth Pact provided countries with the flexibility they needed to address the COVID-19 crisis. With the European Union's GDP almost back to pre-pandemic levels, the normal EU fiscal framework is set to apply from 2023 onwards. The key question is how to avoid some countries' making harsh cuts to spending and investment if they are forced to meet the pact's debt and deficit rules. The green and digital transformation requires substantial public investments, but public investments have often been victim to fiscal consolidation in the past. A range of options is available to protect public investment, while ensuring that the European Union's fiscal goals continue to be met.

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