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This Survey is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.
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BASIC STATISTICS OF THE EUROPEAN UNION, 2020*

(Numbers in parentheses refer to the OECD average)**

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	447.8		Population density per km² (2018)	111.7	(38.2)
Under 15 (%)	15.1	(17.8)	Life expectancy at birth (years, 2019)	81.1	(80.2)
Over 65 (%)	20.8	(17.4)	Men (2019)	78.4	(77.6)
International migrant stock (% of population, 2019)	12.1	(13.2)	Women (2019)	83.8	(82.9)
Latest 5-year average growth (%)	0.1	(0.6)			
ECONOMY					
Gross domestic product (GDP)			Headline inflation (y-o-y % change, Jul-2021)	2.50	(4.20)
In current prices (billion USD)	15 220.5				
In current prices (billion EUR)	13 339.9		Value added shares (%, 2019)		
Latest 5-year average real growth (%)	0.5	(0.7)	Agriculture, forestry and fishing	2.4	(2.6)
Per capita (thousand USD PPP)	44.6	(46.7)	Industry including construction	25.1	(25.1)
			Services	72.5	(72.3)
GENERAL GOVERNMENT					
	Per cent of GDP				
Expenditure (OECD: 2019)	53.4	(40.6)	Gross financial debt (2019, OECD: 2018)	96.5	(107.7)
Revenue (OECD: 2019)	46.4	(37.6)	Net financial debt (2019, OECD: 2018)	55.3	(68.0)
EXTERNAL ACCOUNTS					
Exchange rate (EUR per USD)	0.88		Main exports (% of total merchandise exports)		
			Machinery and transport equipment	39.3	
In per cent of GDP			Chemicals and related products, n.e.s.	21.3	
Exports of goods and services	46.8	(50.9)	Manufactured goods	10.6	
Imports of goods and services	43.0	(47.3)	Main imports (% of total merchandise imports)		
			Machinery and transport equipment	34.2	
			Chemicals and related products, n.e.s.	13.6	
			Manufactured goods	11.1	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate (aged 15 and over, %)	52.8	(55.1)	Unemployment rate, Labour Force Survey (aged 15 and over, %)	7.1	(7.1)
Men (OECD: 2019)	58.9	(65.6)	Youth (aged 15-24, %)	16.8	(15.0)
Women (OECD: 2019)	47.0	(49.9)	Long-term unemployed (1 year and over, %)	2.5	(1.3)
Participation rate (aged 15 and over, %)	57.2	(59.6)	Tertiary educational attainment (aged 25-64, %, 2019)	35.9	(38.0)
Average hours worked per year	1,513	(1,687)	Gross domestic expenditure on R&D (% of GDP, 2019)	2.1	(2.5)
ENVIRONMENT					
			CO2 emissions from fuel combustion per capita (tonnes, 2019)	6.4	(8.3)
Renewables (% of total primary energy supply, 2019)	17.2	(10.8)			
Exposure to air pollution (more than 10 µg/m³ of PM 2.5, % of population, 2019)	70.5	(61.7)	Municipal waste per capita (tonnes, 2018, OECD: 2019)	0.5	(0.5)
SOCIETY					
Income inequality (Gini coefficient, latest available)	0.300	(0.318)	Education outcomes (PISA score, 2018)		
Relative poverty rate (%, 2017)	11.2	(11.7)	Reading	481	(485)
Median disposable household income (thousand USD PPP, 2017)	22.2	(24.2)	Mathematics	488	(487)
Public and private spending (% of GDP)			Science	483	(487)
Health care (2019)	8.5	(8.8)	Share of women in parliament (%)	32.4	(31.5)
Pensions (2017)	10.1	(8.6)	Net official development assistance (% of GNI, 2017)	0.3	(0.2)
Education (% of GNI, 2019)	4.6	(4.4)			

* The year is indicated in parenthesis if it deviates from the year in the main title of this table.

** Where the EU and OECD aggregatea are not provided in the source database, a simple average of latest available data is calculated where data exist for at least 80% of member countries.

Source: Calculations based on data extracted from databases of the following organisations: OECD, Eurostat, International Energy Agency, International Labour Organisation, International Monetary Fund, United Nations, World Bank.

Executive summary

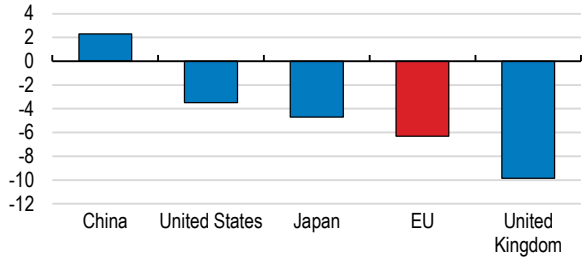
An unprecedented recession calls for the pursuit of bold policy responses

European policies reacted forcefully to the crisis, but risks remain high.

The COVID-19 pandemic plunged the EU into its worst-ever recession (Figure 1), adding economic hardship to a high death toll. Strict containment measures closed large swathes of economic activity and depressed confidence in the face of elevated uncertainty. Except for Ireland, GDP fell in 2020 in all EU countries, varying from -1 to -11%. The largest drops affected countries forced into the strictest lockdowns or whose economic structure was also most sensitive to them.

Figure 1. The output loss in 2020 was very large

Y-o-y % change



Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database).

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Forceful policy reaction helped mitigate the negative impact of the crisis. The ECB expanded significantly its support to the euro area economy, which also benefitted other EU countries through trade linkages and by avoiding financial instability. Unlike in the global financial crisis, national fiscal support was massive, allowed by the activation of the general escape clause of the Stability and Growth Pact. In addition, the EU beefed up existing tools (like the ESM) and adopted two new temporary common fiscal instruments funded by joint EU borrowing: one to support employment through loans to member states (SURE) and one to finance national recovery plans through grants and loans (Next Generation EU). In both cases, support has been mainly allocated to the most affected countries, displaying solidarity and enlarging fiscal space. Swift and effective implementation of recovery plans is the key challenge to turn this opportunity into success.

Vaccination took time to gather speed, but is now giving hope of a more robust recovery. As confinement measures are gradually lifted, growth is projected to rebound strongly in the course of this year, partly due to pent-up demand, and to remain robust in 2022 (Table 1). Still high household savings weigh on growth prospects. Low vaccine effectiveness in case of virus variants or insufficient coverage of the population are downside risks.

Table 1. Robust growth is expected

	2019	2020	2021	2022
Gross domestic product	1.6	-6.3	4.2	4.4
Unemployment rate (%)	6.9	7.3	7.6	7.2
Fiscal balance (% of GDP)	-0.6	-7.1	-7.1	-3.7
Public debt (Maastricht, % of GDP)	80.6	94.3	97.0	95.8

Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database) and updates.

A weak recovery could threaten the cohesion of the EU

A muted recovery would increase inequalities, fueling discontent and hurting trust in the EU.

The crisis could leave scars and reopen old wounds. The disproportionate impact of the crisis on service sectors with abundant low-skilled jobs may increase inequality and poverty. Soaring non-performing loans could threaten financial stability and slow down the exit of inefficient firms, hampering resource reallocation and growth.

The pandemic's asymmetric territorial impact could compound regional divergence across the EU, such as widening gaps between large cities and rural areas. Some regions have been more affected by the pandemic than others. For example, Southern EU economies, partly due to their higher reliance on tourism and on very small firms, have recorded the largest GDP falls in 2020.

Next Generation EU and the 2021-27 EU budget have the potential to turn digitalisation, the green transition and globalisation into opportunities to increase potential growth and address regional inequalities. If unaddressed by policy action, digitalisation could worsen regional divergence, with further spatial concentration of growth and job creation. Likewise, pursuing carbon neutrality would disproportionately hurt regions heavily dependent on coal extraction and carbon-

intensive industries. However, place-based policies, enhanced competition policy and EU support can help regions upgrade their productive specialisation.

Boosting an inclusive recovery through investment and innovation

The EU can better coordinate green investment and innovation and adjust its competition policy to new challenges.

Increasing investment is key to accelerate the recovery. Long subdued, higher public infrastructure investment can crowd-in private investment. Electricity grids, including cross-border interconnections, are a case in point. Moving to low carbon emissions in transport also calls for coordinated investment, such as an EU-wide interoperable recharging network for electric cars.

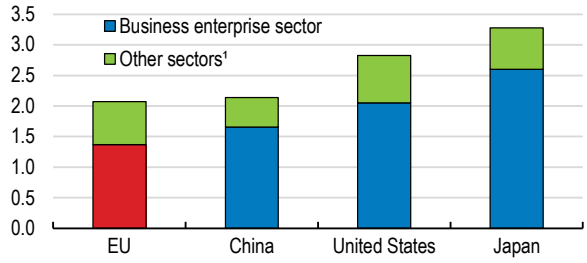
High-quality and affordable broadband connectivity is essential for innovation. It also increases resilience to public health emergencies and helps spread the productivity spillovers from large cities, namely by enabling teleworking. Remaining connectivity gaps in rural and remote areas thus need to be closed, in line with the objectives of the EU's Digital Strategy. As in energy, licensing procedures should be simplified to ease network deployment.

The EU should reverse its decline in innovation (Figure 2) and enhance synergies between national efforts. To exploit the innovation potential of the green and digital transitions, it is key to pursue initiatives to combine public and private funding in cross-country collaborative R&D and industrial innovation projects. Spillovers should be enhanced by promoting participation by firms from less prosperous countries and regions.

Innovation is also a priority to enable convergence of poorer regions, where R&D investment tends to be very low. Stronger investment, which cohesion policy should support, will foster innovation diffusion among local firms. Productivity in lagging regions would also benefit from enhanced agglomeration economies. These can be fostered by public investment to reduce travel time to large cities and closer integration of regional cities with their surrounding territories.

Figure 2. Investment in R&D is low

As a percentage of GDP, 2018



Note: 1. Other sectors include R&D performed by government, higher education institutions and the private non-profit sector.
Source: OECD (2020), OECD Main Science and Technology Indicators - MSTI (database).

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Adjusting competition policy in view of technological and evolving globalisation challenges has been long due. Updating the competition tools may be needed, in tandem with regulation of large digital platforms, to tackle positions of entrenched dominance in digitalised markets, due notably to strong network effects, consumer lock-in or lack of access to data. In addition, there is a need to better avoid that dominant incumbents buy nascent firms to pre-empt future competition or thwart the development of new products, and to tackle distortive subsidies granted by non-EU governments.

Enhancing EU budget support to regional upgrading and convergence

The use of EU funding should be made more efficient to support regional convergence.

Efficient strategies for regional development require integrated use of EU funding and careful project selection. Instead of the first-come first-served approach sometimes adopted, selection procedures should compare applications on the basis of their contribution to regional development objectives. There is also a need for better coordination of rural development policy and cohesion policy in regions eligible for sizeable support from both.

Public procurement, which is central to cohesion policy and Next Generation EU spending, is often not competitive enough. Single bidding is common, and contracts tend to be awarded to suppliers of the same country, and

even region, of the buyer. This can favour inefficient local suppliers, which harms regional development. Greater centralisation of procurement, professionalisation of procurement officials and transparency of procedures would help address these problems. Enhanced data collection requirements on public procurement by cohesion policy are thus welcome.

The deployment of EU funds, not least from Next Generation EU and cohesion policy, must not be marred by corruption and fraud. More effective investigations by EU bodies require stronger cooperation from member states, through timely transposition of relevant directives, operational assistance and judicial follow-up. Greater use of common risk-scoring tools would enhance fraud prevention and detection.

Accelerating climate change policies and a more circular economy

Next Generation EU can help reinforce European leadership in greening the economy.

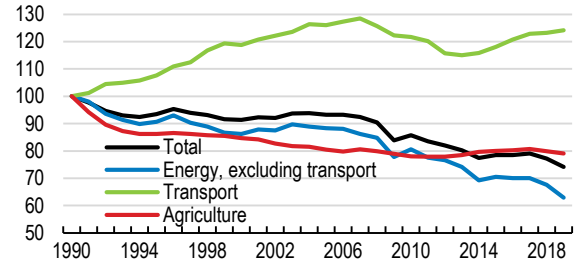
Reducing EU net emissions of greenhouse gases to zero by 2050 requires significant acceleration in emission abatement (Figure 3). Reaching net zero implies electrifying most energy end use, generating most electricity from renewables, developing low-carbon fuels for sectors hard to electrify as well as carbon capture and storage, and increasing energy efficiency.

Higher carbon pricing, stronger regulatory standards and more innovation are key to achieve climate neutrality. Bringing transport and buildings into an Emissions Trading System (ETS), as recently proposed by the European Commission, could spur emission abatement, favouring take-up of electric cars and incentives for renovation. In both sectors, more demanding standards for energy efficiency are also essential. Accompanying targeted support to poorer households would be required. Innovation in batteries and clean hydrogen will speed up the reduction in emissions.

Steering finance towards low-carbon investments requires better assessment and disclosure of climate-related risks. These follow from both extreme weather events and mitigation policies, which require early writing off of high-carbon assets. Though improving, disclosures by banks and large companies are still at an early stage, which calls for more demanding standards.

Figure 3. Emission abatement needs to accelerate, especially in transport

Emissions of greenhouse gases, Index 1990 = 100



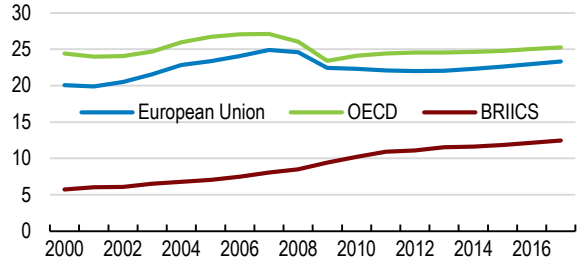
Note: Excluding land-use, land-use change and forestry (LULUCF).
Source: Eurostat (2020), "Greenhouse gas emissions by source sector", Eurostat Database; European Environment Agency.

StatLink https://doi.org/10.1787/888934277933

Extraction and processing of raw materials continues to increase (Figure 4), causing carbon emissions, pollution and biodiversity loss. To reduce materials use, circular economy policies encourage reuse, recycling and shared use.

Figure 4. The use of raw materials is increasing

Material footprint, tonnes per capita



Note: Material Footprint is the allocation of global extracted raw materials used to meet the final demand of an economy.
Source: OECD (2020), OECD Environment Statistics (database).

StatLink https://doi.org/10.1787/888934277952

Digital tools can support the circular economy by reducing information costs and fostering innovative business models, such as digital-based ride sharing. A digital passport could provide information on a product's properties, like repair and recycling possibilities. Information on product durability can substantially influence consumer behaviour.

MAIN FINDINGS	KEY RECOMMENDATIONS
Supporting the recovery in an inclusive way across the EU	
Preparations for the EU recovery plan have taken about one year. National recovery plans combining investment and structural reforms should speed up the recovery from the crisis, but also increase growth potential in the EU, which requires careful project selection.	Swiftly implement national recovery and resilience plans to deliver structural reforms and investments based on sound cost-benefit analysis.
Public investment has been weak over the past decade and achieving climate neutrality will require massive investment, with important scope for coordination at EU level and between public and private sectors.	Invest in European interconnections, such as in electricity grids and smart recharging infrastructure for transport electrification.
Investment in digital infrastructure and energy often faces cumbersome licensing.	Remove barriers to private investment for the climate and digital transitions by simplifying licensing procedures.
Spending on research and development (R&D) in the EU remains far below the 3% of GDP target, and national innovation strategies are insufficiently coordinated.	Promote cross-country collaboration in R&D and in innovative industrial projects.
Poorer regions tend to have very low R&D investment, which hampers innovation and its diffusion.	Devote more cohesion funds in poorer regions to R&D projects.
There is scope to expand productivity spillovers from large cities to surrounding territories. In addition, second-tier cities have often failed to generate substantial agglomeration economies.	Make more regions benefit from agglomeration economies, through reduced travel time to large cities, better ability to telework and closer integration of second-tier cities with surrounding territories.
Competition policy has kept concentration and market power in check. However, it faces new challenges from digitalisation, subsidies from non-EU governments and "killer acquisitions" (firms buying smaller rivals to pre-empt future competition).	Adjust competition rules and enforcement to new challenges: • closely review and prevent "killer acquisitions" • develop new instruments to address distortive foreign subsidies • increase competition in digital markets
Enhancing EU budget support to regional upgrading and convergence	
Half of cohesion funding is spent through public procurement, but tendering procedures are often not competitive enough, which could hinder the selection of the most efficient or innovative providers.	Make public procurement more competitive by increasing the centralization of procurement and the professionalization of officials. Ensure compliance with transparency requirements in procurement procedures.
Projects funded by cohesion policy are often selected on a first-come first-served basis and more consideration could be given to how they contribute to achieving regional growth objectives.	Further adopt competitive project selection procedures, with an emphasis on projects' contribution to regional growth objectives.
Rural regions are often eligible for sizeable support from both rural development policy and cohesion policy, but their interventions are poorly coordinated.	Improve coordination between rural development policy and cohesion policy by implementing integrated strategies funded by both.
Corruption and fraud lower economic growth, weaken institutions and worsen the quality of public spending, including that funded by the EU budget. Most relevant policy levers are controlled at national level.	Step up national efforts to fight corruption and fraud, notably through full and timely transposition of relevant Directives and stronger cooperation with dedicated EU bodies.
Within the EU budget, cohesion policy has a high incidence of fraud. Europe-wide risk-scoring tools, which help identify high-risk projects, have still limited use.	Step up prevention and detection of fraud and corruption involving cohesion funds, notably through the greater use and updating of common risk-scoring tools.
Reinforcing incentives for a climate-neutral and more circular economy	
The EU Emissions Trading System (ETS) covers around 40% of total EU greenhouse gases emissions. Transport accounts for more than 20% of EU emissions, and abatement has proved particularly difficult. Buildings account for 40% of energy consumption and significant resource use. In July 2021, the European Commission proposed to include shipping emissions in the ETS and to set a new, separate ETS for road transport and buildings..	Consider increasing the EU Emissions Trading System coverage, by for instance including transport and buildings. Strengthen regulatory standards for energy efficiency.
Investment in low-carbon activities would benefit from further progress in the assessment and disclosure of climate-related risks for companies and financial markets. Recent draft legislation envisages more informative disclosures by a wider set of firms.	Require comprehensive disclosure of climate and environment-related risks by financial intermediaries and large non-financial firms.
Missing information on used materials and product characteristics hold back the capacity of markets to recycle and use goods for longer. Digital technologies can reduce information and transaction costs and encourage innovative business models.	Introduce requirements for the use of digital tools to provide information on products, including on their recycling and repair possibilities.

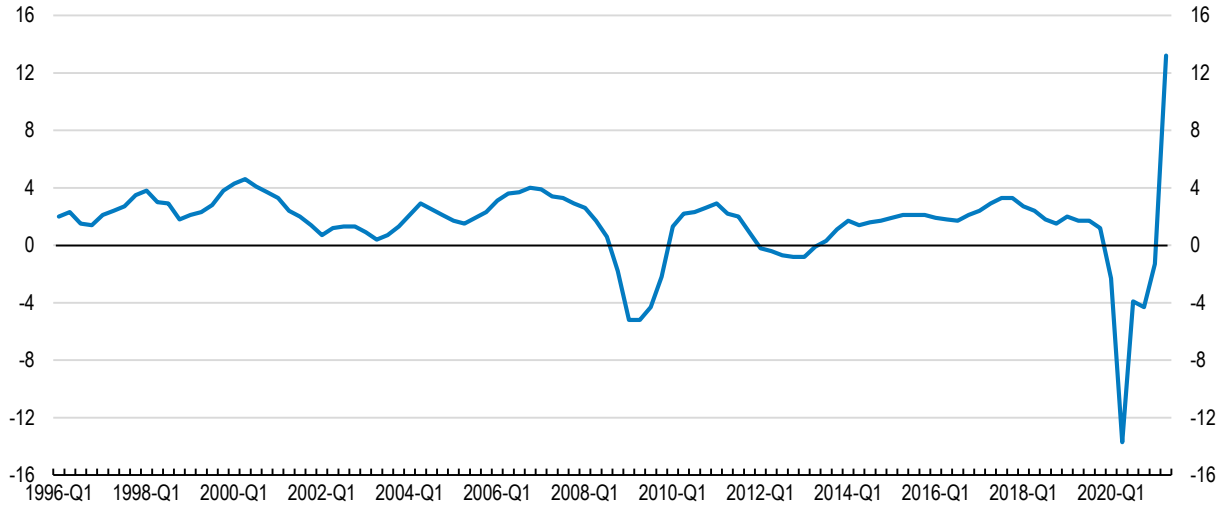
1 Key policy insights

Challenges facing the European Union

The COVID19 pandemic has raised multiple challenges for the European Union (EU) and often compounded existing weaknesses. The EU has been worse hit than most other economic areas, suffering in 2020 its largest-ever recession (Figure 1.1). Territorial inequalities risk increasing across countries and regions, potentially worsening divergent economic trends over the past decade. The disproportionate impact of the crisis on sectors with abundant low-skilled jobs, such as hospitality and trade, could increase inequality and poverty.

Figure 1.1. The EU faced its worst-ever recession, but is rebounding strongly

EU27 GDP, Y-o-y, % change



Source: Eurostat (2021) Database.

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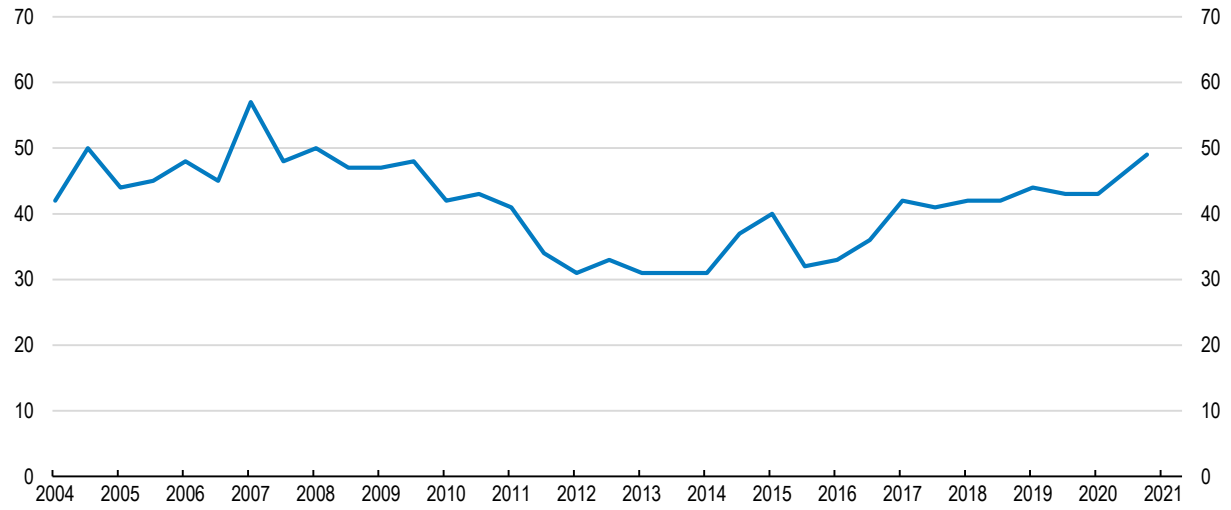
The EU response to the pandemic crisis has been bold and innovative. On the epidemic side, despite initial tensions, border management to avoid contagion was mostly coordinated as well as the procurement of vaccines and other medical supplies, avoiding that countries try to outbid each other. Due to bottlenecks in vaccine production capacity, the vaccination roll-out took time to gather speed, but EU countries have now some of the highest vaccination rates in the world. On the economic side, monetary support was promptly provided and, with the activation of the general escape clause of the Stability and Growth Pact, national fiscal policies became strongly accomodative. As regards support to firms, the full flexibility foreseen under State aid rules was allowed. Furthermore, national governments agreed for the first time on common debt issuance to finance an EU economic recovery plan – Next Generation EU – including grants to member states. Unlike in the aftermath of the global financial crisis, trust in the EU has been preserved and even strengthened (Figure 1.2) and tensions in sovereign debt markets have been, so far, quickly defused.

Nonetheless, the largest challenges from the pandemic crisis might still lie ahead. The two main strands of the recovery plan, the green and digital transitions, already a priority before the pandemic, have gained increased urgency. From energy grids to batteries and the circular economy, the opportunities for investment and innovation in the green economy are immense. The European Green Deal, an encompassing strategy to reduce EU net emissions of greenhouse gases to zero by 2050 (European Commission, 2019a), is welcome, but implementation will be key. Stepping up digitalisation, building on the new European Digital Strategy (European Commission, 2020a), is crucial for investment and innovation diffusion. This will also call for upgrading some regulatory frameworks, such as competition policy.

To make the best of the recovery plan and succeed in the green and digital transitions, the EU needs to secure trust, both from citizens and between member states. For this purpose, it is essential to avoid that the unprecedented deployment of funds from Next Generation EU is marred by irregularities or fraud. The EU also needs to reform migration policy. Migration has long been a highly divisive issue for both member states and the public opinion, but is also a lever to address skill gaps, not least in information and communication technologies, which are essential for the digital transition.

Figure 1.2. Trust in the EU has been preserved, despite the pandemic

Respondents claiming they tend to trust the European Union, as an institution, in per cent of total respondents



Source: European Commission, Public Opinion in the European Union, Standard Eurobarometer Survey.

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Against this background, the Survey has three main messages:

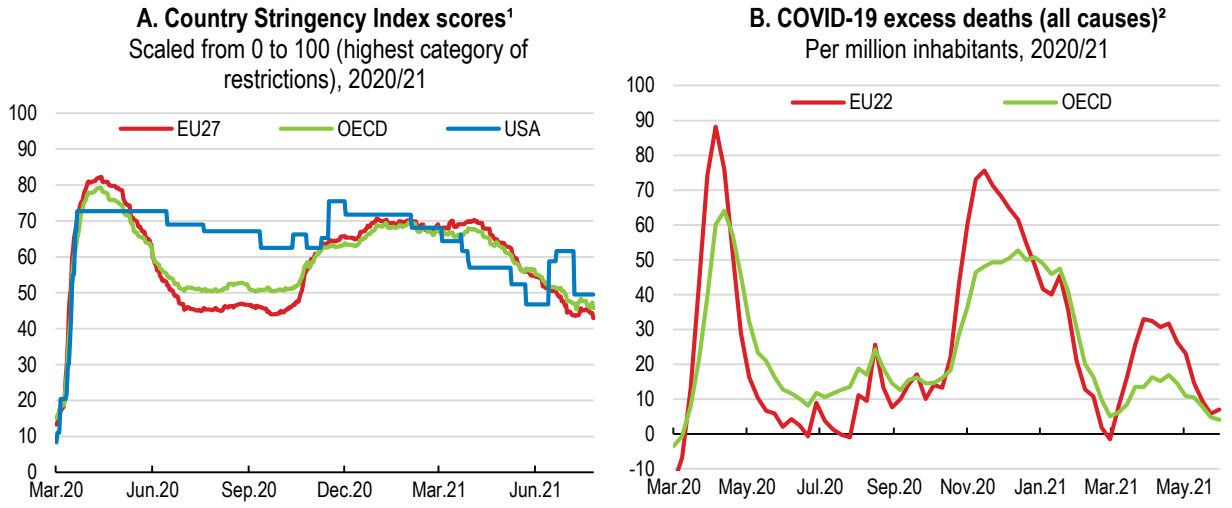
- Increasing investment is key to speed up the recovery. Drawing on the EU recovery plan, countries should foster public and private investment, especially to improve European interconnections, and increase cross-country collaboration in innovative industrial projects, including in healthcare.
- The transition towards climate neutrality and a circular economy will enhance well-being and open major opportunities for improving European industrial strengths. Better pricing of carbon emissions, new regulatory tools and more R&D funding will all help reinforce green investment and innovation.
- To avoid the rise of regional inequalities, poorer regions need to improve their productive specialisation. For that purpose, cohesion and rural development policies need to be revamped to gain in efficiency, notably by supporting more effectively innovation.

The COVID-19 crisis may worsen economic divergence in the EU

The EU faced an unprecedented recession in 2020

The COVID-19 pandemic has deeply hit European countries. In Spring 2020, when the first wave of infections struck, the authorities took unprecedented measures to limit contagion, often imposing country-wide lockdowns with mandatory closure of large swathes of economic activity (Figure 1.3). Stricter containment measures help explain high output losses in international comparison (Figure 1.4). Following the end of lockdown measures, activity rebounded vigorously until mid-Summer. With the resurgence of the pandemic in the Autumn, many countries have progressively, and sometimes recurrently, re-imposed lockdowns, though often less strict than in Spring 2020. These containment measures have tended to remain in place until Spring 2021, which induced a delay of the recovery.

Figure 1.3. Tough containment measures were needed to halt contagion



Note: 1. The stringency index score is an index averaged across eight closure and containment policy components and scaled from 0 (no restriction) to 100 (highest category of restrictions). The closure and containment policies include school closing, workplace closing, cancellation of public events, restrictions on gatherings, closing of public transport, stay at home requirements, restrictions on internal movements and international travel control. 2. The excess mortality is defined as the number of additional deaths per million inhabitants in a week in 2020/21 compared to the average weekly deaths in the period 2015-2019. The higher the value, the more additional deaths have occurred compared to the baseline. A negative value means that fewer deaths occurred in a particular week compared with the baseline period. The OECD total excludes Colombia, Ireland, Japan, Korea, Mexico and Turkey. EU22 total excludes Ireland

Source: OECD (2021) calculations based on the Oxford Covid-19 Government Response Tracker https://covidtracker.bsg.ox.ac.uk/; Eurostat (2021) Database "Weekly deaths - special data collection" and national statistical offices.

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Lockdowns in Spring 2020 and from Autumn 2020 to Spring 2021 lead to the closure of a significant share of economic activity, which generated a far larger GDP contraction than in the wake of the global financial crisis. Unusually for recessions, the largest contribution to the fall in output came from private consumption (Figure 1.4), reflecting first and foremost prolonged restricted access to certain goods and (especially) services, but also a large rise in precautionary savings. Investment has also contracted sharply, mainly as a result of depressed demand and high uncertainty. Amidst large impacts of the pandemic on international trade, the current account surplus of the EU remained broadly unchanged in 2020. This large surplus reflects an asymmetric adjustment across countries over the past decade (Figure 1.5) and mirrors investment weakness (discussed below).

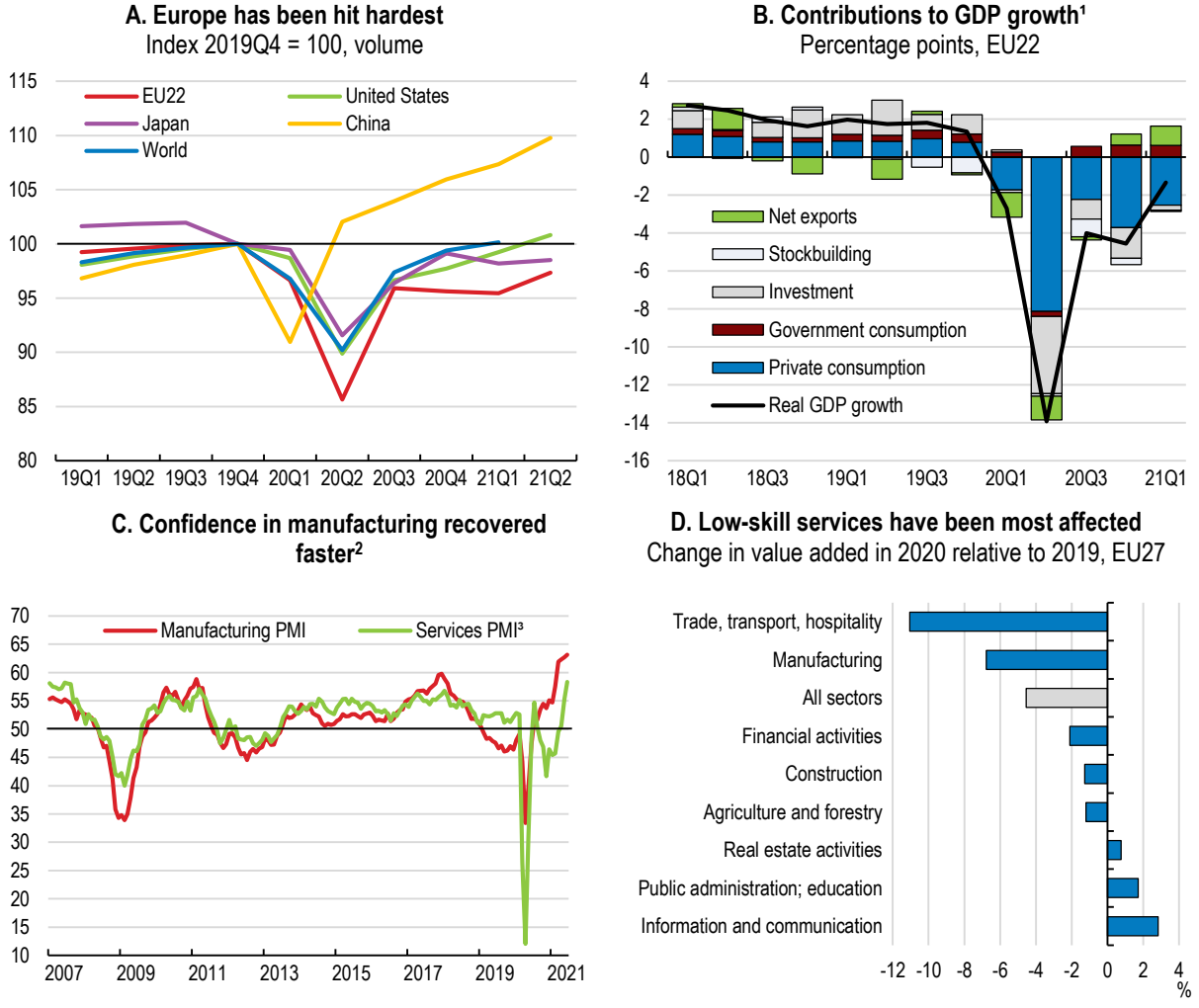
Sectoral impacts have varied widely, with labour-intensive and low-skilled sectors often hit hardest. Services have been most affected, especially those still relying on direct contact between providers and clients (Figure 1.4). Tourism, also hit by travel restrictions, is a prime example, especially when dependent on international visitors. Activity in manufacturing and in construction was also severely hampered in Spring 2020 but has proved more resilient to the second wave of the pandemic, with a sustained recovery throughout the second half of 2020 bringing these sectors close to pre-pandemic production levels (a rebound which was faster in construction and more gradual in manufacturing of capital goods). In contrast, sectors more amenable to social distancing or teleworking, like agriculture, finance or ICT services, have suffered the least.

The pandemic has also weighed on the labour market. Developments in activity were mirrored in total hours worked, with a strong but incomplete recovery in the third quarter of 2020 (Figure 1.6). Widespread resort to short-time working and, especially in the second quarter of 2020, reduced labour force participation have limited the rise in unemployment. However, broader measures of labour market slack recorded somewhat stronger increases, notably due to more people available to work but not seeking it.

The deterioration of the labour market could have a negative persistent impact on young and female workers.

Depressed aggregate demand, together with a host of other factors, reduced inflation in 2020. Core inflation, which had long hovered between 1 and 1.5 percent, declined in the second half of 2020 (Figure 1.6), mainly driven by services (especially those related to recreation, transport, package holidays and accommodation, highly impacted by the pandemic) and also reflecting the temporary VAT cut in Germany. Under the additional impact of falling energy prices, headline inflation in the European Union fell to barely positive levels, and even became negative in the euro area. Euro appreciation has also been disinflationary. In early 2021 core inflation recovered somewhat, though the increase was mostly transient, partly due to a reversal of a VAT cut in Germany, changes in the timing of Winter sales and the annual updating of consumer price index weights. This updating, which reflects the sizeable shifts in spending patterns in 2020, has had an upward impact on inflation (e.g. a larger weight for spending on food, where inflation has been relatively high). The hike in headline inflation in 2021 is proving more persistent, due to higher energy prices.

Figure 1.4. The large recession has been highly asymmetric across sectors



Note: 1. Contribution to GDP growth relative to the same quarter of the previous year. 2. An index reading above 50 indicates an overall increase in its value, relative to the previous monthly observation. 3. Private service sector firms.
Source: OECD (2021), OECD Macroeconomic Statistics (database); IHS Markit.

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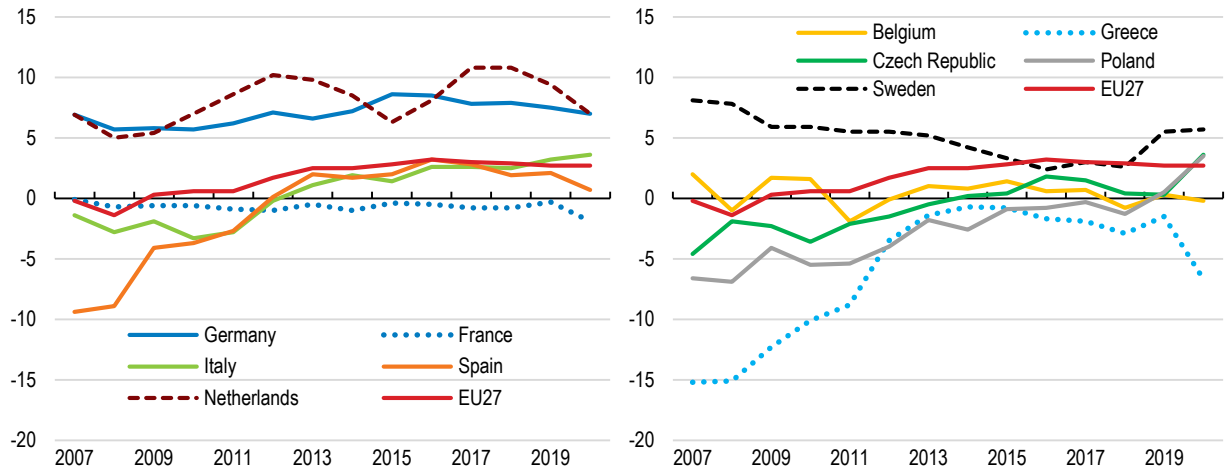
Figure 1.5. The EU current account surplus has remained large

As a percentage of GDP



Note: National-level current account balances include intra-EU net positions.
Source: Eurostat (2021), "Balance of payments statistics (BPM6)", Eurostat Database.

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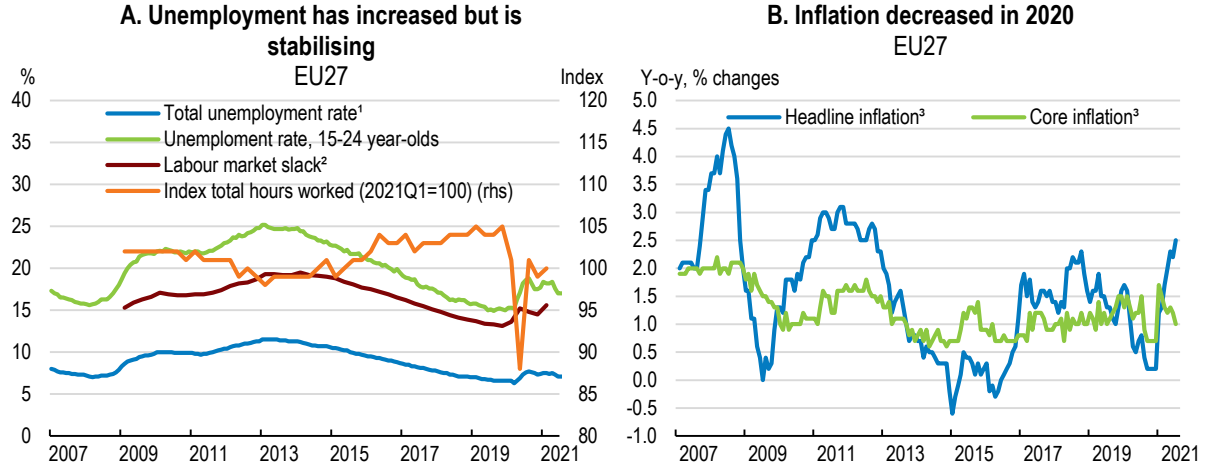
Figure 1.6. Depressed demand has caused unemployment and disinflation



Note: 1. 15-74 year-olds. 2. Labour market slack refers to the total sum of all unmet demands for employment and includes four groups: (1) the unemployed people according to the ILO definition, (2) the underemployed part-time workers (i.e. part-time workers who wish to work more), (3) people who are available to work but not searching for it and, (4) people who are searching for work but are not available for it. While the first two groups are in the labour force, the last two, also referred to as the potential additional labour force, are both outside the labour force. For this reason, the "extended labour force", composed of both the labour force and the potential additional labour force, is used in this analysis. 3. Inflation refers to harmonised consumer price index (HICP) and core inflation excludes energy, food, alcohol and tobacco.
Source: OECD (2021), OECD Labour Force Statistics (database); Eurostat (2021), Harmonised Indices of Consumer Prices (HICP), Labour market slack data, Actual hours worked.

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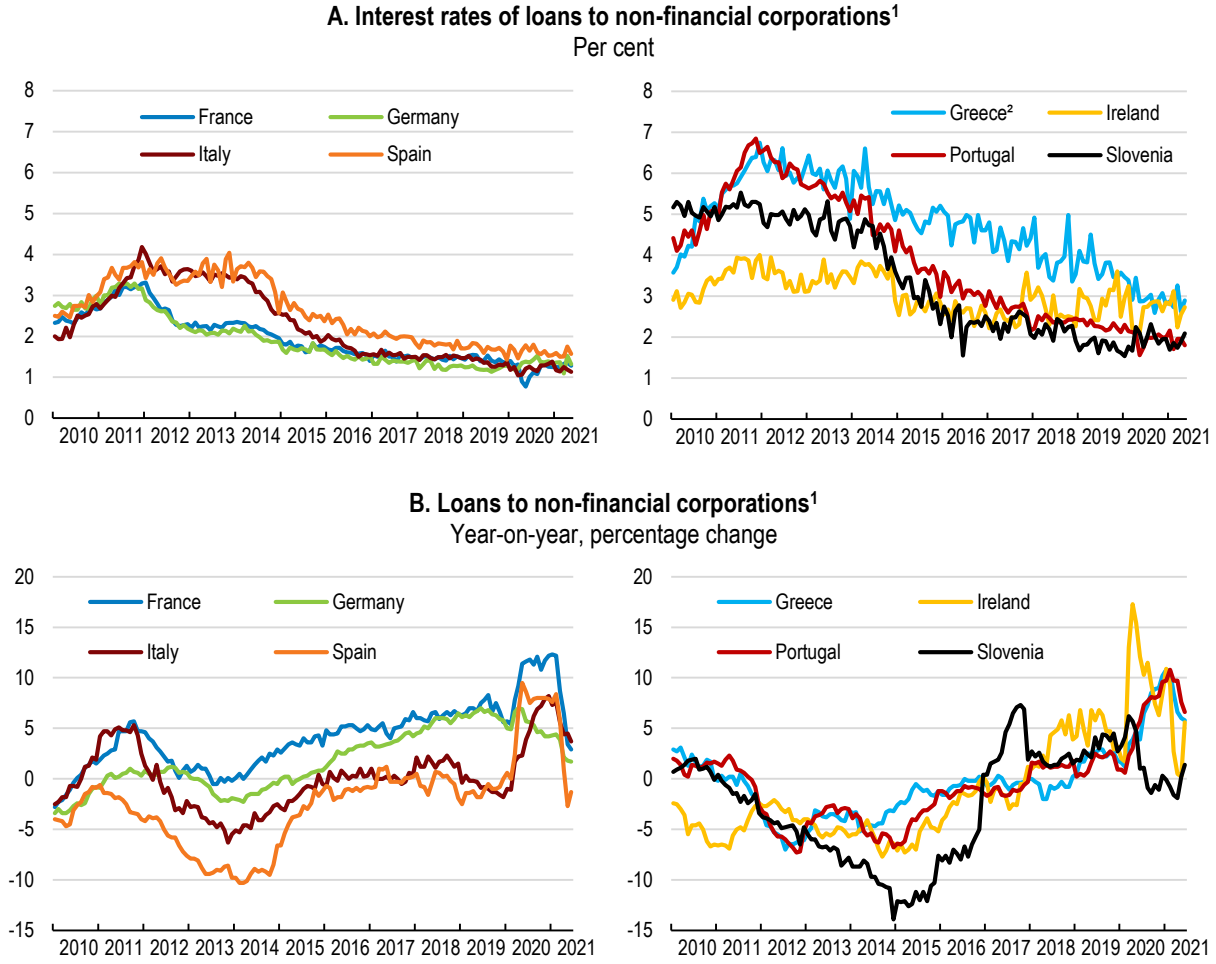
A vigorous policy response supported demand and reduced financial fragmentation

The European policy response has been forceful, avoiding an even larger recession (Box 1.1). The ECB has strongly increased asset purchases and liquidity provision. To further support bank lending, different forms of temporary bank capital relief have been provided, and European Investment Bank guarantee schemes have been expanded. Low-conditionality lending facilities have been made available to member

states, followed by agreement on a EU recovery plan funded by common debt issuance which provides countries with grants, and not only loans. Encouraged by the activation of the general escape clause of the Stability and Growth Pact, national fiscal policies have also provided substantial stimulus to activity, with a large discretionary expansion in 2020 and 2021 and measures to support liquidity and lending, such as loan guarantees and tax deferrals. The OECD Economic Survey of the Euro Area analyses macroeconomic policies in greater detail.

These measures have reduced financial fragmentation and supported credit supply. After flaring up in the early stages of the pandemic, tensions in sovereign debt markets have subsided, with a narrowing of spreads. Early and decisive action by the ECB was essential on this count, and was later supported by the agreement on the EU recovery plan. Non-financial firms across the EU have also benefitted from declining and converging interest rates on new loans, to which they have resorted to address pandemic-induced liquidity gaps (Figure 1.7).

Figure 1.7. Financial fragmentation in the euro area has been reduced further



Note: 1. New business loans with an initial rate fixation period of less than one year. Loans other than revolving loans and overdrafts, convenience and extended credit card debt; loans adjusted for credit and securitisation in Panel B. 2. Loans of up to 1 year.
Source: ECB (2021), "MFI interest rate statistics", Statistical Data Warehouse, European Central Bank.

StatLink https://doi.org/10.1787/888934278465

Box 1.1. The European monetary, financial and fiscal response to the COVID-19 crisis

- The ECB has expanded its asset purchase programme by an overall EUR 1970 billion (16.5% of the euro area 2019 GDP). This mainly consists of the EUR 1850 billion Pandemic Emergency Purchase Programme, with net purchases set to continue until it is judged that the COVID-19 crisis is over, but not before March 2022. In March 2020, the Governing Council stated that it would consider revising some self-imposed limits to the extent necessary to make its action proportionate to the risks.
- To preserve bank lending and liquidity, the ECB has launched new non-targeted longer-term refinancing operations, made borrowing conditions applied in targeted longer-term refinancing operations (TLTRO III) more favourable and eased collateral standards.
- Bank capital and liquidity ratios have been temporarily relaxed. Further temporary capital relief has come from changes to the Capital Requirements Regulation and from supervisory flexibility regarding the treatment of non-performing loans (NPLs).
- The Capital Markets Recovery Package has made targeted changes to capital market rules (Prospectus Regulation, MiFID II and securitisation rules), *inter alia* to make it easier for issuers to quickly raise capital and to facilitate the use of securitisation, including of NPLs, so as to enable banks to expand their lending.
- The EU activated the general escape clause of the Stability and Growth Pact (SGP), which allows for temporary deviations from SGP budgetary targets. According to the European Semester Spring Package 2021, the general escape clause will continue to be applied in 2022 and is expected to be deactivated as of 2023.
- Two Coronavirus Response Investment Initiatives (CRII and CRII+) have increased the flexibility and accelerated the implementation of cohesion policy, *inter alia* by reducing national co-financing and enlarging investment eligibility.
- Pandemic Crisis Support credit lines have been established within the framework of the European Stability Mechanism, with a benchmark 2% of national GDP (about EUR 240 billion in total) to finance with loans direct and indirect healthcare, cure and prevention related costs due to the COVID 19 crisis. These loans will have a maximum average maturity of 10 years and favourable pricing modalities. So far no country has applied.
- A new European instrument for temporary Support to mitigate Unemployment Risks in an Emergency (SURE) has been created. Endowed with EUR 100 billion, SURE comprises lending on favourable terms to Member States to help them finance short-time work schemes and other measures to support workers and the self-employed.
- European Investment Bank guarantee schemes have been expanded. In particular, a EUR 25 billion European Guarantee Fund has been created to support up to EUR 200 billion of financing (debt and equity) for companies throughout the EU. At least 65% of the financing will go to SMEs.
- The Next Generation EU recovery plan will provide EUR 750 billion (about 5.5% of EU27 2019 GDP) of grants and loans to member states, funded by EU debt issuance. This plan is discussed in greater detail in Box 1.5.
- The EU also temporarily adjusted the State aid regime to enable Member States to provide necessary support to businesses.

The recovery hinges on the health outlook and faces considerable risks

While awaiting widespread vaccination, the epidemiological situation has remained difficult in much of the first half of 2021. The European Commission has negotiated advance purchase agreements with vaccine manufacturers on behalf of the 27 member states, giving countries the right to buy a certain number of doses (in proportion to population) when a vaccine becomes available. This approach preserved cooperation and equal treatment across member states, highlighting the value of joint action even in areas where the EU has only limited competences (Box 1.2), but weighed on the initial speed of response (Box 1.3). In a context of worldwide bottlenecks in vaccine production capacity and very limited vaccine exports (to which the EU has been an exception), vaccination roll-out in the EU took time to gather speed but has in recent months largely caught up with leading countries (Figure 1.8).

Box 1.2. The division of competences between the EU and its Member States

For the EU to be able to act in a given policy area, the corresponding competences must be conferred upon it by Member States in the Treaties. Without this conferral, countries alone may act. There are three main categories of EU competences: exclusive, shared and supporting.

Exclusive competences refer to areas in which the EU alone is able to legislate, and Member States can only adopt binding acts if so empowered by the EU. It is the case of customs union, competition rules necessary for the functioning of the internal market, monetary policy (for euro area countries), the conservation of marine biological resources under the common fisheries policy, common commercial policy and, under certain conditions, the conclusion of international agreements.

Shared competences refer to areas where both the EU and Member States are able to legislate and adopt legally binding acts. EU countries can act where the EU does not exercise, or has decided not to exercise, its own competence. The policy areas concerned are the internal market, social policy (in specific aspects), regional policy, agriculture and fisheries (except conservation of marine biological resources), environment, consumer protection, transport, trans-European networks, the area of freedom, security and justice, shared safety concerns in public health matters (in specific aspects), research, technological development, space, development cooperation and humanitarian aid.

Supporting competences refer to areas in which EU action is limited to supporting, coordinating or complementing the action of Member States. EU legislation must not require the harmonisation of EU countries' laws or regulations. It is the case of the protection and improvement of human health, industry, culture, tourism, education, vocational training, youth, sport, civil protection and administrative cooperation.

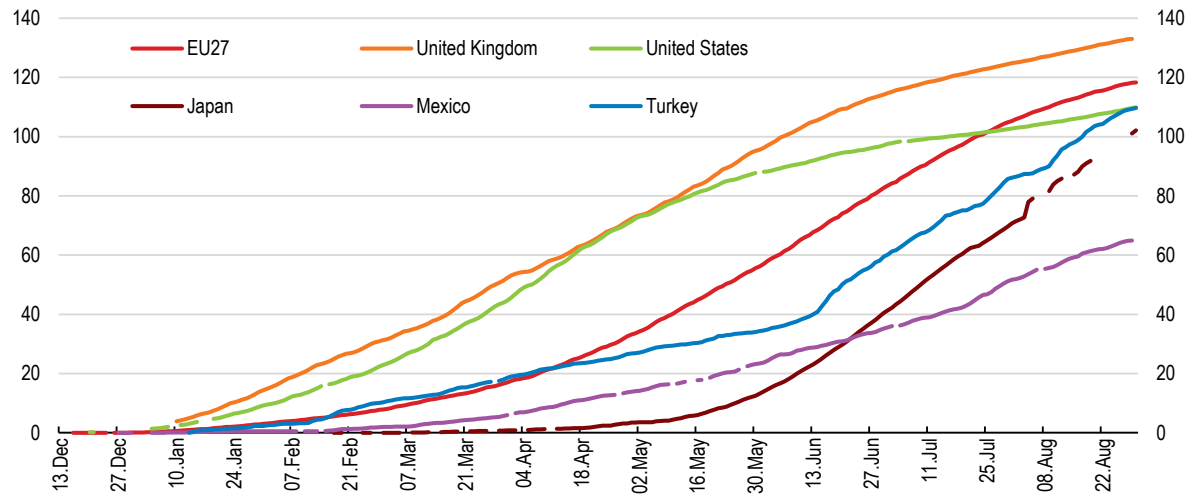
In addition, the EU can act to ensure that EU countries coordinate their economic, social and employment policies, and the common foreign and security policy is characterised by specific institutional features. In all areas, the exercise of EU competences is subject to the fundamental principles of proportionality (EU action may not exceed what is necessary to achieve the objectives of the Treaties) and subsidiarity (in areas of non-exclusive competence, the EU may only act if the objective of a proposed action cannot be sufficiently achieved by EU countries, but could be better achieved at EU level).

After a strong acceleration starting in the second quarter of 2021, GDP growth is expected to moderate in 2022 but nonetheless remain robust (Table 1.1 and Figure 1.9). In 2021, private consumption is set to benefit from the lifting of containment measures and sizeable pent-up demand, and activity will be further supported by considerable fiscal stimulus and vigorous export dynamism. In 2022, growth will continue to be spurred by exports and capital formation, the latter relying on a significant contribution from public investment. Nonetheless, household saving, albeit declining, is projected to remain higher than before the pandemic, and the recovery of private investment will be only moderate. At the end of 2022, unemployment

is projected to return to close to pre-pandemic levels, and inflation will still remain subdued. Swift implementation of growth-enhancing investment and reforms is essential to spur activity and minimise scarring effects, as discussed below.

Figure 1.8. COVID-19 vaccination in the EU took time to gather speed, but is catching up fast

Cumulative vaccination doses administered per 100 people, 2020/2021, large OECD members



Note: This is counted as a single dose, and may not equal the total number of people vaccinated, depending on the specific dose regime (e.g. people receive multiple doses).
Source: Our World in Data (2021) from official data.

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Though of much smaller magnitude than pandemic impacts, Brexit-induced trade losses will also weigh on the recovery, since the UK is a major trading partner of the EU (Figure 1.10). The UK left the EU and its Customs Union and Single Market at the end of January and December 2020, respectively. Though the EU-UK Trade and Cooperation Agreement reached in late 2020 preserves zero-tariff, zero-quota trade in goods, bilateral flows are expected to be lower than if the UK remained in the Single Market, mainly due to higher non-tariff barriers (Box 1.4). Trade in services (financial and other) no longer benefits from passporting and is expected to be affected by rising costs due to regulatory divergence. Besides these negative medium-term effects, short-term costs stemming from the adaptation to new trade rules and procedures have also been felt, with a sharp fall in bilateral EU-UK trade in early 2021.

As bank credit plays an essential role in resource reallocation, the likely surge in non-performing loans (NPLs) over the next few years, stemming *inter alia* from the expiry of relief measures such as loan moratoria and public guarantees, is of particular concern. Some of the countries still facing legacy problems with NPLs (Figure 1.12) are among those with strongest take-up of the abovementioned relief measures (EBA, 2020; Figure 1.13). High NPLs may hamper credit supply and its reallocation towards more productive firms (ECB, 2020a; Azevedo et al., 2018). A surge in NPLs could also rekindle negative feedback loops between banks and their domestic sovereigns (Table 1.2). Reforms to swiftly tackle NPLs are discussed in the OECD Economic Survey of the Euro Area.

Scarring effects could also become more severe in case of protracted short-time work support to firms with poor prospects and failure to step up active labour market policies and public investment. In addition, the expected lifting of confinement measures and the associated rebound in activity could come under threat if vaccination proved ineffective against new virus variants or its coverage of the population turned out to be insufficient. Besides worsened short-run output losses, higher unemployment and insolvencies would compound medium-term reallocation challenges. On the upside, prompt and efficient deployment of national recovery and resilience plans, with an emphasis on structural reforms to crowd in private

investment and promote skilling and activation, would bolster confidence, durably enhance growth and help Europe succeed in the green and digital transitions.

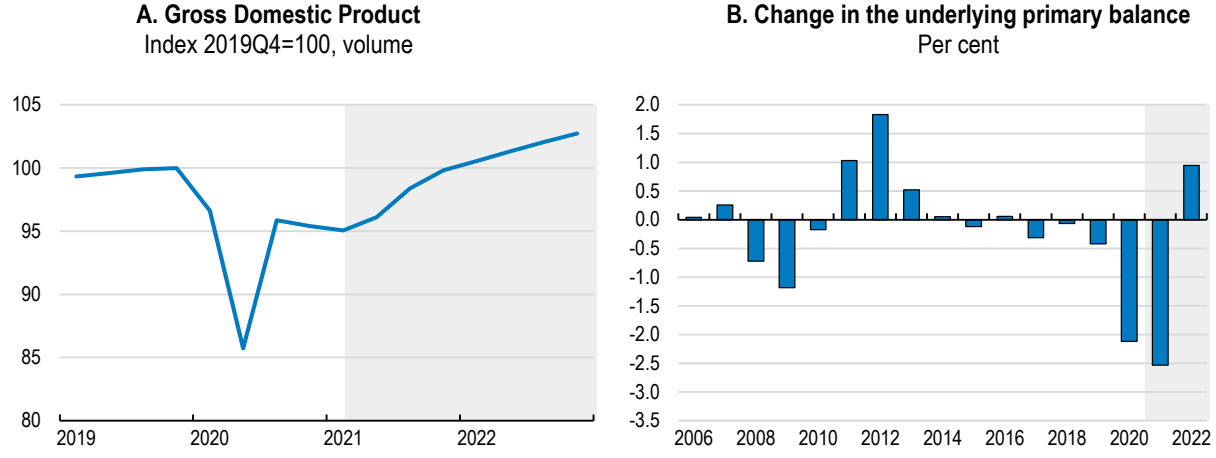
Box 1.3. The EU health response has been cooperative, but exposed gaps in capabilities

When COVID-19 struck, assistance with key medical supplies among EU countries was limited by shortages, and the danger of uncoordinated national purchases trying to outbid one another loomed. The initial EU response to the pandemic emphasized joint procurement of medical equipment and the reinforcement of civil protection capabilities. Joint procurement has also been pursued for vaccines. The European Commission has negotiated advance purchase agreements with several vaccine manufacturers on behalf of the 27 EU countries, thus preserving equal treatment among member states and securing a diversified portfolio of more than 4.6 billion doses. These agreements are also meant to provide advance funding to enable manufacturers to invest in production capacities in parallel with clinical trials. Also in keeping with a cooperative, rules-based approach, millions of vaccine supplies produced in the EU have been exported to a very large number of third countries, including under COVAX, the international effort to ensure fair access to vaccines among rich and poor nations.

This cooperative approach has weighed on the agility of the response. Multiple national and European funding streams have raised coordination issues and overall financing for vaccine development, while substantial, was below that of the US (Aghion et al., 2020). The EU signed its first vaccine advance purchase agreement on 27 August 2020, several months after the US Biomedical Advanced Research and Development Authority (BARDA).

Within the current division of competences between the EU and member states, which mostly leaves health policy to the latter, proposals to reinforce the EU capabilities to deal with cross-border health threats have been recently put forward (European Commission, 2020b). They include the creation of an EU Health Emergency Preparedness and Response Authority (HERA), with responsibilities for threat anticipation, ensuring sufficient reserves and distribution of medical supplies, and coordination of public and private capabilities for R&D. Besides improving emergency preparedness (a central motivation for creating BARDA in 2006), setting up HERA could also help stem the EU declining competitiveness in biotech innovation (Aghion et al., 2020). To pave the way for HERA, a pilot programme was launched in February 2021 to tackle coronavirus variants ("HERA Incubator"), which is welcome. Enlarging EU competences in the domain of public health could also be considered.

Figure 1.9. A robust recovery is expected, supported by fiscal policy



Note: Data refer to European Union member countries that are also members of the OECD (22 countries).
Source: OECD (2020), OECD Economic Outlook: Statistics and Projections (database).

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Table 1.1. Macroeconomic indicators and projections

European Union[1] annual percentage change, volume (2015 prices)

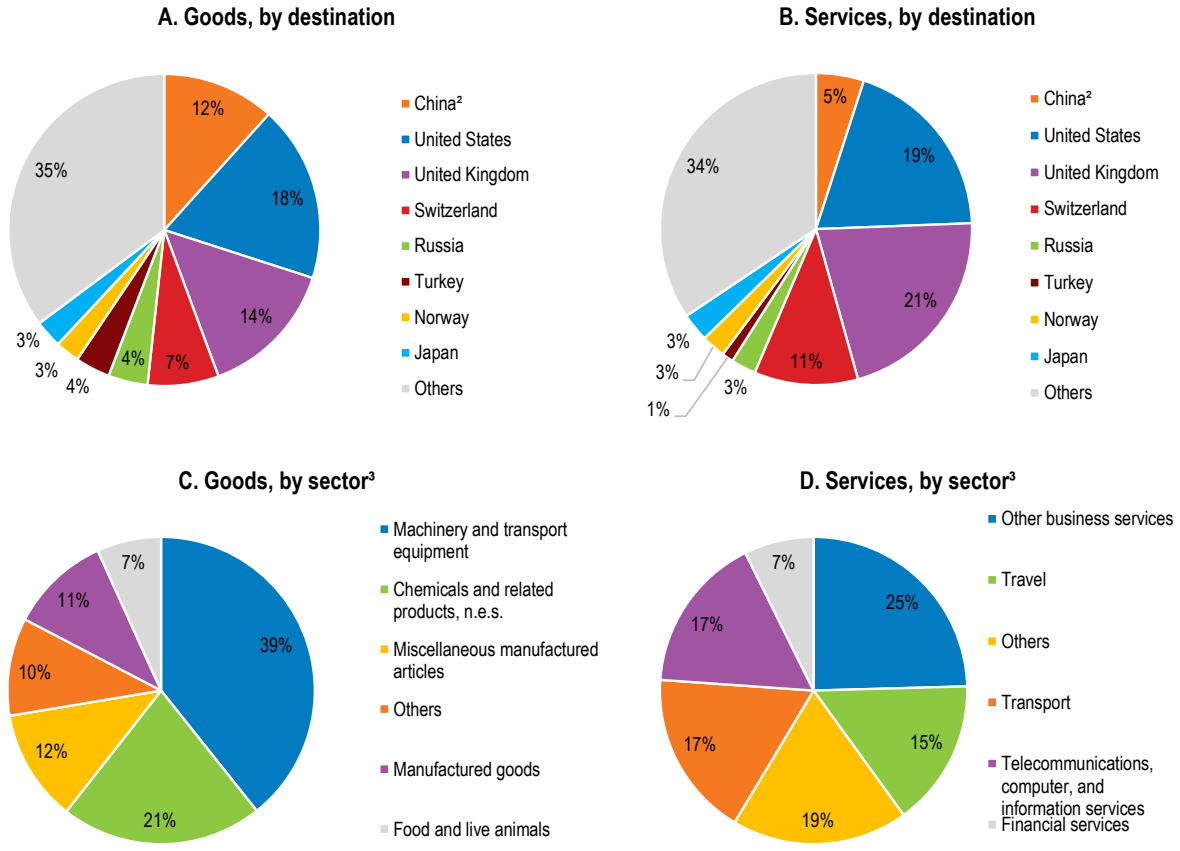
			Projections		
	2018	2019	2020	2021	2022
Gross domestic product (GDP)	2.2	1.6	-6.3	4.2	4.4
Private consumption	1.8	1.6	-7.4	2.7	6.1
Government consumption	1.3	2.0	1.4	2.9	0.9
Gross fixed capital formation	4.0	5.2	-8.0	5.1	5.7
Final domestic demand	2.2	2.5	-5.7	3.3	4.8
Total domestic demand	2.3	2.0	-6.0	3.3	4.8
Exports of goods and services	3.8	2.9	-8.9	9.1	5.8
Imports of goods and services	4.1	3.6	-8.5	7.6	6.7
Other indicators (growth rates, unless specified)					
Potential GDP	1.3	1.3	1.1	1.0	1.0
Output gap[2]	0.0	0.3	-7.0	-4.1	-0.8
Employment	1.2	1.0	-0.9	0.2	0.9
Unemployment rate	7.5	6.9	7.3	7.6	7.2
GDP deflator	1.5	1.9	1.8	1.1	1.5
Consumer price index	1.8	1.3	0.6	1.9	1.5
Core consumer prices	1.1	1.2	1.0	1.5	1.3
Household saving ratio, net[3]	5.9	6.4	13.0	11.2	7.0
Current account balance[4]	3.3	3.2	3.1	3.6	3.4
General government fiscal balance[4]	-0.4	-0.6	-7.1	-7.1	-3.7
Underlying general government fiscal balance[2]	-0.4	-0.6	-2.5	-5.0	-3.9
Underlying general government primary fiscal balance[2]	1.2	0.8	-1.3	-3.9	-2.9
General government gross debt (Maastricht)[4]	82.3	80.6	94.3	97.0	95.8
General government net debt[4]	57.8	57.8	69.8	73.1	72.4
Three-month money market rate, average	-0.2	-0.1	-0.3	-0.4	-0.4
Gross government debt[4]	97.0	97.9	115.4	118.2	116.9

Note: 1. European Union member countries that are also members of the OECD (22 countries). 2. As a percentage of potential GDP. 3. As a percentage of household disposable income. 4. As a percentage of GDP

Source: OECD (2021), "OECD Economic Outlook No. 109", OECD Economic Outlook: Statistics and Projections (database).

Figure 1.10. The US and other European countries are the EU27 largest export markets

Per cent, 2019/2020[1]



Note: 1. Exports of goods: data refer to 2020; exports of services: data refer to 2019. 2. Including Hong-Kong. 3. In Panel C, others include - in a decreasing order of relevance - mineral fuels and lubricants, non-elsewhere classified commodities, crude and inedible materials (except fuels), beverages and tobacco and animal/vegetable oils, fats and waxes ; in Panel D, others include charges for the use of intellectual property, insurance and pensions services, manufacturing services, maintenance and repair services, personal cultural/recreational services, construction and public administration services. Data refer to the EU28, as of end-2019, in Panel D.

Source: Eurostat (2021), "EU27 (from 2020) trade by SITC product group", Eurostat Database; and OECD (2021), OECD International Trade Statistics (database).

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Box 1.4. Simulating the economic impacts of the EU-UK trade agreement

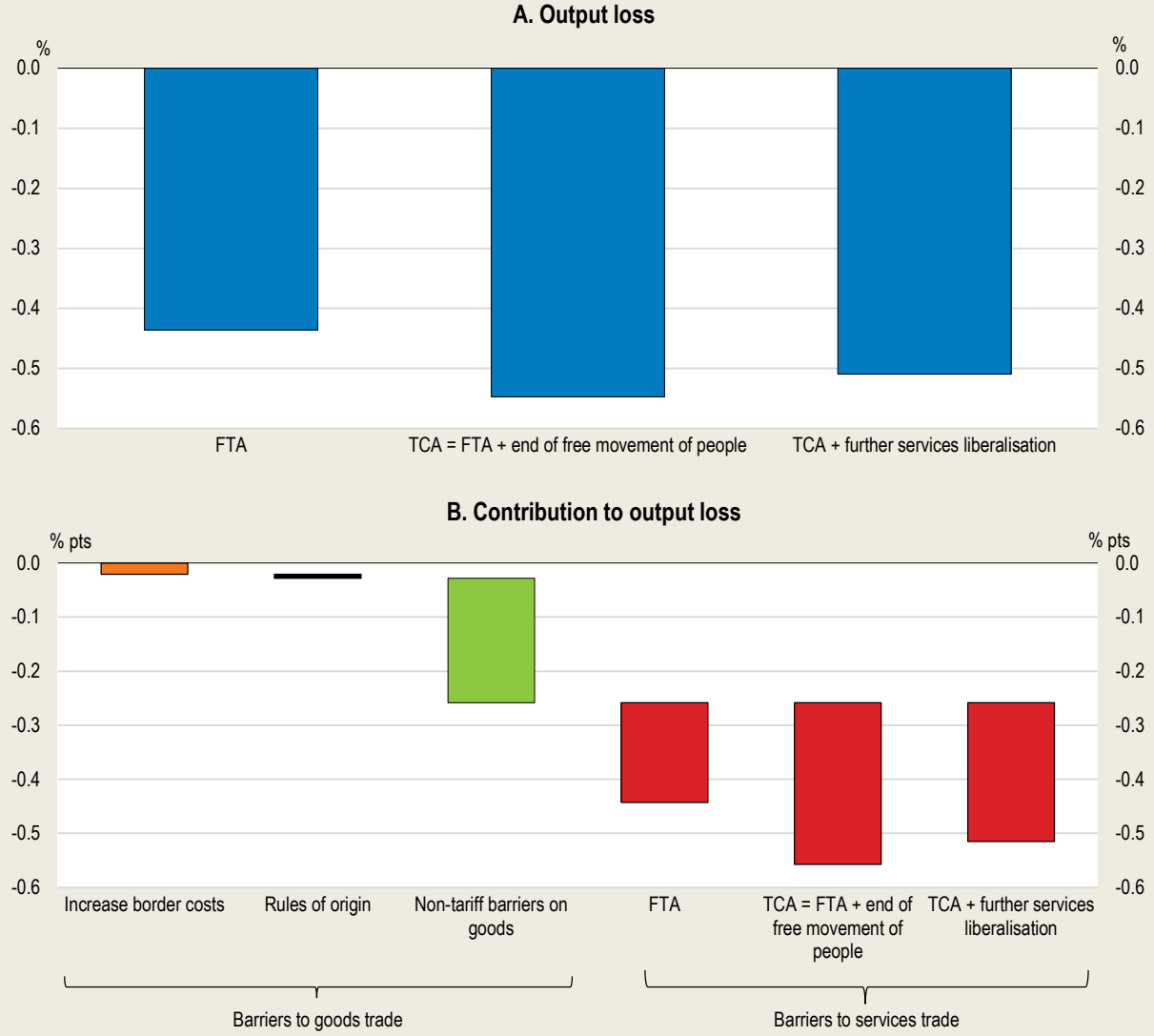
Since 1 January 2021, Single Market rules no longer govern trade between the EU and the UK, and the new EU-UK Trade and Cooperation Agreement applies. Trade in goods remains free from any tariffs or quotas, but has become subject to rules of origin, border formalities and the need to comply with separate regulatory requirements in the two partners. Even though the agreement contains provisions for bilateral cooperation and trade facilitation, some regulatory divergence will likely develop over time, creating non-tariff barriers to trade. Free movement of people and provision of services has ceased to apply, and market access for service providers depends on compliance with host country rules. Again, this creates barriers to trade, though the agreement goes beyond baseline World Trade Organisation (WTO) provisions for trade in services.

The OECD METRO model has been used to simulate the impacts of the agreement. METRO is a computable general equilibrium (CGE) model calibrated for this analysis to 30 regions (with most of the remaining EU members disaggregated), 19 sectors, and 8 production factors. The simulations present medium-term effects (5 to 10 years) where production factors are mobile across sectors, but the overall endowments of labour and capital remain fixed. The different barriers to trade are modelled as an increase in trade costs. For instance, for non-tariff measures affecting goods, the rise in trade costs is calibrated as half of the *ad valorem* equivalent of those measures on goods imported into the EU from third countries.

Regulatory divergence and increased border measures on goods and services between the EU and the UK would result in a GDP decline of 0.44% in the European Union relative to a Single Market baseline (Figure 1.11). Ending the free movement of people is expected to deepen output losses by 0.1 percentage point. Though relatively small, these estimates are likely to be conservative, as the METRO model does not capture impacts on FDI, labour supply or productivity.

Figure 1.11. Brexit will induce moderate output losses in the EU

Difference in EU real GDP under the EU-UK Trade and Cooperation Agreement (TCA) relative to the EU Single Market in the medium term



Note: The FTA scenario considers zero tariffs and quota-free trade in goods; increases of trade costs on goods and services through rules-of-origin and non-tariff measures. The "end of free movement of people" scenario adds the impact on services trade of the end of free movement of people. The "further services liberalisation" assumes the United Kingdom is implementing a set of reforms on visa procedures, procurement, screening and cross-border flows.

Source: Van Tongeren, F., C. Arriola, A. Mourougane and S. Benz (2021), Trade impacts of the Trade and Cooperation Agreement between the United Kingdom and the European Union, OECD Economics Department Working Papers, forthcoming.

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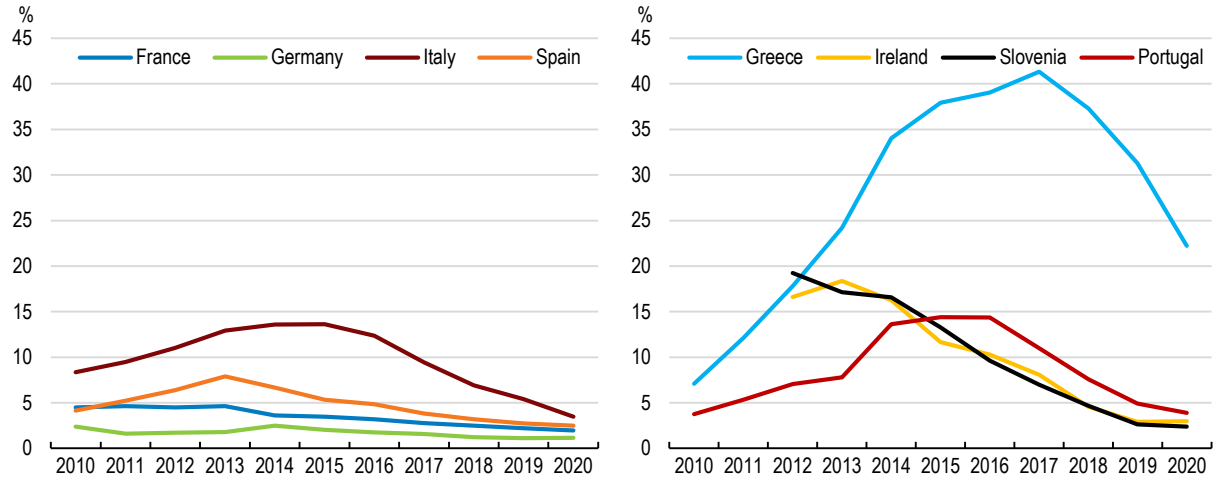
Figure 1.12. Non-performing loans are expected to rise again

Gross non-performing debt instruments as a percentage of total gross debt instruments



Source: ECB (2020), "Monetary and financial statistics", Statistical Data Warehouse, European Central Bank.

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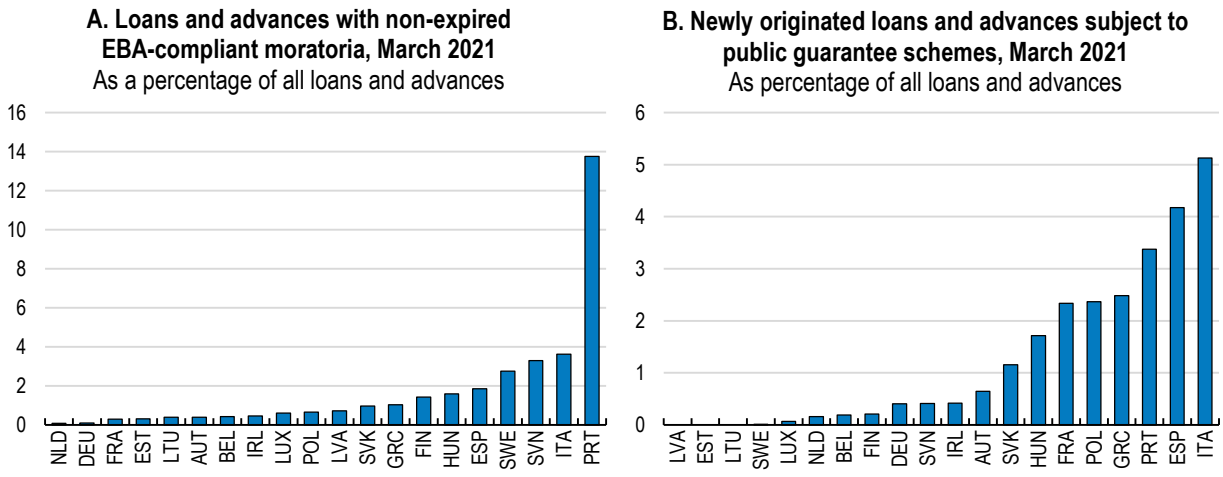
Figure 1.13. Take-up of loan relief measures varies widely across the EU



Note: Gross carrying amounts, other than trading exposures. Computed ratios could be subject to some imprecision due to slight differences in the sample of banks reporting numerator and denominator.
Source: EBA (2021), Risk Dashboard.

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Table 1.2. Events that could lead to a major deterioration in the outlook

Vulnerability	Possible outcomes
New COVID-19 outbreaks linked to new vaccine-resistant virus variants.	Stricter confinement measures would become recurrent and uncertainty would worsen, with major negative impacts on private consumption and investment. Unemployment and bankruptcies would increase.
A surge in NPLs, in a context of increased risk-aversion.	Credit provision and credit reallocation could be hampered, and zombie firms could proliferate. Banks' increased need for public support could put additional pressure on public finances and make it more difficult for the ECB to phase out public debt purchases. Banks' holdings of domestic sovereign debt would likely rise.
Slow implementation of the EU recovery plan and premature withdrawal of fiscal support.	Persistently weak public investment would slow down the recovery. Sovereign debt tensions could re-emerge. Perceptions of recovery plan failure would cast a shadow on the cohesion and further integration prospects of the EU.

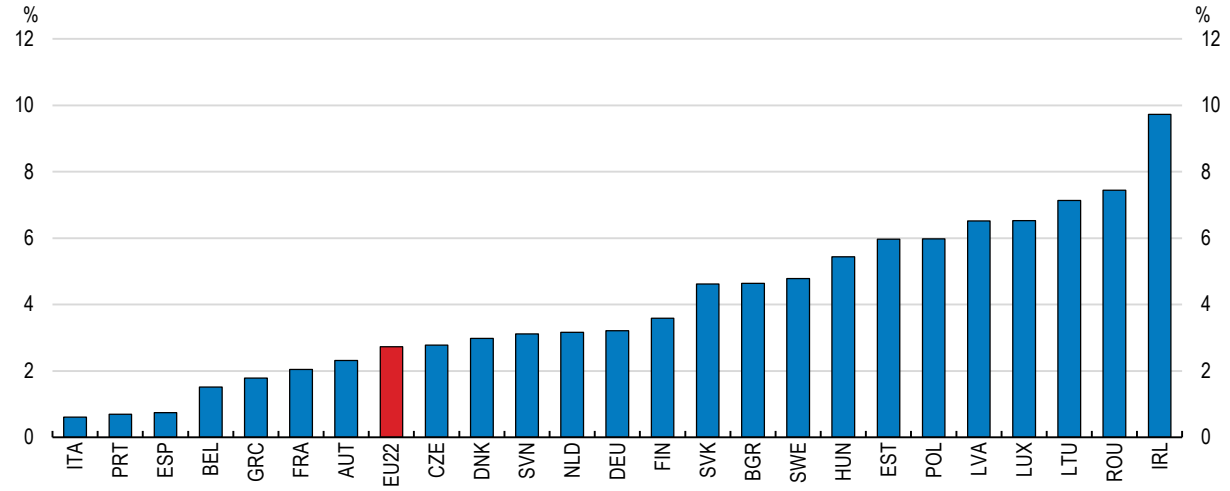
Economic divergence across countries and regions could increase

As witnessed in 2020, the impact of the pandemic is projected to remain asymmetric across the EU, potentially widening the gap in prosperity between countries, though the prospects of worsened divergence are now less severe than in earlier stages of the crisis (Figure 1.14). Differences in sectoral specialization are a key driver of this asymmetry, with Southern countries at a disadvantage due to their higher reliance on tourism. Southern countries also tend to have a higher incidence of very small firms, which are often more vulnerable (OECD, 2020a; Doerr and Gambacorta, 2020). In contrast, Northern countries, with less vulnerable economic structures, have also benefitted from better resourced testing and tracing strategies, at least during the pandemic's first wave. Central and eastern European countries as a whole fare comparatively well, but with some variation, partly driven by different degrees of reliance on car manufacturing, a sector highly exposed to disruption in international supply chains, and by differences in the intensity of pandemic waves from the Autumn 2020 onwards.

The pandemic's asymmetric impact could compound regional inequalities across the European Union. Since the turn of the century, progress in regional convergence has been mixed. Overall regional disparities in GDP per capita declined significantly until the global financial crisis, but at a much slower pace afterwards (Figure 1.15). Declining overall disparities were driven by a reduction in inequalities between countries, thanks to dynamic growth in Central and Eastern Europe, where convergence has continued even after the global financial crisis. In contrast, over the past decade Southern Europe has lost further ground and inequalities within countries have even somewhat increased, reflecting a better growth performance of metropolitan regions. Territorial inequalities can be a potent source of social and political discontent (Rodríguez-Pose, 2018).

Figure 1.14. The pandemic is expected to have asymmetric impacts

Change in GDP between 2019 Q4 and 2022 Q4, volume



Note: EU22 refers to the European Union member countries that are also members of the OECD (22 countries).
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database).

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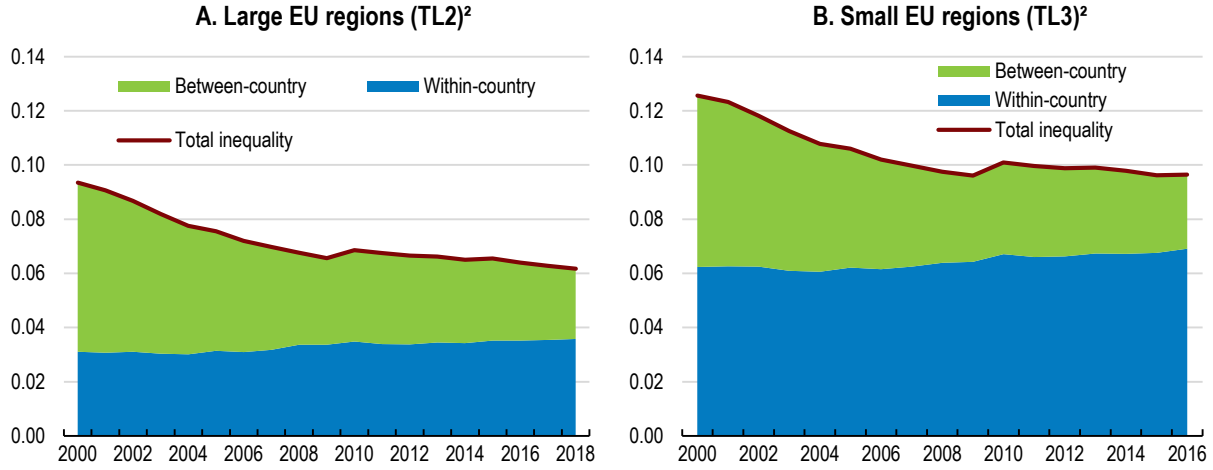
Figure 1.15. Convergence between countries has slowed down, and divergence within countries has increased

Theil indices[1] based on the distribution of regional GDP per capita (in 2015 constant USD PPPs)



Note: 1. The (population-weighted) Theil index is computed based on samples of 194 TL2 (Panel A) and 1158 TL3 (Panel B) regions across 25 EU countries for which data on regional GDP per capita are available over the entire reference period, between 2000 and 2018 (2016 for Panel B). Countries include: Austria, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain and Sweden. Countries with only one TL2 region are excluded in Panel A (Estonia, Latvia and Luxembourg) and those with only one TL3 region are excluded in Panel B (Luxembourg). 2. Territorial Levels 2 and 3 (TL2 and TL3, respectively) refer to large and small regions, as defined by the OECD classification of geographic units. These categories correspond with Eurostat's NUTS 2 and NUTS 3 classifications, with the exception of Belgium and Germany where the NUTS 1 level corresponds to the OECD TL2.
Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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Supporting the recovery and greater convergence

Fostering investment and innovation

National fiscal policies should remain supportive and increase public investment

National fiscal policies are central to the recovery from the pandemic. While European initiatives provide much needed financing, as well as a welcome focus on investment and reforms (Box 1.5), it is national authorities that will take the spending decisions to support aggregate demand and foster structural change. This calls for swift and effective implementation of the national recovery and resilience plans prepared in the context of Next Generation EU, as well as of other planning instruments for investments co-financed by EU grants, such as those from cohesion policy.

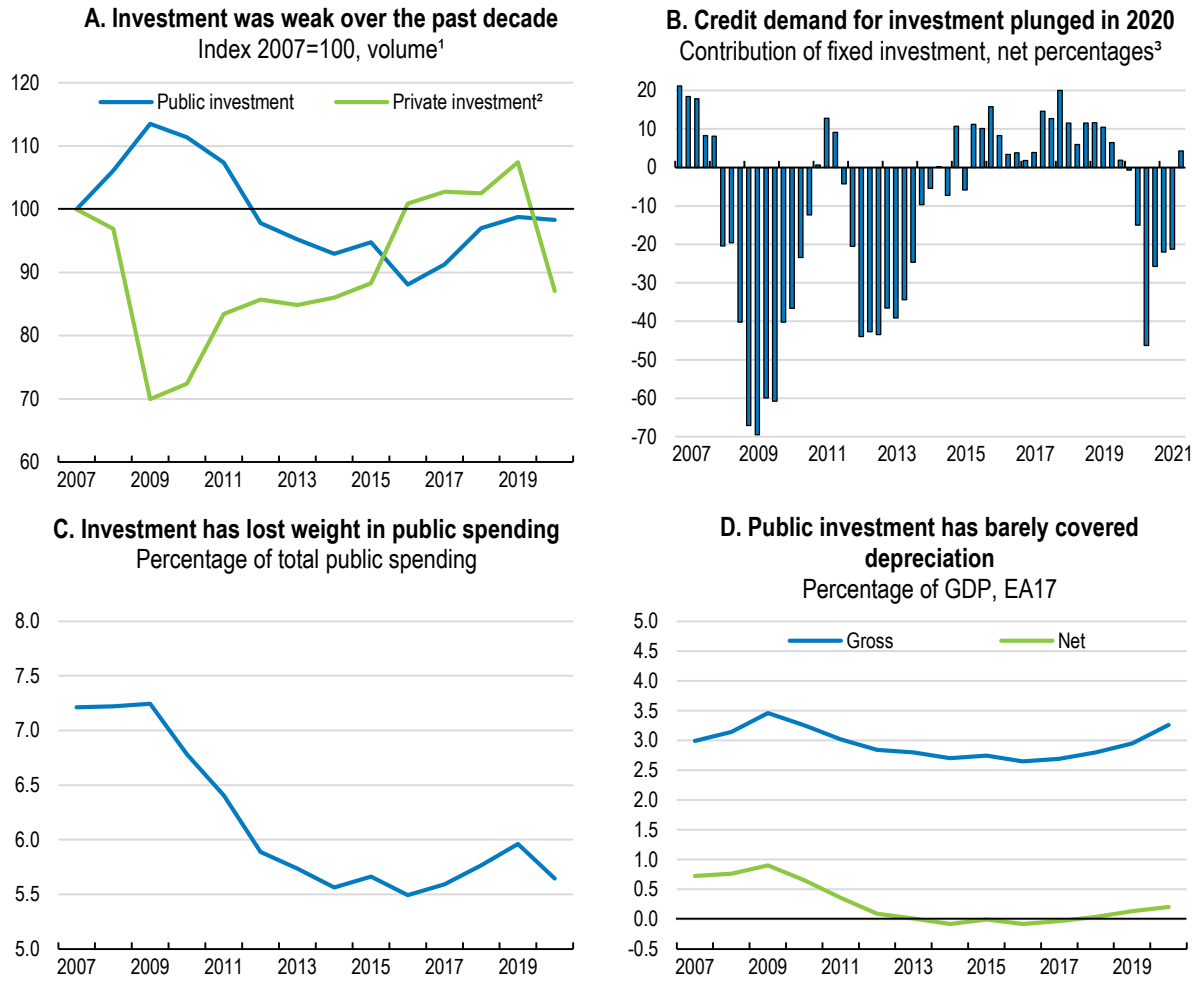
At the same time, efforts at EU level are needed to focus on investment-friendly reforms and support their implementation. The assessment and monitoring of national recovery and resilience plans should focus on their internal consistency and efficiency to attain objectives with strong national ownership, rather than becoming a bureaucratic and potentially conflict-prone exercise (Pisani-Ferry, 2021). Priority should go to reforms that lift obstacles to investment (for instance, regulatory or licensing barriers), make investments more cost-efficient (e.g. more competitive public procurement) and increase their ensuing payoffs (e.g. cross-country coordination to improve European interconnections), aspects which are discussed in this Survey. The Commission should then provide technical support to the design and implementation of selected reforms (Box 1.5).

As discussed in the 2021 OECD Euro Area Economic Survey, national budgets should keep a supportive fiscal stance until the recovery is firmly under way. Meanwhile, a thorough review of the EU fiscal

framework should be undertaken, acknowledging flaws in current rules and reinforcing national ownership. Best practices from individual countries inside and outside the EU should guide these reforms.

At the same time, the composition of budget expenditure must shift towards public investment, which has been weak over the past decade (Figure 1.16). The need for more investment has been made more pressing by accelerating trends towards digitalisation and climate change mitigation. Furthermore, the usually high short-term multipliers of public investment make it an effective policy tool in recessions. Private investment has also been subdued over much of the last decade (with cumulative impacts on the capital stock) and plunged again in 2020.

Figure 1.16. Low investment is a threat to the recovery



Note: Data refer to European Union member countries that are also members of the OECD (22 countries). 1. Deflated by the gross total fixed capital formation deflator. 2. Private investment is obtained as gross fixed capital formation of the total economy minus government fixed capital formation (appropriation account). 3. Data refer to euro area countries. Net percentages are defined as the difference between the percentage of banks reporting that enterprises' fixed investment expenditure contributed to increasing demand for credit and the percentage reporting that it contributed to decreasing demand.

Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database), and updates; ECB (2021), Euro Area Bank Lending Survey, ECB Statistical Data Warehouse (database).

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Box 1.5. The Next Generation EU recovery plan

Next Generation EU (NGEU) is a EUR 750 billion temporary stimulus package to boost the recovery from the pandemic and help achieve the Union's environmental and digital transformation objectives. Its largest component is the Recovery and Resilience Facility, which will fund loans and grants to support investments and reforms. Next Generation EU also provides additional resources to cohesion policy and to a number of other EU programmes and funds, *inter alia* for rural development, R&D and industrial transition out of carbon-intensive activities (Table 1.3).

Table 1.3. Components of the Next Generation EU recovery plan

EUR billion, 2018 prices

Budget item	NGEU		2021-27 EU budget grants for selected items
	grants	loans	
Recovery and Resilience Facility	312.5	360.0	-
Cohesion Policy (1)	47.5	-	330.2
Just Transition Fund	10.0	-	7.5
Rural Development	7.5	-	77.9
Others (2)	12.5	-	84.8
Totals	390.0	360.0	

Note: 1. NGEU resources (EUR 47.5 billion) also include a top-up for the European Fund for Aid to the Most Deprived (FEAD), which is not part of cohesion policy
2. Includes InvestEU, Horizon Europe and RescEU. Resources for InvestEU take the form of guarantees rather than grants.
Source: European Commission (2021).

The cross-country allocation of Recovery and Resilience Facility (RRF) grants is based on population, GDP per capita, unemployment and the impact of the pandemic on GDP in 2020-21. Southern European countries (Greece, Italy, Portugal and Spain) are expected to receive about half of the total. RRF loans do not follow an allocation key, but should not exceed 6.8% of each country's gross national income.

After political agreement on NGEU was reached in July 2020, operational arrangements have become intertwined with those of the 2021-27 EU budget. The RRF Regulation, a centrepiece document, entered into force in February 2021. After submission by Member States of national recovery and resilience plans (henceforth, plans) setting out their reform and investment strategy, the Commission has two months to assess them. Only after the following step, Council approval of plans by qualified majority, can a pre-financing payment of up to 13% of national allocations be disbursed to countries, which may take another two months. These procedural steps are being swiftly accomplished, with most national plans already approved by the Council and initial disbursements having started in August 2021.

A necessary condition for NGEU implementation, fulfilled in May 2021, was ratification by all member states of the Own Resources Decision. This Decision is part of the 2021-27 EU budget legislative package and enables the Commission to borrow on financial markets to finance the recovery plan. Looking ahead, setting up a permanent framework for common fiscal stabilisation, for example through an unemployment reinsurance scheme, as discussed in the OECD Economic Survey of the Euro Area, would enable more agile and effective policy action in the face of future shocks.

National plans need to include at least 37% of expenditure related to climate and 20% of expenditure in support of digitalisation. Besides the green and digital transitions, other areas eligible for RRF financing are smart, sustainable and inclusive growth and jobs; social and territorial cohesion; health and resilience; and policies for the next generation, children and youth, including education and skills. In all these areas, the plans have to respect the principle of "do(ing) no significant (climate) harm". As regards reforms, plans are expected to take into account the respective country-specific recommendations.

The emphasis on structural reforms is commendable, but needs to be selective and accompanied, when needed, by the provision of technical support. The Commission's Directorate-General for Structural

Reform Support (DG REFORM, formerly the Structural Reform Support Service) has carried out numerous reform design and implementation projects in a wide range of policy areas and may thus help member states through the Technical Support Instrument to implement their recovery plans. Among other actions, DG REFORM can contribute to strengthen national administrative capacity to manage and absorb NGEU funds.

Besides providing a welcome temporary stimulus to demand, NGEU has the potential to pemanently increase GDP across the EU. This requires that grants and loans are used to finance *additional* productive public spending, such as on infrastructures or R&D which crowd in private investment. By 2030, EU GDP could then be about 1 to 1.5% higher than in the absence of the recovery plan (Bankowski et al., 2021; European Commission, 2020c).

Accompanying structural reforms could lead to a long-lasting positive impact not only on the level of GDP but also on its growth rate. For instance, action to promote cross-country collaboration in innovative industrial projects, discussed in Chapter 2, could induce a permanent increase in business sector R&D. A rise in such expenditure by 0.4 percentage points of GDP (enough to close about half of the present gap to the US) might, as an order of magnitude, lead to an increase in EU GDP per capita of 0.6% by 2030, and a multiple of that in the long run (Egert and Gal, 2017).

Investment needs are very substantial. To meet environmental and climate targets alone, the additional annual investment over the next decade has been estimated at around EUR 470 billion per year (3½% of EU GDP; European Commission, 2020c) even before more ambitious emission abatement targets have been set for 2030 (discussed below). Investment for digitalisation would add EUR 125 billion per year (European Commission, 2020c). These amounts far exceed EU grants, making it essential that the latter add to, rather than replace, national funding for public investment, and that barriers and disincentives to private investment are removed.

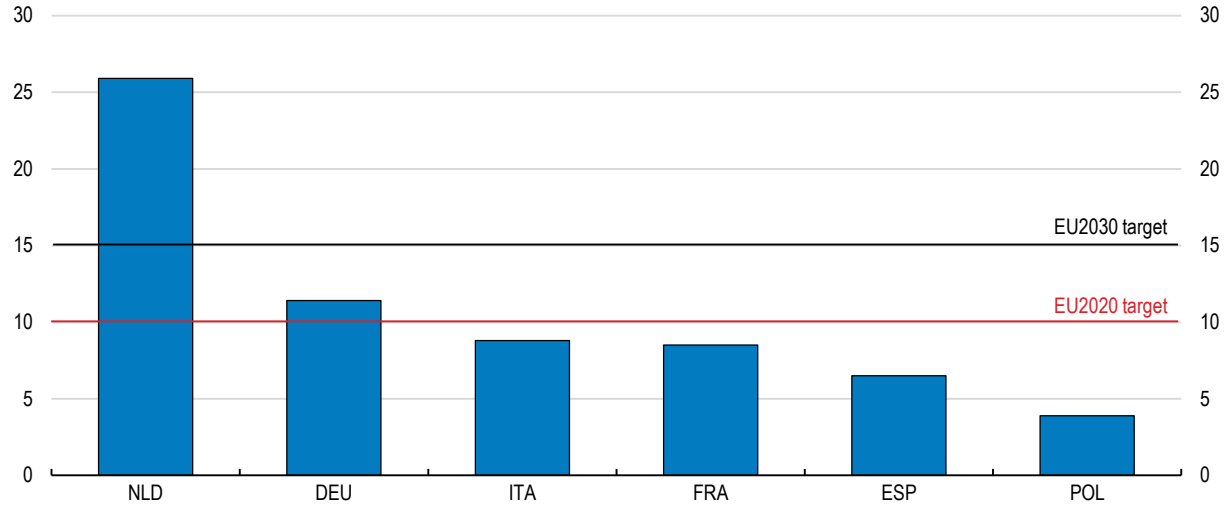
Investment priorities for a more interconnected Europe

Investments should be prioritised so as to exploit public-private complementarities and thus crowd-in further private investment (EIB, 2019). Crowding-in may follow from the provision of essential infrastructure, but also through the lifting of regulatory barriers. At the same time, investments should also take into account cross-border externalities. This gives a European dimension to several investment priorities, calling for coordination across countries and regulatory action at the EU level to ensure interoperability of infrastructure and avoid market fragmentation.

Investment in electricity grids, often public, must more than double over the next decade for Europe to meet carbon neutrality targets (European Commission 2020d). Grid development is a prerequisite to integrate a higher share of renewables in electricity generation, and thus a prime example of complementarity between public and private investment. Cross-border interconnections are an essential strand of grid investment, and also yield the benefits of strengthened market integration and security of supply. However, most of the largest EU economies are still to meet the 10% interconnection target set for 2020 (Figure 1.17). For instance, interconnections between France and Spain are still vastly insufficient. Offshore grids to integrate offshore renewables (wind, wave and tidal) are another strand of infrastructure development, where efficient deployment calls for coordination among countries sharing the same sea basin. For both grids and renewables generation, licensing procedures need to be simplified: for instance, cross-border electricity lines are often well behind their planned commissioning dates (European Commission, 2020e).

Figure 1.17. The largest EU economies lack cross-border electricity interconnections

Interconnection electric energy ratio, %



Note: The interconnection electric energy ratio is computed as the import capacity over installed net generation capacity (as of 08 January 2020). The 2020 and 2030 interconnection targets have been set by the European Council to politically and jointly steer the development and integration of electricity infrastructure of EU countries, in the frame of the Trans-European Networks for Energy (TEN-E) policy. They are not linked to legal sanctions.

Source: ENTSOE-E Winter Outlook (2019-2020), https://www.entsoe.eu.

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Moving towards low-carbon transport also calls for investment, while at the same time highlighting the benefits from grid digitalisation and the need for coordination at the EU level. A dense network of recharging points is essential for the dissemination of electric cars, accompanied by refuelling stations for heavy-duty vehicles powered by low-carbon fuels, like hydrogen (European Commission, 2020f). Digitalisation of the recharging infrastructure will make the energy system more integrated and efficient by allowing demand-side flexibility in electricity consumption and bidirectional energy flows (IEA, 2020). For instance, vehicle-to-grid flows will help accommodate a peak in consumption or a temporary drop in supply from renewables. At the same time, recharging points need to be interoperable across the EU: the current lack of interoperability causes market fragmentation and is a major barrier to stronger dissemination of alternatively fuelled vehicles. Common standards at EU level would also likely reduce uncertainty for private investors.

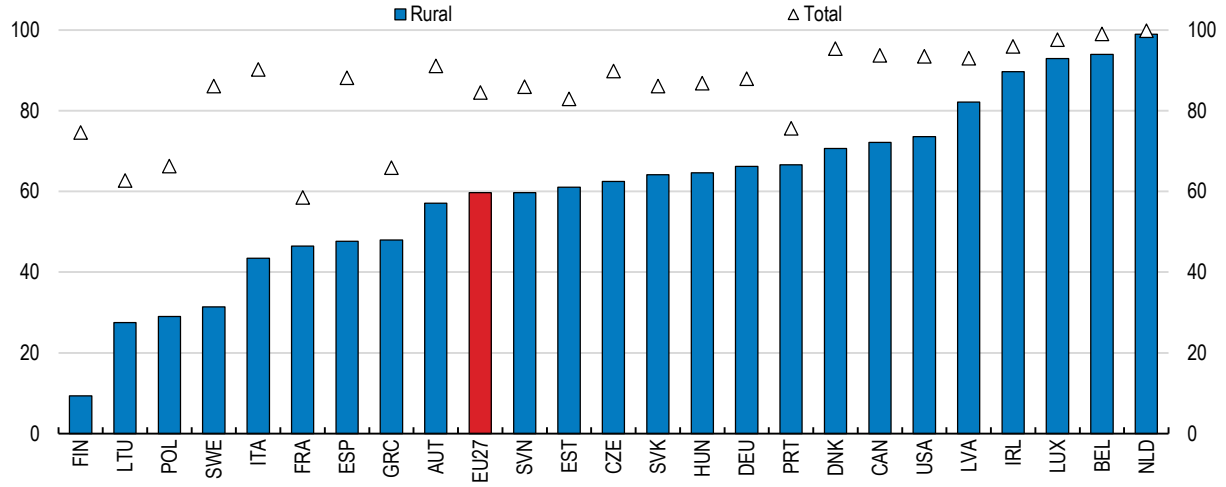
Widespread availability of high-quality and affordable broadband is a key foundation for innovation and innovation diffusion, and a major strand of the European Digital Strategy (European Commission, 2020a). It is also a precondition for teleworking, which minimises the economic impact of public health emergencies and helps to spread the productivity spillovers from thriving cities over larger surrounding territories. Substantial investment, largely private, will be needed to reach the EU 2025 connectivity targets, which envisage access to much higher connection speeds than today (at least 100 Mbps for all households, and 1000 Mbps – or gigabit – for all main firms and public institutions). In turn, network investment will enable subsequent firms' investments in digitalisation.

To reduce the cost of network deployment, public authorities can streamline licensing procedures, grant easier access to public assets (e.g. rooftops) for deployment and promote passive infrastructure sharing (e.g. ducts) among operators, as envisaged by the 2018 European Electronic Communications Code and by a recent EU recommendation (European Commission, 2020g). Rural and remote areas still face important connectivity gaps (Figure 1.18) and may be insufficiently attractive for private infrastructure investment. Governments may then directly invest themselves or provide support to private investors (OECD, 2020b). Another strand of public action to foster connectivity is the promotion of competition in

telecommunications, which brings about lower prices without evidence of an accompanying negative impact on investment.

Figure 1.18. Disparities in the availability of high-speed internet are large

Households with minimum 30 Mbps of fixed broadband coverage, as percentage of all households in total and rural areas, 2018



Note: For EU countries, rural areas are those with a population density less than 100 per square kilometre. For Canada, rural areas are those with a population density less than 400 per square kilometre. For the United States, rural areas are those with a population density less than 1 000 per square mile or 386 people per square kilometre. For EU countries, fixed broadband coverage of NGA technologies (VDSL, FTTP and DOCSIS 3.0) capable of delivering at least 30 Mbps download was used. For the United States, coverage of fixed terrestrial broadband capable of delivering 25 Mbps download and 3 Mbps upload services was used.

Source: OECD calculations based on CRTC (2019), Communications Monitoring Report 2019 (Canada), European Commission (2019), Study on Broadband Coverage in Europe 2018 (European Union) and FCC (2019), 2019 Broadband Deployment Report (United States).

StatLink https://doi.org/10.1787/888934278142

Fostering innovation across the whole EU

Both to develop new technologies for climate neutrality, digitalisation and other societal challenges, and to take advantage of the ensuing opportunities for industrial competitiveness, the EU needs to increase investment in research and innovation. In ICT and climate-related R&D, as well as in total R&D performed by firms, the EU has long invested less than the US and no longer invests more than China (EIB, 2019). In addition, synergies between innovation efforts by EU member states have remained limited. As further analysed in Chapter 2, there is a strong case to combine public and private funding to promote cross-country collaboration in R&D and in highly innovative industrial projects. Promising areas include batteries, clean hydrogen (where in both cases joint initiatives are already ongoing), cybersecurity and digital technologies for healthcare (Strategic Forum for IPCEI, 2019).

Promoting wide participation across the EU in innovative industrial projects will help spread their benefits. Regional convergence requires that poorer regions upgrade their productive specialisation, innovating to develop new activities which build on regional assets and strengths. Stronger R&D investment in these regions, which cohesion policy should help finance, is needed to foster innovation and knowledge diffusion, and will ease partnerships with more prosperous counterparts.

Fostering innovation also requires upholding competitive markets despite new challenges to competition policy. For instance, merger control cannot always avoid that large firms buy smaller rivals to pre-empt future competition, sometimes by halting the development of rivals' innovative projects. Furthermore, competition policy should be updated to better respond to the digitalisation of the economy. For instance, new competition tools and regulation may be needed to tackle positions of entrenched dominance in

digitalised markets, due *inter alia* to strong network effects, consumer lock-in or lack of access to data. Chapter 2 further analyses these issues.

Making public investment more efficient

The medium and long-term benefits from public investment will be enhanced if it generates demand to innovative and highly productive firms, competitively selected, rather than to inefficient suppliers. For example, this will make cohesion policy more effective in fostering regional convergence. Procurement procedures play a major role on this count. In EU countries, public procurement is often not competitive enough, with a high prevalence of single bidding and often a lack of transparency in procedures. Contracts tend to be awarded to suppliers of the same country, and even region, of the buyer (Herz and Varela-Irimia, 2017). This may lead to higher prices without compensating gains in other dimensions (e.g. quality, innovation or environmental impacts), or even fuel fraud and corruption (European Court of Auditors, 2015). Increasing the centralization of procurement and the professionalization of the officials involved, and giving greater weight to quality as a selection criterion will help make public procurement more competitive and supportive of innovation. More openness to bidders from other EU countries will also contribute to these goals.

Support to private investment should be focussed on projects well aligned with policy objectives and which would not be carried out in the absence of public co-funding. For instance, cohesion policy should make greater use of competitive project selection procedures (rather than selection on a first-come first-served basis), with an emphasis on projects' contribution to regional development objectives. This requires stronger administrative capacity by managing agencies, which should also strive to enlarge the pool of applicants by adjusting project calls to the ability to respond of potential beneficiaries and helping them address capacity gaps.

Given the multiplicity of funding instruments at EU level (Box 1.5), efficient investment also calls for integrated strategies bringing together complementary EU policies. A case in point is investment in rural regions eligible for support from both rural development policy and cohesion policy, whose interventions have often been poorly coordinated.

Making migration policies more supportive to growth

International migration often has a positive impact on the growth of the host economy, not least by alleviating skill shortages. While theoretical arguments can lend support to opposite conclusions regarding the impact on growth of immigration, most empirical studies find positive effects (Alesina, Harnoss and Rapoport, 2016; Jaumotte, Koloskova and Saxena, 2016), which tend to become more important the higher the immigrants' skills relative to natives (Dolado, Gloria and Ichino, 1994, OECD, 2010). For example, highly educated immigrants and foreign graduate students have made a positive contribution to US patenting activities and innovation (Hunt and Gauthier-Loiselle, 2010; Kerr and Lincoln, 2010). High-skilled immigrants also make a sizeable contribution to the healthcare sector and help to overcome skill shortages (OECD, 2015a; OECD, 2020c). Foreign-trained doctors and nurses accounted for about 18% and 7% respectively of the healthcare workforce across the OECD countries in the past five years, and several OECD countries have resorted to additional foreign health workers to respond to the COVID-19 crisis (OECD, 2020c).

Other economic impacts of immigration, such as on natives' wages and employment and on public finances, are prominent in the public debate. Empirical evidence indicates that the wage effect of immigration is limited (OECD/ILO, 2018) and depends on the skill structure of the immigrant workforce (Borjas, 2014; Edo and Toubal, 2015). Likewise, the fiscal impact of immigration is around zero on average across the OECD (OECD, 2013).

However, despite mostly benign economic impacts and the decline in the number of asylum seekers (Figure 1.19), immigration remains a highly divisive issue and its political importance has risen (MPC-OPAM, 2018). Europeans have polarised views regarding the impact of immigration and their willingness to accept migrants from poor non-EU countries (Figure 1.20). This is related to public concerns about a perceived lack of control over immigration and external borders (Jeannet et al., 2019; MPC-OPAM, 2018), which would leave final destination countries unable to determine the size and composition of arrivals. This has potentially major implications for EU policies, such as the protection of external borders (Frontex), the determination of the Member State responsible for examining an application for asylum (Dublin regulation), the Blue Card scheme to attract highly-skilled labour or even the acceptance of the passport-free Schengen area. As the pandemic recedes and international travel resumes, immigrant arrivals will likely increase, which could rekindle tensions in the EU, especially under still high unemployment.

Figure 1.19. Arrivals of asylum-seekers have decreased

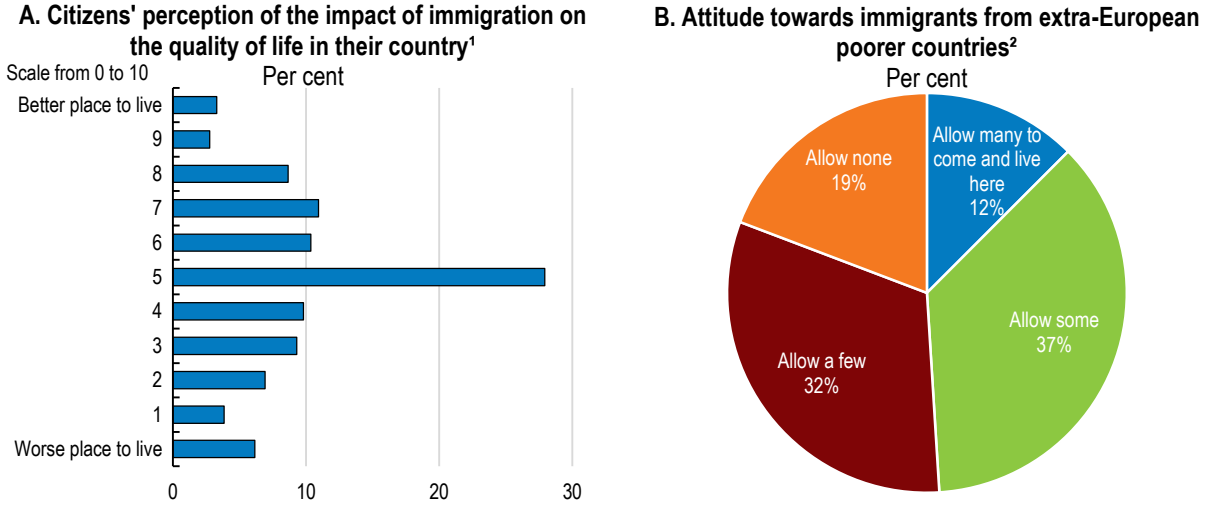
Monthly first-time asylum applications in the EU27, thousands

Source: Eurostat (2021), "Asylum and managed migration", Eurostat Database.

StatLink https://doi.org/10.1787/888934278161

The distribution of asylum seekers among EU Member States remains a thorny issue. In 2016, a package of proposals to reform the Common European Asylum System (CEAS) was put forward, but the process has stalled due to political disagreement over *inter alia* reform of the Dublin Regulation. This regulation sets out the criteria for determining the Member State responsible for examining an application for international protection, which often assign responsibility to the first EU country that asylum seekers enter. This puts, initially, a disproportionate burden on frontline countries. A reform proposal of mandatory quotas for relocating asylum seekers was met with strong opposition by some Member States in 2016 (MEDAM, 2018). In order to overcome political deadlock, the European Commission (2020h) has recently proposed a New Pact on Migration and Asylum, the main element of which is to replace the Dublin Regulation by a more flexible framework for a fairer sharing of responsibility built on mandatory but flexible participation by Member States. This is a welcome initiative, which could also make it possible to conclude the negotiations on the harmonisation and greater convergence in asylum decisions, a component of the 2016 package of proposals where provisional agreement has been reached but was stalled over the Dublin Regulation. Harmonisation aims to address the present large disparities across member states in asylum procedures and in the propensities to grant asylum. For instance, in 2020 recognition rates for Syrians ranged from 35% in some countries to 100% in others. Disparities were even wider for Afghans (from 1 to 99%). The transformation of the European Asylum Support Office into an EU Asylum Agency, for which an agreement has recently been reached, will enable the organisation to better contribute to the management of migration flows and provide greater support to Member States.

Figure 1.20. Public opinion about immigration is polarised



Note: The questions were answered by 36.000 respondents in 18 European countries having participated in the European Social Survey 2019 and aggregated at the European level. 1. Answers to the question "Immigrants make the country a worse or a better place to live?". Respondents gave their answers on a scale from 0 to 10, with 0 indicating "a worse place to live" and 10 "a better place to live". 2. Answers to the question "-How about people from the poorer countries outside Europe?", which required respondents to express their opinion about how many immigrants from these countries they would like to see allowed.
Source: European Social Survey (2019).

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Countering irregular migration into the EU while safeguarding refugees' access to protection requires close cooperation with countries of origin and transit. It also requires stronger protection of the EU external borders, to which plans to reinforce the European Border and Coast Guard Agency (Frontex) will contribute. Frontex has recently started recruitment of its standing corps, which the Commission proposes to become 10,000-strong by 2024. Cooperation on return, readmission and reintegration with countries of origin has often not been effective enough, since those countries often find it politically difficult to support the forced return of their citizens. To this end, the New Pact on Asylum and Migration (European Commission, 2020h) proposes to strengthen coordination and cooperation with third countries by creating a common EU system for returns which includes a stronger role of the European Border and Coast Guard, a newly appointed EU Return Coordinator, and a voluntary return and reintegration strategy. Furthermore, cooperation on return, readmission and reintegration will be part of partnerships with key third countries of origin and transit.

To enhance cooperation with countries of origin, skill partnerships for vocational training, leading to employment either at home or in the EU, are an important tool (Triandafyllidou, Bartolini and Guidi, 2019). As an additional benefit, they may also help to address skill shortages. An example is the skill partnership agreement between Germany and Tunisia in the health sector (Clemens, 2015). Within these partnerships, facilitating the return (mandatory or voluntary) of migrants after working for a period in Europe is important. For this purpose, migrants who return to their countries of origin could be aided in their job search (MEDAM, 2018). The New Pact on Asylum and Migration plans to start Talent Partnerships with key non-EU countries that will match labour and skills needs in the EU.

Europe has managed to attract a growing inflow of high-skilled workers through the Blue Card scheme (Figure 1.21) – an EU-wide work permit scheme for non-EU citizens – but numbers remain very small. For instance, Blue Cards issued in 2018 represent less than 0.01% of the EU population (without taking into account national schemes; see below), against annual arrivals of 0.4-0.5% of population in Canada or Australia (European Commission, 2018a). Moreover, skill shortages, not least in the digital area, have been persistently reported as a highly pressing issue in business surveys, hampering investment and the

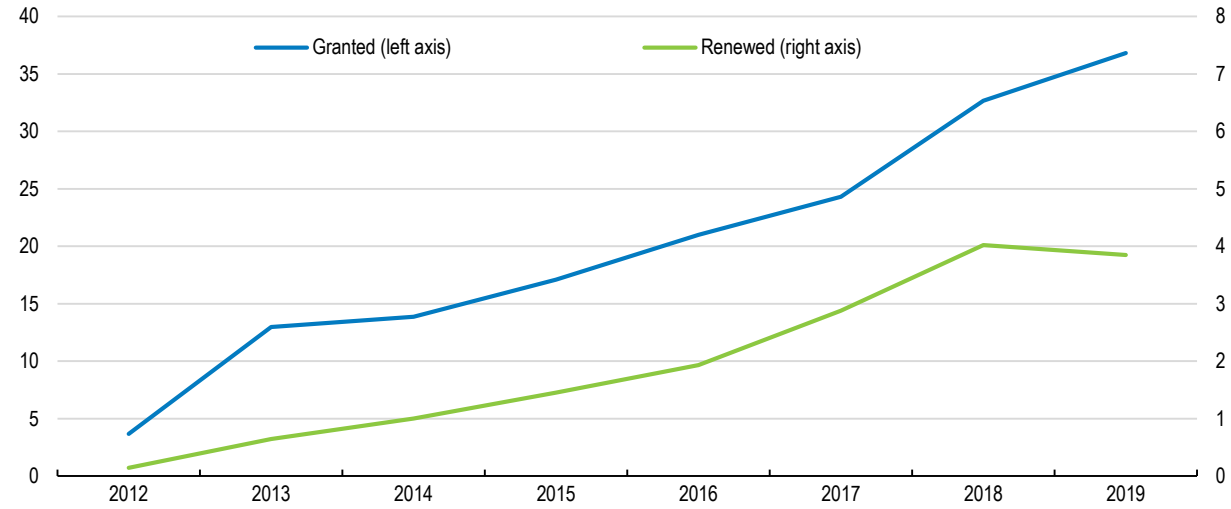
future competitiveness of the EU (EIB, 2019; EIB, 2021). The effectiveness of the EU Blue Card has been undermined by its restrictive conditions and by competition from national schemes offering far more favourable conditions for companies (MEDAM, 2018). Indeed, most member countries admit more high-skilled workers through national schemes than through the EU Blue Card (OECD/EU 2016). In 2016, the Commission proposed to make Blue Card admission conditions less restrictive and to abolish parallel national schemes (MEDAM, 2018). However, some countries have opposed this abolition (European Commission, 2018a; Table 1.4). The EU should indeed make accession to the Blue Card less restrictive. In addition, rather than scrapping national schemes, the EU should allow high-skilled workers benefitting from a national scheme to access the EU Blue Card with only limited formalities. This would ease further access to the Blue Card and facilitate mobility of high-skilled immigrants across the EU.

Table 1.4. Past recommendations and actions taken on migration policies

Make effective the proposed simplification of eligibility and procedures for the EU Blue Card for high-skilled labour migrants.	After being stalled since 2018, negotiations on the 2016 Commission proposal to revise the EU Blue Card Directive have been resumed at the end of 2020 following the adoption of the Commission Communication on a New Pact on Migration and Asylum.

Figure 1.21. Blue Card attractiveness is growing, but remains limited

Number of Blue Cards, EU27, thousands



Note: The EU Blue Card offers highly educated and skilled workers of non-EU countries the opportunity and the right to work and stay in the European Union.
Source: Eurostat (2020), "Asylum and managed migration", Eurostat Database.

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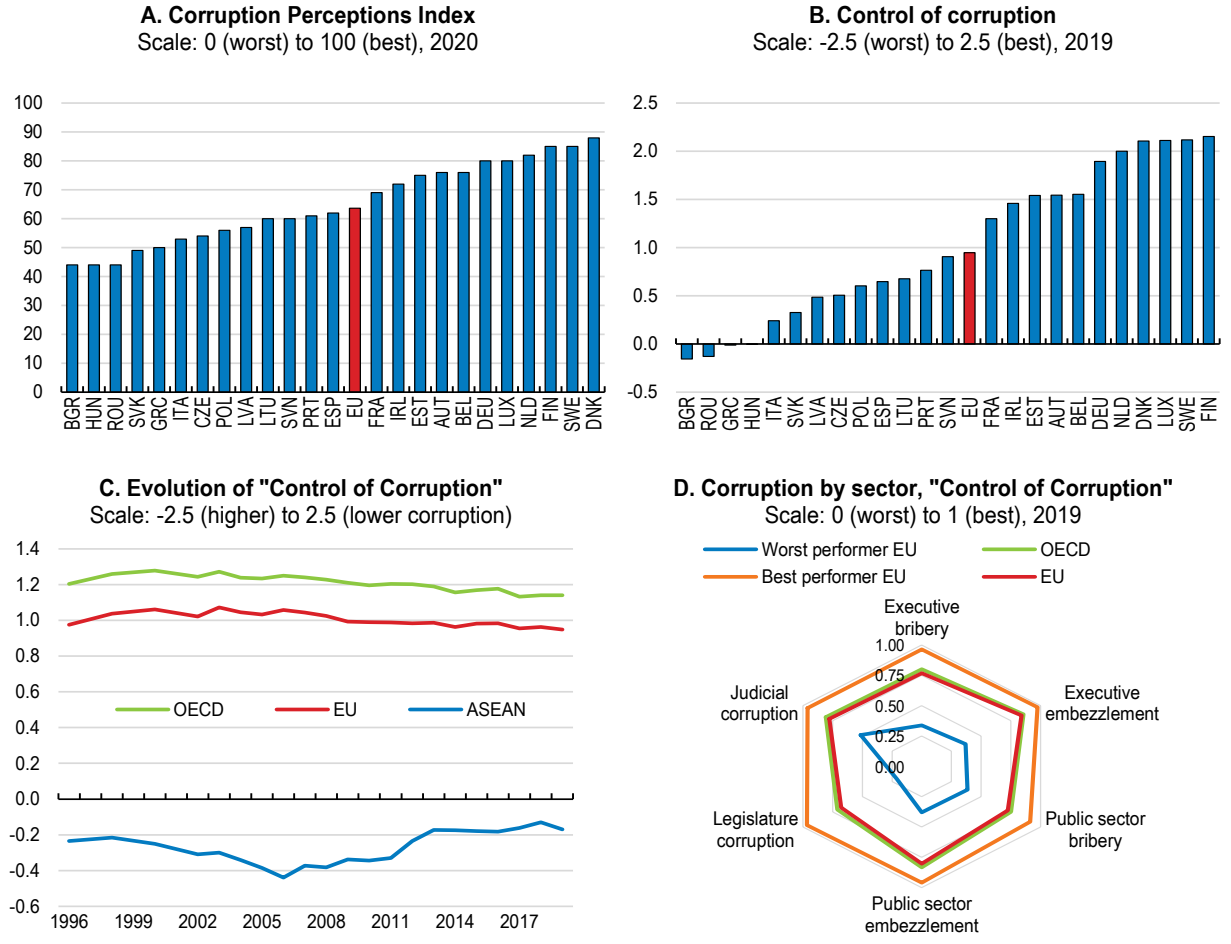
Stepping up the fight against corruption

Corruption has large economic and social costs. It makes public procurement more expensive and can thus induce significant inefficiency in public spending. Furthermore, the distortions created by corruption can lower private investment and discourage innovation, which in turn reduces economic growth (Mauro, 1995; Schleifer and Vishny, 1993). Some estimates suggest that corruption can cost the EU more than 1% of GDP per year (European Parliamentary Research Service, 2016). More broadly, corruption weighs on many other dimensions of well-being. It damages the credibility of public institutions, tends to increase social inequality and may even threaten public health and safety when it allows to circumvent regulations in those areas (OECD, 2015b; Svensson, 2005). All these considerations gain increased relevance in a pandemic context, where the need for swift policy implementation, sometimes under emergency

conditions, often heightens risks of corruption (OECD, 2020d), and increased demands on public budgets put efficient spending at a premium.

Perceptions of corruption vary widely among EU member states, making it even more important that the deployment of commonly funded resources, such as those from the EU budget and the recovery plan, are accompanied by enhanced anti-corruption measures. On average, perceived corruption in the EU and in the whole OECD membership are fairly close (Figure 1.22). However, perceptions are vastly different across EU countries, some of which rank among the top OECD performers, while others feature among the worst. These indices are subjective measures and should be regarded with prudence. In this respect, greater efforts should be made to develop quantitative approaches to assess corruption. Indeed, on top of other costs of corruption, those wide differences across the EU may affect mutual trust between countries and deter further economic integration.

Figure 1.22. Perceptions of corruption vary widely across EU countries



Note: Panel D shows sector-based subcomponents of the "Control of Corruption" indicator by the Varieties of Democracy Project.
Source: Panel A: Transparency International; Panels B & C: World Bank, Worldwide Governance Indicators; Panel D: Varieties of Democracy Institute; University of Gothenburg; and University of Notre Dame.

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Fighting corruption is a competence shared between the EU and member states, and poses considerable coordination challenges, as countries are responsible for law enforcement, prosecution and judicial measures. EU anti-corruption initiatives have often focussed on the protection of the Union's financial interests, concerning the EU budget on both expenditure and revenue sides. While this focus is narrower than corruption in general, EU initiatives also have the potential to lead to improvements in national anti-

corruption legal and operational settings. For instance, some EU initiatives involving the areas of prevention and detection, respect for the rule of law and whistleblower protection (discussed below) can increase effectiveness in the fight against cases of domestic corruption, even when these cases do not have direct implications for the EU budget.

In 2017 the Directive on the fight against fraud to the Union's financial interests by means of criminal law ("PIF Directive") was adopted, replacing a 1995 PIF Convention. To enhance the protection of the EU's financial interests, the PIF Directive harmonises the definitions, sanctions and limitation periods (after which prosecution is no longer possible) of certain criminal offences affecting those interests (i.e. fraud, corruption, misappropriation and money laundering). The deadline for transposition of the PIF Directive into national law expired on 6 July 2019. By the end of 2020, 24 Member States had notified complete transpositions.

Also in 2017, the European Public Prosecutor's Office (EPPO) was created to investigate, prosecute and bring to court the offenses addressed in the PIF Directive, hitherto an exclusive prerogative of national authorities. Currently, 22 EU countries take part in EPPO, which became operational on 1 June 2021. The amended Regulation governing the European Anti-Fraud Office (OLAF), which entered into force in January 2021, not only improves the effectiveness of OLAF's administrative investigations but also streamlines its articulation with EPPO. Both EPPO and OLAF will also be assisted by Europol's European Financial and Economic Crime Centre, launched in June 2020 to pool expertise in the area and provide operational support to EU member states and EU bodies (Europol, 2020).

Curbing fraud and corruption against the EU budget has faced limitations, which the above reforms help to address. OLAF's administrative investigations have been hampered by operational constraints. With the revised OLAF Regulation, OLAF has gained access to financial flows and bank accounts, which it did not have before. In addition, some Member States, invoking national law, had questioned OLAF's competence to conduct on-the-spot checks (which are foreseen by EU regulations). The revised Regulation clarifies to what extent EU or national law apply in the conduct of those checks. Furthermore, when investigations are concluded and passed on to countries for judicial action, follow-up is modest: between 2015 and 2019, only 39% of the cases submitted to national judicial authorities resulted in indictments (OLAF, 2020).

Despite welcome progress, investigative effectiveness will still depend on Member States' compliance with their duty to assist OLAF. Further amendments would also be desirable, notably to reinforce admissibility in national courts of evidence collected by OLAF on behalf of EPPO (European Court of Auditors, 2019a). While the operation of EPPO will help strengthen judicial enforcement, especially in cases involving several member states, it will not be free from challenges, as it is necessary to take into account not only the articulation between national courts and Union bodies, but also between national law and EU law (Erkelens et al., 2015; Weyembergh and Brière, 2016; Bachmaier Winter, 2018).

To further protect the EU budget, the Commission proposed for the 2021-27 period a regulation on a general regime of conditionality for the protection of the Union budget (the so-called "rule of law conditionality"), which would allow the suspension of payments from the EU budget or the imposition of other financial measures to countries with generalised deficiencies as regards the rule of law. The suspension or the imposition of other measures could take place if those deficiencies were to affect, for instance, the prosecution of fraud and corruption related to the implementation of the Union budget or the effective and timely cooperation with OLAF and EPPO. This proposal gave rise to some concerns about the discretionary power it would assign to the Commission (European Court of Auditors, 2018; Vita, 2018) and caused considerable controversy among countries. The approved regulation provides more clarity on the sources of information available for the Commission's assessment (including reports from OLAF and EPPO), narrows the scope of the potential deficiencies to be assessed and sets more demanding voting requirements in the Council for a suspension of payments or other measures to be imposed on a Member State. Still, some controversy remained.

As a compromise, countries have agreed on a set of principles for applying the newly adopted regulation, which made it possible to adopt it together with other legislative instruments of the EU 2021-27 Budget. The text of the new regulation has not changed, but according to European Council conclusions (European Council, 2020) it would only apply to budgetary commitments under the 2021-27 Budget or Next Generation EU, thus excluding outstanding payments from the 2014-2020 Budget. Furthermore, under the newly adopted regulation, the relevant rule of law breaches require a direct link to the negative consequences on the Union's financial interests. Given that two Member States have challenged the validity of the Regulation, the European Court of Justice will deliver a judgement that will be taken into account by the Commission. In due time, the effectiveness of the measures adopted under the new regulation should be assessed, and consideration should be given to tightening this "rule of law conditionality" if needed.

Prevention and detection of fraud and corruption also have scope for improvement. The Early Detection and Exclusion System (EDES), the EU's debarment tool, aims at detection of individuals or entities representing risks to the Union's financial interests and may exclude them from receiving EU funds managed under direct or indirect management mode, while EU Member States should also take this information into account when awarding contracts under shared management arrangements. However, the number of publicly available cases is very limited since EU legislation, in line with the requirements of the Charter of Fundamental Rights, limits publication to the most severe cases (only 9 in September 2020, which compares, for instance, with hundreds of entities publicly debarred by the World Bank). Other levers for strengthened prevention and detection include greater use of data-mining tools (discussed in the thematic chapter) and more systematic development by member states of formal anti-fraud strategies and fraud prevention policies, accompanied by assessments of their effectiveness (European Court of Auditors, 2019b).

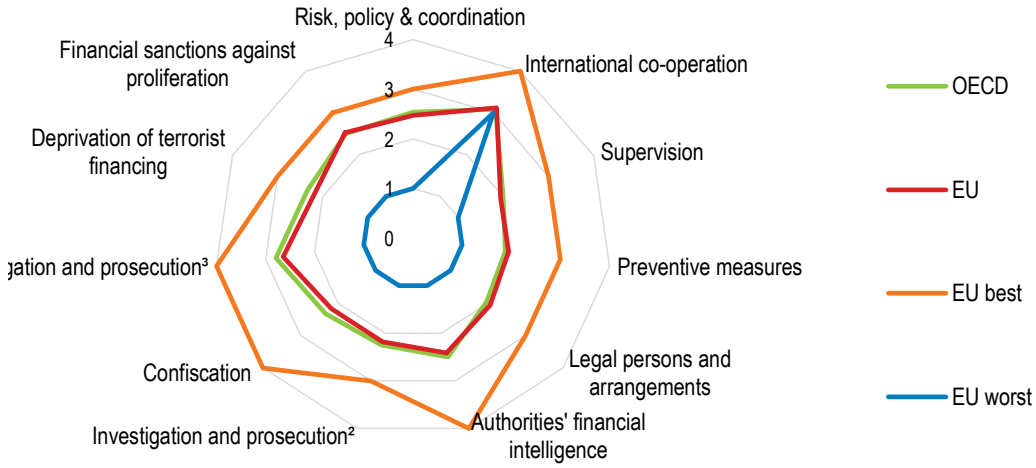
Money laundering has also been the object of successive EU directives since 1990. However, partly due to the minimal harmonisation sought, the effectiveness of anti-money laundering (AML) measures is still assessed as widely different across member states (Figure 1.23). In 2018, the 5th AML directive amended the rules of access to registers of beneficial owners (BO), set up by the 4th AML directive in 2015, to make available to the public a set of BO data on legal persons, whilst also expanding the scope of legal arrangements covered by the obligation to have their BO recorded in a register. The 5th AML directive also made cooperation between national authorities more efficient. However, recent high-profile money laundering cases involving banks have highlighted the need to step up anti-money laundering supervision, hitherto relying on the European Banking Authority as hub for coordination and convergence of national supervisors. In reply to this, an Action Plan to step up the fight against money laundering and terrorist financing presented by the Commission in May 2020 (European Commission, 2020i) foresees more harmonised rules and setting up a direct EU-level anti-money laundering supervisor. This is welcome, as it will lead to a stronger anti-money laundering framework from both regulatory and institutional viewpoints. A key priority for the EU-level supervisor is to improve supervision in cross-border cases, for which current arrangements are unsatisfactory (European Commission, 2020i). In any case, the new supervisor should be endowed with resources commensurate to its duties. Draft legislation presented in July 2021 aims to implement the Action Plan, proposing *inter alia* that a new EU anti-money laundering authority starts direct supervision activities in 2026, with directly supervised financial institutions proposed to be generally determined on the basis of risk categorisation and cross-border activity.

The fight against money laundering, its predicate offences and terrorist financing would also benefit from more effective freezing and confiscation of illegally acquired assets. In the EU, only 1% of the estimated criminal proceeds are confiscated (Europol, 2016), and cross-country cooperation has been hampered by differences in national law. A 2018 regulation on the mutual recognition of freezing and confiscation orders attempts to tackle these barriers and the creation of the European Financial and Economic Crime Centre within Europol aims to foster cooperation among law enforcement authorities in this field.

Robust protection to whistleblowers is essential to increase the likelihood of wrongdoing detection. A 2019 directive increases protection to people reporting breaches of EU law (thus covering money laundering and crimes against the EU budget, among many other areas) and harmonises protection across countries. For instance, some Member States would only provide protection to whistleblowers working in the public sector, while others would only provide protection in corruption cases. Full and timely transposition into national legislation (due by December 2021) is now called for. Furthermore, countries should take advantage of transposition to increase whistleblower protection also in cases of breaches of national law.

Figure 1.23. Stronger action against money laundering is needed

Anti-money laundering measures, scale: 1 (low) to 4 (high effectiveness), 2019 or latest year



Note: The figure shows ratings from the FATF peer reviews of each member to assess levels of implementation of the FATF Recommendations. The ratings reflect the extent to which a country's measures are effective against 11 immediate outcomes. "Investigation and prosecution²" refers to money laundering. "Investigation and prosecution³" refers to terrorist financing.
Source: OECD, Financial Action Task Force (FATF).

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Special focus: climate change and a circular economy

Achieving zero net greenhouse gases emissions by 2050

The European Green Deal has set an objective of zero net emissions of greenhouse gases in the EU by 2050. This will require a significant acceleration in emission abatement (Figure 1.24), as current policies are only projected to yield a 60% reduction relative to 1990 levels by that date (European Commission, 2019a). More ambitious intermediate targets have also been agreed upon, such as stepping up the previous 40% reduction by 2030 to at least 55% of net EU emissions.

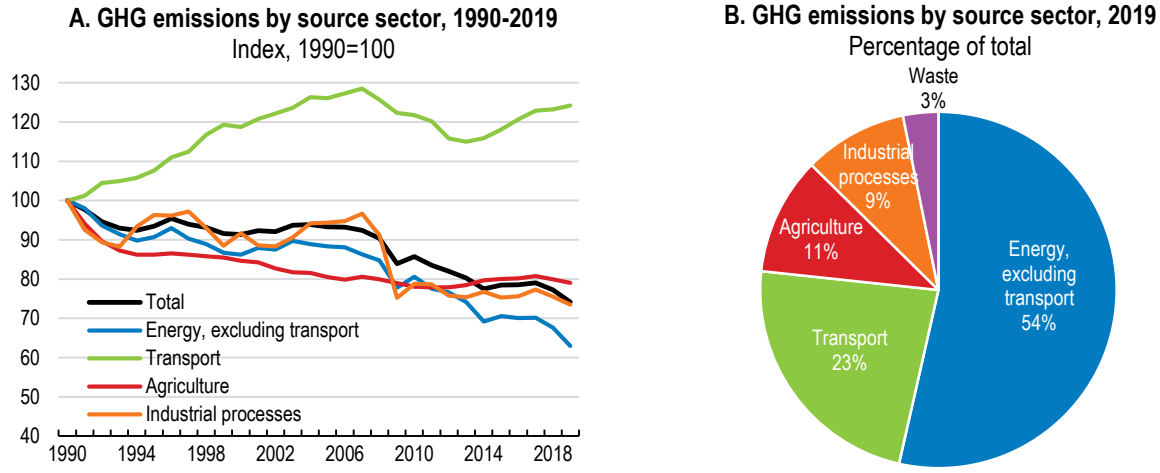
Making progress towards net zero emissions requires a strategy to tackle a broad range of sectors, including electricity generation, construction, transport, industry and agriculture (OECD, 2019). Reaching net zero emissions requires electrifying most energy end use while generating at the same time most electricity from zero-emission sources. Low-carbon fuels should be developed for sectors hard to electrify, carbon capture, storage and utilisation (CCSU) further pursued and energy efficiency increased more generally. The recent “Fit for 55’ policy package to achieve the 55% emissions reduction target by 2030 contains legislative proposals in many of these areas (Box 1.6; European Commission, 2021a).

This section looks at reducing greenhouse gases emissions in transport and agriculture, where emissions abatement has proved harder, and in buildings, where energy efficiency is of paramount importance. It also analyses the role of a clear identification of environment-friendly activities and of financial regulation and supervision to steer investment towards greener assets. These are challenges felt throughout most, if not all, of the European Union.

In contrast, other challenges for reaching low carbon emissions have a stronger regional dimension, as they are territorially concentrated and have major implications for productive specialisation. It is the case, for instance, of the transition out of coal mining and energy-intensive industries, which is discussed in the thematic chapter. Long-term transition plans with wide stakeholder involvement should be prepared for the regions concerned . These plans should pay particular attention to re-skilling and upskilling, as well as to job search assistance and adequate social safety nets for displaced workers, who in carbon-intensive sectors are often elderly.

Figure 1.24. Greenhouse gas emissions have been reduced, and this should continue at a fast pace

Emissions of greenhouse gases



Note: Excluding land-use, land-use change and forestry (LULUCF).

Source: Eurostat (2020), "Greenhouse gas emissions by source sector", Eurostat Database; European Environment Agency.

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Box 1.6. Delivering the European Green Deal: the Fit for 55 policy package

In July 2021, the European Commission presented Fit for 55, a package of proposals for the EU to reduce its GHG emissions by at least 55% by 2030 compared to 1990 levels and reach climate neutrality by 2050. The Commission's proposals include stronger and more efficient carbon pricing and more stringent regulations to curb emissions, with a major focus on the transport sector.

- The EU Emissions Trading System (ETS) will be strengthened through the broadening of its scope to emissions from the maritime sector, a faster decrease in the annual cap of emissions and the phasing-out of free allowances, including in the aviation sector. Member States are bound to earmark all their revenues from ETS to climate and energy-related projects.
- Emissions from road transport and buildings will be priced from 2026 through the creation of a separate emissions trading system based on fuel distribution in these sectors. Emission caps will lead to a 43% reduction of targeted emissions in 2030 relative to 2005.
- More stringent standards for emissions will be applied in the transport sector. By 2030, average emissions for new cars (vans) should be 55% (50%) smaller than in 2021, up from a previous 37.5% (31%) reduction target. In addition, the reduction should reach 100% by 2035. This will be accompanied by new requirements for member states to provide adequate electric charging and hydrogen fuelling points. More stringent requirements and easier access to sustainable fuels will also apply to the aviation and maritime sectors.
- A Carbon Border Adjustment Mechanism will apply to a selection of carbon-intensive products (iron and steel, cement, fertilisers, aluminium and electricity generation) to align carbon prices for domestic production and imports and avoid carbon leakage. This mechanism will be consistent with WTO rules and will be phased in from 2026, after a three-year transition period in which importers of the selected goods will have to report the respective embedded emissions. Free allocation of ETS allowances to the covered sectors will be phased out.
- The Energy Taxation Directive will be updated to set minimum energy tax rates that encourage energy efficiency and the use of sustainable fuels. Several fossil fuel tax exemptions and reduced rates will be phased out.
- New ambitious targets are set for carbon removal (including an EU Forest Strategy aiming to plant 3 billion trees across the EU by 2030), the share of renewable energy (40% of production by 2030) and energy efficiency (energy saving targets being nearly doubled, with annual targets for public sector buildings renovation).
- A Social Climate Fund will support vulnerable households and micro-enterprises in the transition to higher energy efficiency and cleaner heating, cooling and mobility systems. Financed by the EU budget with an amount equivalent to 25% of the expected revenues of the new ETS for road transport and buildings, the Fund will be able to provide temporary income support and help finance investments in energy efficiency.

Differences in carbon pricing across countries may lead to the shifting of carbon-intensive production to low-price jurisdictions, which reduces the impact of higher domestic carbon prices on global CO2 emissions through carbon leakage (i.e., lower domestic emissions are partly offset by higher foreign emissions). Evidence on ETS-induced leakage is so far scarce, but it could become a more serious problem if carbon prices increase in Europe but not elsewhere (Dechezleprêtre *et al.*, 2018), reflecting divergent degrees of climate ambition. In this case, a carbon border adjustment mechanism (CBAM) could play a useful role in minimising carbon leakage, with the advantage of not weakening domestic abatement incentives. The design of a CBAM should be compliant with WTO rules and take into account both the carbon content of imports and the carbon price they have already been charged in their countries of production. To avoid any perception of protectionism and to ensure a level-playing field, the carbon cost

imposed on importers and foreign producers should be as close as possible to the carbon cost paid by domestic producers, and administrative costs imposed on importers and foreign producers should be kept to a minimum. Progress in international cooperation to reduce global greenhouse gases emissions should remain the policy priority in this domain.

As part of the Fit for 55 package, the Commission has recently proposed a carbon border adjustment mechanism (CBAM), to be phased in from 2026 and initially applying to a limited number of energy-intensive and trade-exposed sectors covered by the EU Emissions Trading System (European Commission, 2021b). The proposed mechanism aims at equalising carbon prices for domestic production and imports. For this purpose, importers will buy at the same price of Emissions Trading System (ETS) allowances an amount of carbon certificates corresponding to the emissions generated in the production of the imported quantities, with the possibility to deduct carbon prices already paid by non-EU producers in third countries. Over 2026-35, the CBAM's phasing-in will be proportional to the phasing-out of the free allocation of ETS permits in the sectors concerned, which avoids a duplication of instruments to prevent carbon leakage and the ensuing advantage to domestic producers (OECD, 2020e). The possibility to report actual emissions generated in production (as an alternative to using default values) and to deduct carbon pricing paid in origin countries reinforces incentives to green production there, but the required verification and certification mechanisms could turn out cumbersome.

Carbon pricing needs to be accompanied by sector-specific interventions

Emissions in transport have risen in recent years (Figure 1.25), calling for decisive price and regulatory action to reach targets. As part of a broader policy package, bringing transport into the EU Emissions Trading System (ETS) could help to ensure that transport contributes to reaching emission targets cost-effectively (Table 1.5). In this vein, the Fit for 55 package proposes the creation of a separate ETS for fuel used in road transport and for heating and cooling buildings. Recent reforms to the existing ETS, especially concerning the Market Stability Reserve, have made it more effective, increasing the price of allowances (Figure 1.26) and reducing volatility. The Fit for 55 package envisages further reforms, including a faster reduction in the overall emissions cap, the inclusion of maritime transport and a gradual phasing out of free emission allowances, which is welcome.

Table 1.5. Past recommendations and actions taken on fighting climate change

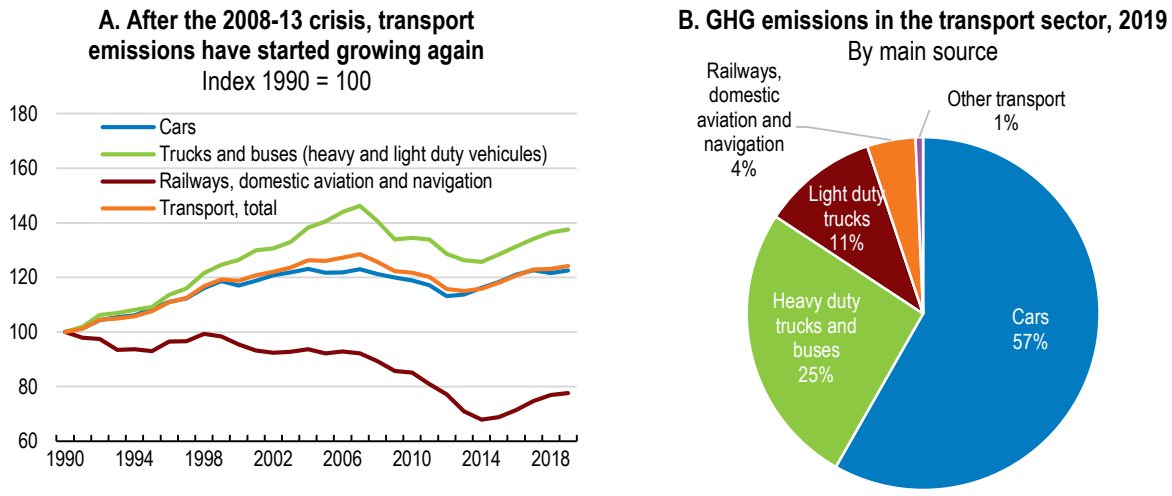
Increase the price of greenhouse gas emissions and consider bringing all fuel use, including transport, into the EU Emissions Trading System (ETS).	Member States have agreed to raise the 2030 greenhouse gas emission reduction target to at least 55% compared to 1990 (as compared to the previous target of 40% reduction). To deliver these additional reductions, the Commission proposed in July 2021 a comprehensive policy package (Fit for 55) to revise where necessary all relevant climate-related policy instruments. This package comprises reforms to the existing Emissions Trading System (ETS), such as lowering the overall emissions cap, including maritime transport and gradually phasing out free emission allowances, including for aviation. The Fit for 55 package also envisages the creation of a separate ETS for fuel used in heating and cooling buildings and in road transport.
Increase minimum tax rates on fossil fuel use that falls outside the ETS, especially where tax rates are currently low or zero.	The Commission presented in July 2021 a proposal to revise the Energy Taxation Directive, including changes in the structure of rates and a rationalisiation of the use of optional tax exemptions and reductions.

To move towards low carbon emissions in transport, regulatory tools and price incentives should work together, in tandem with the promotion of more systemic changes in mobility (e.g. digital-based ride sharing, discussed below). Private cars account for the lion's share of emissions from fuel combustion in the transport sector (Figure 1.25), and are the transport segment where zero-carbon technologies are most readily available. The proposed inclusion of road transport in an emissions trading scheme and the promotion of competition in the supply of electricity for vehicle recharging would reinforce price incentives for electric cars. As for regulatory tools, the Fit for 55 package envisages more ambitious medium-term emission standards for new passenger cars and vans, which should all become zero-emission from 2035

on (Box 1.6). This requirement is welcome: given an average car useful life of 15 years and the 2050 deadline for zero net emissions, ending the sale of new cars with internal combustion engines by 2035 would avoid premature depreciation of newly purchased cars after that date. Several countries had already committed to such phasing out, often between 2030 and 2040. Recent research suggests that a switchover by 2030 would result in lower costs, even without taking into account the substantial benefits in terms of reduced air pollution (UK Committee on Climate Change, 2019). As electrification proceeds, gradual tax reforms in the road sector, with an evolving mix of taxes and revenues increasingly stemming from taxes on distances driven, can contribute to a more sustainable tax policy (OECD/ITF, 2019).

The experience of Norway illustrates some of the trade-offs involved in reducing carbon emissions in transport. Norway ranks first in the world in electric vehicles relative to population, and aims at ending the sale of non-zero-emission cars as early as 2025. Exemptions from VAT and vehicle registration tax, together with cheaper tolls and parking, have often made electric vehicles cheaper than their petrol or diesel counterparts. However, the implicit cost of carbon abatement has been inefficiently high, as discussed in the 2019 OECD Economic Survey of Norway. Possible social tensions associated with strong hikes in fuel prices have been avoided. Still, the tax advantages of electric cars have mainly accrued to better-off households.

Figure 1.25. Cars are the main source of emissions in the transport sector



Note: GHG emissions in the transport sector exclude emissions from international aviation and navigation.
Source: Eurostat (2020), "Greenhouse gas emissions by source sector", Eurostat Database; European Environment Agency.

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Despite a high environmental ambition of the Common Agricultural Policy and a 20% reduction in agricultural GHG emissions since 1990, virtually no progress has been made over the past 15 years in reducing emissions (Figure 1.24). In 2014-20, almost 20% of direct payments to farmers were deemed to contribute to climate action, and at least 30% of rural development spending to environmental objectives (climate and other; European Court of Auditors, 2020). However, the effectiveness of the underlying policy instruments was insufficient (DeBoe, 2020). The requirements for greening payments (part of direct payments) largely corresponded to existing farming practices (e.g. maintaining permanent grassland), which have thus changed little (World Bank, 2017; Henderson et al., 2020). Other environmental requirements for direct payments (cross-compliance) have often lacked ambition and scrutiny (European Commission, 2018b; DeBoe, 2020). Similar reasons, plus an emphasis on agricultural practices rather than on environmental outcomes, help explain why agri-environmental measures under rural development policy have also had a modest impact on emissions mitigation (European Commission, 2018b; Henderson et al., 2020). More significantly, some direct payments, left at the discretion of member states and widely used, are still linked to the production of specific commodities and tend to be climate-harmful, especially

in the case of subsidies to ruminant cattle, a major source of methane emissions (Henderson and Lankoski, 2019).

In line with the European Green Deal and the objectives for a sustainable food system contained in the EU Farm to Fork Strategy (European Commission, 2020j), the recent political agreement for the Common Agricultural Policy in 2021-27 envisages a stronger link between direct payments to farmers and improved environmental outcomes ("eco-schemes", to which countries must in general allocate at least 25% of their direct payments budget). This is welcome, and countries should use this new tool to strengthen incentives for reducing animal methane emissions, *inter alia* through novel approaches to feeding. Such incentives would also minimise the risks of carbon leakage through imports from the desirable phasing-out of production-based direct payments (Jansson et al., 2020). Furthermore, member states should stop subsidising fuels used in agriculture, a still widespread practice (OECD, 2019a).

Figure 1.26. The price of EU emission allowances has significantly increased

EUR/tCO2, primary market auctions, spot price

Source: Thomson Reuters, Refinitiv Database.

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Buildings account for 40% of energy consumption, and thus making them more energy-efficient is key to reaching carbon neutrality. Energy efficiency in homes also delivers important health and wellbeing gains by improving the quality of indoor living (OECD, 2019b), especially for those households who currently cannot afford to heat their homes sufficiently. From 2021 on, all new buildings in the EU should be "nearly zero-energy buildings", though countries have operationalised this requirement in different ways (Climate Action Tracker, 2018). In 2018, the requirement was extended to all buildings by 2050. To meet this target, annual renovation rates, currently varying between 0.4% and 1.2% across EU countries, will need to at least double (European Commission, 2019a). In this vein, the Fit for 55 package proposes to require the public sector to renovate 3% of its buildings every year. Greater uniformity and stronger enforcement of the nearly zero-energy buildings requirement would improve information and avoid market fragmentation across the EU.

Investment and reforms to improve the energy efficiency of buildings should be a priority area for national recovery plans. Over long horizons, investments in energy efficiency often more than pay for themselves (IEA, 2018), by yielding benefits to property owners (higher property values) and occupiers (less energy consumption). Deep renovation of public buildings at all levels of government is an opportunity to spearhead better integration between different energy carriers (e.g. electricity, heat) and consuming sectors (e.g. buildings, industry; IEA, 2020). For instance, heating and cooling planning can exploit

synergies with local waste recycling and industrial sectors. Furthermore, energy efficiency actions should be coupled with the adoption of circularity principles throughout the lifecycle of buildings to reduce the consumption of materials, as discussed below. Besides promoting job creation in retrofitting, the renovation of public buildings can help demonstrate the benefits of energy efficiency to private owners. Policy tools to support private investment in retrofitting include grants, loans, guarantees and technical assistance, possibly in combination. It is also necessary to lift regulatory barriers that inhibit renovation in rented housing, namely by allowing landlords in regulated rental markets who carry out energy-efficiency investments to increase rents, as is the case, for instance, in Denmark and Germany.

Reinforcing price incentives is also needed, since heating fuels are often lightly taxed (OECD, 2019a). The revision of the Energy Taxation Directive, also part of the Fit for 55 package, envisages to phase out certain tax exemptions and reductions which subsidise fossil fuel use. Furthermore, the proposed integration of buildings into an emissions trading scheme will also help align price incentives with the EU emission reduction targets. As in the case of the policy measures to foster investments discussed above, targeted support to poorer households will be required. The proposal to set up a Social Climate Fund (Box 1.6) to address adverse social impacts from the new ETS for buildings and road transport is thus welcome.

Steering public and private finance towards sustainable investments

The mobilisation of public and private finance for the transition to a low-carbon economy requires a clear identification of environmentally sustainable activities. For instance, this identification provides a basis for the issuance of green financial instruments, such as bonds or loans, and minimises risks of greenwashing (misleading claims regarding the sustainability of an investment product). Regulatory stability is also essential: changing regulatory goalposts may alter the risk-return profile of the investment during the project life cycle, undermining investors' confidence (BIAC, 2016). In this context, the adoption in 2020 of the EU taxonomy was a welcome step. In order to qualify as environmentally sustainable under this classification system, an economic activity must make a substantial contribution to at least one of six environmental objectives (e.g. climate change mitigation or the transition to a circular economy) while doing no significant harm to any of them. Delegated acts prepared in 2021-22 define technical screening criteria for each of the objectives, making it possible to establish an actual list of sustainable economic activities.

The taxonomy is an important tool to make EU budget spending more environment-friendly. Thirty percent of the 2021-27 budget (and of the Next Generation EU recovery plan) will be devoted to fighting climate change, up from 20% in 2014-20. However, the Commission's methodology for tracking climate spending has been criticised for likely overstating the budget's true contribution, particularly in the case of the Common Agricultural Policy (European Court of Auditors, 2020). For instance, in this policy or elsewhere, there is no accounting for spending with negative climate impacts. It is essential to avoid that the EU budget finances investments that are inconsistent with the transition to a low-carbon economy, at least when there are no strong positive externalities for those investments or alternative lower-carbon options exist. More broadly, environmental considerations should be mainstreamed into national fiscal plans, with the promotion of green budgeting practices and green public procurement.

Investment in low-carbon activities would also benefit from a better assessment and disclosure of sustainability-related risks for investee companies and financial market participants. Physical risks originating from extreme weather events, such as floods, storms, wildfires and rising sea levels (Figure 1.27), generate losses which could reach up to 10% of global GDP in 2100 (OECD, 2015c), eroding collateral and asset values and increasing insurance liabilities. A second source of risk, transition risk, originates from policy actions and technological advancements linked to the process of adjustment towards a low-carbon economy, leading to stranded assets (high-carbon assets which need to be written off before the end of their economically useful life). The long useful lives of many assets (buildings, power plants or even, as discussed above, cars) underline the importance of ensuring that investments are consistent with carbon neutrality objectives.

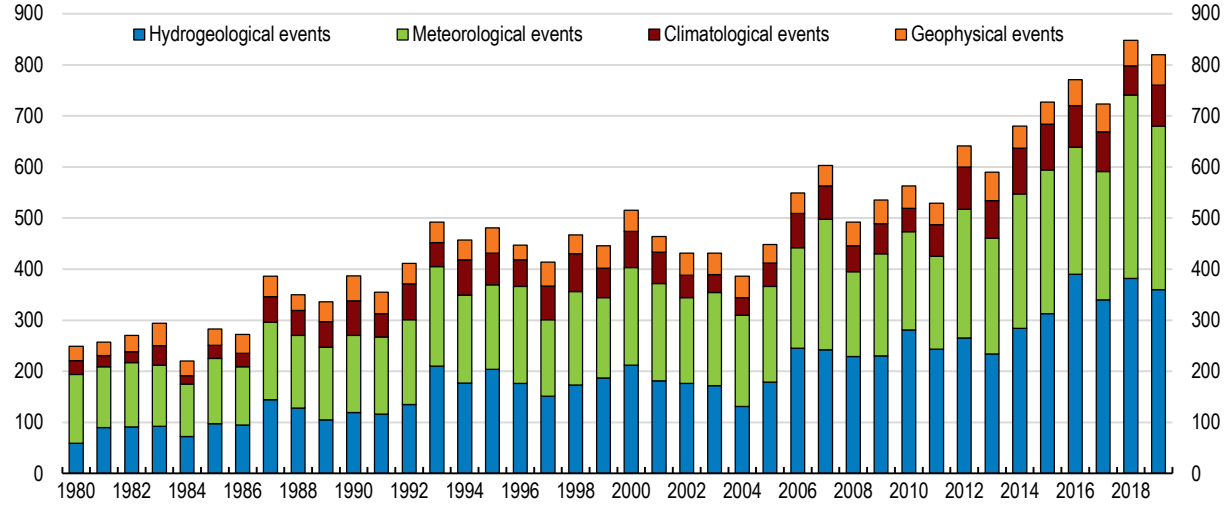
The disclosure of sustainability-related risks is still at an early stage, but progress is being made. The Non-Financial Reporting Directive (NFRD) has required listed firms with more than 500 employees, including banks and insurance companies, to publish information since 2018 on their policies regarding environmental and social performance and due diligence. In 2019, the Commission issued non-binding guidelines on NFRD reporting of climate-related information, which integrate the best-practice recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and include indicators based on the EU taxonomy. The 2020 ECB guide on climate-related and environmental risks (ECB, 2020b) expects banks, as a minimum, to follow those guidelines. Though improving, bank disclosures for 2019 were still far below these standards (ECB, 2020c). In 2022 the ECB will carry out a full supervisory review of banks' practices in this domain. Recent months have seen further steps by the Commission to improve sustainability reporting, including draft legislation to review the NFRD (the proposal for a Corporate Sustainability Reporting Directive) and a delegated act to the EU taxonomy concerning disclosure of the proportion of environmentally sustainable (taxonomy-aligned) economic activities in the turnover, expenditure and financing and investment activities of financial and non-financial companies. These steps will make taxonomy-consistent reporting mandatory for an enlarged set of firms.

Granular and high-quality disclosures are required for stress-testing and the possible ensuing imposition of capital buffers (ESRB, 2016). The next ECB supervisory stress test, due in 2022, will also cover climate-related risks. This is welcome but challenging. It will first require an elaboration of the links between climate risks and financial stability. It will require as well the consideration of a longer time horizon (stress tests usually consider risks likely to materialise within only three to five years) and forward-looking scenario-based methodologies, rather than statistical analysis based on historical data (NGFS, 2018; Banque de France, 2019; BIS, 2019). The new monetary policy strategy of the ECB, discussed in the OECD Economic Survey of the Euro Area, envisages upgraded analytical tools to assess the impacts of climate change as part of a detailed roadmap of climate change-related actions until 2024.

At the same time, there is a need for further efforts to develop global standards for climate and environment-related disclosures. Initiatives like the International Platform on Sustainable Finance, a forum for dialogue now grouping the EU and 16 third countries, are helpful in this perspective. Recent years have witnessed a proliferation of disclosure frameworks, metrics and methodologies, posing risks of global fragmentation in sustainability reporting (OECD, 2020f). There remain important knowledge gaps to be narrowed in areas like sustainable finance taxonomies, with appropriate differentiation among "green" or "grey" activities, and methodologies for assessing financial impacts of environmental risks, especially in the long-run. Even if efforts initially focus on standards for disclosing the impact of climate and environmental risks on financial performance and financial stability, attention also needs to be paid to the impact of corporates on the environment, which may have a financial impact on companies over time.

Figure 1.27. Climate-related events are on the rise worldwide

Number of events



Source: Munich Re.

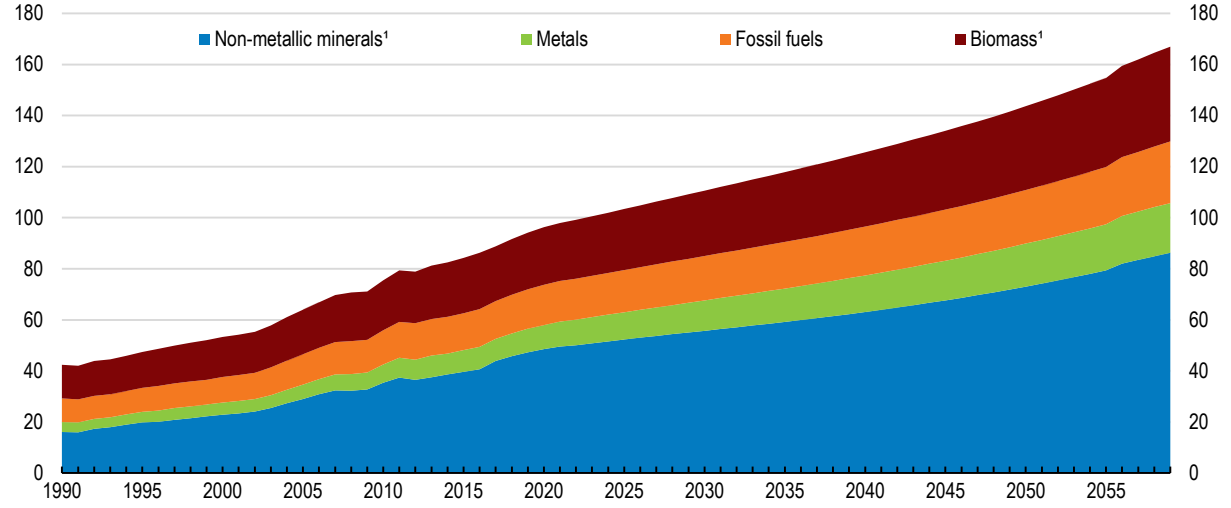
StatLink https://doi.org/10.1787/888934278332

Improving resource efficiency by moving towards a circular economy

Moving to a more circular economy can reduce the consumption of raw materials and thus avoid a variety of major environmental impacts from their extraction and processing. These impacts relate to climate change, biodiversity, water and the health impacts of environmental pollution (OECD, 2012), and are set to worsen on current policy trends: by 2060, growing incomes and populations, especially in poorer countries, will drive a strong increase in the global demand for materials (Figure 1.28). By avoiding wasteful materials use, as well as by encouraging reuse, recycling and shared use, a circular economy will hence contribute to reaching a broad range of sustainable development goals (SDGs), including those on clean water, sustainable cities, responsible consumption and production, climate action, and protection of all life.

Figure 1.28. On current policies, global materials extraction is projected to strongly increase

Extraction of materials in gigatonnes (Gt)

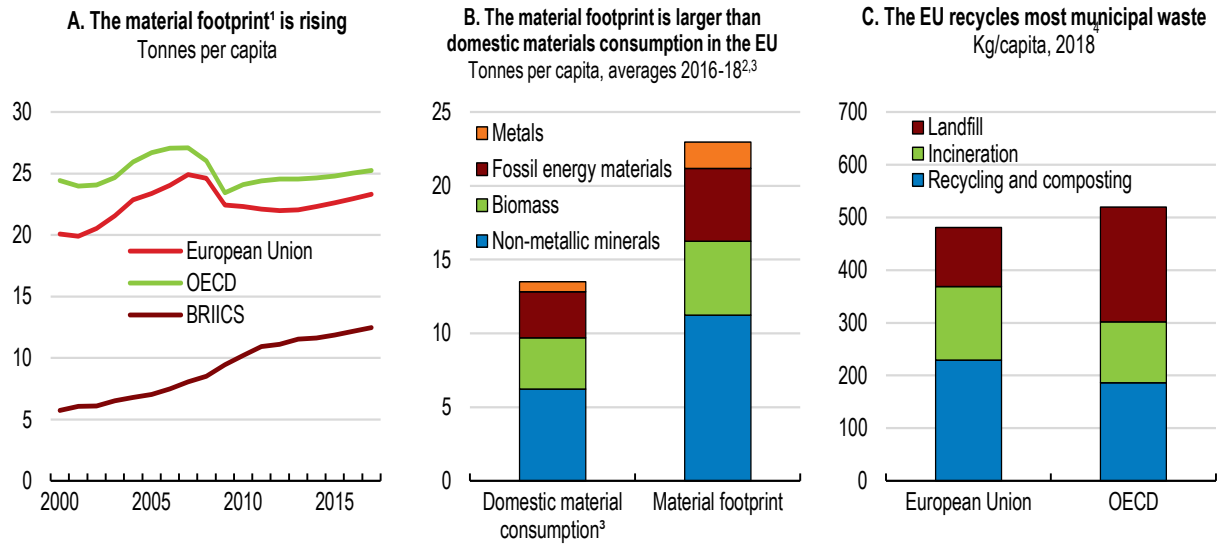


Note: 1. Biomass is mostly for food and feed; Non-metallic minerals mostly for construction.
Source: OECD (2019), OECD ENV-Linkages model.

StatLink https://doi.org/10.1787/888934278351

In the EU, per-capita materials consumption embodied in final demand (the "materials footprint") has tended to grow since 2000 (Figure 1.29, panel A). Materials use is lower than the materials footprint, reflecting materials extraction and processing in the production of imported goods (Figure 1.29, panel B). Non-metallic minerals, mostly used in construction, account for the bulk of raw materials use. Although the extraction and processing of these minerals pollutes less per ton than metals, they have important lifecycle environmental impacts (Wilts et al., 2014). For example, concrete generates high greenhouse gas emissions, which are difficult to reduce. It has significant impact on energy demand, soil acidification and land use (OECD, 2019c).

Figure 1.29. High materials use requires policy action to reduce environmental impact



Note: 1. Material Footprint is the allocation of raw materials extracted or harvested world-wide, according to their use to meet the final demand of an economy. 2. Averages of annual observations in the period between 2015 and 2017 for material footprint. 3. Domestic material consumption refers to the amount of materials that are extracted or harvested and physically used in an economy for further processing or direct consumption, minus exports plus imports. 4. 2017 for the OECD. Landfill includes "Other" municipal waste treatment (EU: 0% and OECD: 0.8%).
Source: OECD (2020), OECD Environment Statistics (database).

StatLink https://doi.org/10.1787/888934278370

The EU recycles more and landfills less household waste on average than the OECD area (Figure 1.29, panel C). Economy-wide it recycles 40% of end-of-life products. Extended producer responsibility schemes, which make producers of specific product groups collectively responsible for recycling and waste management, have been successful in increasing recycling (OECD, 2018). Even so, recycled materials only meet 12% of materials demand (European Environment Agency, 2019). Regulatory and business initiatives in EU member countries have focussed on waste management and recycling. Waste prevention by reinforcing action in early product stages, such as design, could yield bigger benefits.

To go beyond, the European Commission adopted two Circular Economy Action Plans, one in 2015 and another in 2020 (Box 1.7). This new plan is part of a broader policy strategy, which also includes the European Green Deal and objectives of industrial innovation and development. It announces new policy avenues, including resource-saving product design and leveraging digitalisation. In addition to plastics, it focusses on other value chains posing major sustainability challenges, such as construction, textiles and electronics.

Box 1.7. The 2020 EU Circular Economy Action Plan

Building on the earlier 2015 plan, the new Circular Economy Action Plan (European Commission, 2020k) envisages the following main strands:

- Making products placed on the EU market increasingly sustainable by setting requirements for characteristics such as durability, reusability, reparability, recyclability and recycled content.
- Ensuring that consumers have access to reliable information on products' durability and reparability, notably through digital tools.
- Pursuing sector-specific measures in value chains with a high potential for circularity, such as electronics and ICT, batteries and vehicles, packaging, plastics, textiles, construction and buildings, and food.
- Reducing waste and transforming it into high-quality secondary raw materials for which there is a well-functioning market.

Taxation could improve incentives for resource efficiency

Taxes on materials can internalise environmental costs and provide incentives for circular economic activity (Bibas *et al.*, 2021). Macroeconomic simulations (Chateau and Mavroeidi, 2020) indicate that taxes on primary raw materials use can increase employment in economies where resource extraction does not play a major role, especially if revenues are used to lower labour taxes. There could nonetheless be geographically concentrated job losses, due to lower demand for some skills. Therefore, policies would be needed to provide upskilling opportunities, including life-long learning, as well as regional policies to support structural change (Chapter 2).

Materials taxes are subject to political economy limitations and to design complexity. If taxes are not imposed by all countries, competitiveness losses may result in lower net employment. Taxes on the materials content of goods used for final consumption, including imports, could reduce competitiveness concerns but may be impracticable when the exact materials content of each product is unknown. Some practicable options would be to set minimum taxes on non-recycled construction materials (Wilts and O'Brien, 2019) or on unsustainable plastic use. The ensuing tax revenues could finance, for instance, a decrease in labour taxation. Construction is not subject to major relocation outside the EU. Denmark, Sweden and the UK have taxes on primary construction raw materials, which have lowered raw material use (Soderholm, 2011; Stahel, 2013). In addition, establishing an inventory of environmentally harmful subsidies in EU member states could reinforce policy action to remove them (OECD, 2019d). It should go beyond explicit fossil-fuel subsidies to include, for example, below-cost pricing or tax advantages in the use of environmentally sensitive goods and materials, such as irrigation water or company car use. Such taxes and phasing out of environmentally harmful subsidies could be part of a stronger implementation of the polluter pays principle, to more efficiently deliver environmental objectives.

The circular economy requires steps to lower information and transaction costs

Given the limitations in the use of corrective taxes, other instruments should be used to improve resource efficiency, like standards. If well designed, standards may also be a potential source of competitive advantage (Bundgaard et al., 2014). For example, they can encourage innovation and generate resource savings to downstream firms. By setting some standards for energy-related products, the EU Ecodesign Directive has generated environmental benefits. The EU Ecolabel yielded similar benefits as producers can voluntarily certify that their products meet environmental criteria such as xºrecycled material content. Such standards could be expanded for example to include requirements on durability or recyclability, which could boost circular economy business models and meet circular economy objectives (Bundgaard et al.,

2014). The new Circular Economy Action Plan envisages steps along these lines, which is welcome (Box 1.7).

Steps to provide information on the durability of goods have substantial impact on consumer behaviour (Börkey and Laubinger, 2021) by overcoming market failures which prevent consumers and downstream firms from choosing higher-quality products. In the absence of product information, markets rely on reputation which depends on producer market power (Kreps, 1990). Providing information on the durability of goods requires developing a robust methodology (Börkey and Laubinger, 2021).

Digital technologies can reduce information and transaction costs and thereby encourage circular economy activities (Barteková and Börkey, 2021). For instance, a digital passport could provide information on a product's origin, composition, repair and dismantling possibilities, and end-of-life handling (European Commission, 2019b, 2020k), along the lines of the recent proposal on a batteries digital passport. Digital codes and tags can trace materials and components across the value chain. Digital technologies also foster innovative circular economy business models. For example, real-time on-demand ride sharing coordinated by a digital platform (combined with other technologies, such as artificial intelligence and machine learning tools) can meet daily mobility needs provided by cars, lowering the number of vehicles in cities by close to 90%, improving connectivity and reducing pollution (ITF, 2018), provided shared rides fully replace individual car use. The European Commission could promote a pilot to introduce digital-based ride sharing.

Table 1.6. Recommendations on selected policies of the Key Policy Insights Chapter

MAIN FINDINGS	RECOMMENDATIONS (key in bold)
Supporting the recovery and increasing growth potential	
Fostering investment to enable the green and digital transitions	
Preparations for the EU recovery plan have taken about one year. National recovery plans combining investment and structural reforms should speed up the recovery from the crisis, but also increase growth potential in the EU, which requires careful project selection..	**Swiftly implement national recovery and resilience plans to deliver structural reforms and investments based on sound cost-benefit analysis.**
Public investment has been weak over the past decade and achieving climate neutrality will require massive investment, with important scope for coordination at EU level and between public and private sectors.	**Invest in European interconnections, such as in electricity grids and smart recharging infrastructure for transport electrification.**
Investment in digital infrastructure and energy often faces cumbersome licensing.	**Remove barriers to private investment for the climate and digital transitions by simplifying licensing procedures.**
Increasing resilience to health threats	
The COVID-19 pandemic exposed gaps in preparedness to deal with cross-border health threats and in the ability to quickly mobilise substantial funding for medical research. Procedures have generally been slow and bureaucratic.	Set up an autonomous agency to fund and coordinate public and private responses to health threats, including in R&D.
Making migration policies more supportive to growth	
The European Blue Card programme attracts fewer high-skilled workers than similar schemes at the member states level. This reduces the attractiveness of Europe and mobility between countries.	Ease access to the Blue Card for workers already benefitting from similar national schemes.
Cooperation with origin and transit countries to curb illegal immigration and facilitate return and readmission has often proved ineffective.	Promote partnerships for vocational training in countries of origin, addressing skill shortages in the EU and including provisions to facilitate the return of migrants after working for a period in Europe.
Stepping up the fight against corruption	
Corruption and fraud lower economic growth, weaken institutions and worsen the quality of public spending, including that funded by the EU budget. Most relevant policy levers are controlled at national level.	**Step up national efforts to fight corruption and fraud, notably through full and timely transposition of relevant Directives and stronger cooperation with dedicated EU bodies.** Enforce the suspension of payments from the EU budget or other measures in case of relevant breaches of the rule of law. Assess in due time the effectiveness of the measures adopted and consider tightening this conditionality if needed.
Despite successive directives, the EU is still vulnerable to money laundering. Draft legislation to tackle this vulnerability was presented in July 2021.	Set up an independent EU direct anti-money laundering supervisor and increase cooperation between national authorities.
Protection to whistleblowers varies widely across EU member states. A 2019 EU Directive increases protection to people reporting breaches of EU law and harmonises protection across countries.	Ensure full and timely transposition of this Directive into national legislation and increase whistleblower protection also in cases of breaches of national law.
Achieving climate neutrality and moving towards a circular economy	
The EU Emissions Trading System (ETS) covers around 40% of total EU greenhouse gases emissions. Transport accounts for more than 20% of EU emissions, and abatement has proved particularly difficult. Buildings account for 40% of energy consumption and significant resource use. In July 2021, the European Commission proposed to include shipping emissions in the ETS and to set a new, separate ETS for road transport and buildings.	**Consider increasing the EU Emissions Trading System coverage, by for instance including transport and buildings.** **Strengthen regulatory standards for energy efficiency.**
Investment in low-carbon activities would benefit from further progress in the assessment and disclosure of climate-related risks for companies and financial markets. Recent draft legislation envisages more informative disclosures by a wider set of firms.	**Require comprehensive disclosure of climate and environment-related risks by financial intermediaries and large non-financial firms.** Further engage in international cooperation to set global standards for such disclosures.
Taxes on primary materials and on unsustainable practices provide incentives to reduce natural resource consumption and associated environmental impacts	Take steps towards the pricing of natural resource use and environmental impacts, for example by introducing a harmonised tax on non-recycled construction materials or on unsustainable use of plastic.
Missing information on used materials and product characteristics hold back the capacity of markets to recycle and use goods for longer. Digital technologies can reduce information and transaction costs and encourage innovative business models.	**Introduce requirements for the use of digital tools to provide information on products, including on their recycling and repair possibilities.** Conduct pilot projects to introduce innovative circular economy business models, such as digital-based ride sharing.

MAIN FINDINGS	RECOMMENDATIONS (key in bold)
Despite their environmental requirements, direct payments to farmers under the Common Agricultural Policy have so far been largely ineffective to reduce emissions. In 2021-27, implementation by countries of a new tool (eco-schemes) has the potential to address this ineffectiveness. Payments coupled to the production of specific commodities have been linked to higher emissions.	Phase out payments to farmers coupled to the production of specific commodities, Set a stronger link between direct payments to farmers and improved environmental outcomes, including reduced animal methane emissions.
Effective carbon tax rates on non-road energy use, such as on fuels for heating or agriculture, are often too low. The proposed revision of the Energy Taxation Directive aims to phase out some tax exemptions and reductions on energy use.	Eliminate tax exemptions and reductions which subsidise fossil fuel use or other environmentally harmful subsidies.
Higher carbon prices in Europe may shift carbon-intensive production to jurisdictions with lower prices, which causes carbon leakage and may harm some regions disproportionately. To tackle carbon leakage, a carbon border adjustment mechanism was proposed in July 2021.	Within World Trade Organisation rules, consider possible measures to prevent carbon leakage.
Information on the durability of goods can have substantial impact on consumer behaviour and thus contribute to less use of materials.	Develop a methodology for providing information on durability for selected products and integrate it in the Ecodesign Directive.

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Annex 1.A. Progress in main structural reforms

MAIN RECOMMENDATIONS	ACTION TAKEN SINCE THE PREVIOUS SURVEY (2018)
Reforming the EU budget to foster more inclusive growth	
Consider enhancing the efficiency of spending and increasing revenues, and reassess how the European budget is financed.	For the 2021-27 period, some reforms to EU budget revenues have already been introduced, such as a new national contribution based on non-recycled plastic packaging waste and a simplification of the VAT-based own resource. Moreover, to contribute to the repayment of Next Generation EU borrowing, new own resources will be introduced: The Commission has committed to put forward proposals on a carbon border adjustment mechanism and on a digital levy. The Commission will also propose an own resource based on the Emissions Trading System. In addition, the Commission will propose further new own resources, which could include a Financial Transaction Tax and a financial contribution linked to the corporate sector or a new common corporate tax base.
Phase out production-based payments in the Common Agricultural Policy.	After strong increases over 2014-18, expenditure on production-based payments broadly stabilised in 2019.
Increase research and development (R&D) spending.	In 2021-27, Horizon Europe's budget (EUR 84.9 billion at 2018 prices, including a top-up from Next Generation EU) is 9% larger than the initial budget of Horizon 2020 (its predecessor in 2014-20) and 30% larger than Horizon 2020's budget adjusted for subsequent reductions in resources and for the expenditure allocated to the UK. The 2020 European Research Area Communication: a) proposed to re-affirm the 3% of GDP EU R&D investment target; b) proposed a new EU 1.25% of GDP public effort target to be achieved by Member States by 2030; c) prompted further cooperation among Member states by setting a target of 5% of national public funding to joint research and development programmes and European partnerships, by 2030; and d) proposed that Member States lagging behind the EU average R&D investment over GDP direct their investment efforts to increase their total investment in R&D by 50% in the next 5 years.
Reducing regional divides by making cohesion policy more effective	
Prioritise cohesion funding to less developed regions.	In 2021-27, less developed regions will continue to receive 75% of total cohesion funding, as in 2014-2020. Their share under the Jobs and Growth goal of the European Regional Development Fund and the European Social Fund Plus will increase, but the Cohesion Fund, for which only the poorest Member States are eligible, will become smaller.
Better target cohesion funding on spending with long-term growth benefits(human capital, innovation and network infrastructure), and to projects with clear spillovers across borders.	The eleven thematic objectives used in 2014-2020 have been simplified to five policy objectives in 2021-27 : 1. a more competitive and smarter Europe by promoting innovative and smart economic transformation and regional ICT connectivity. 2. a greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation, risk prevention and management, and sustainable urban mobility. 3. a more connected Europe by enhancing mobility. 4. a more social and inclusive Europe implementing the European Pillar of Social Rights. 5. a Europe closer to citizens by fostering the sustainable and integrated development of all types of territories and local initiatives. To ensure further targeting of cohesion policy on Union priorities, most European Regional Development Fund resources (from 55 to 85%, depending on countries and regions) is proposed to be concentrated on the first two policy objectives above.

MAIN RECOMMENDATIONS	ACTION TAKEN SINCE THE PREVIOUS SURVEY (2018)
Consider increasing national co-financing rates to encourage better project selection taking into account the relative impact of the project and the EU added value.	Only limited adjustments to national co-financing rates have been made for the 2021-27 period relative to 2014-20, notably taking account of the post-pandemic context.
Create a "single rule book" for EU funding programmes.Use e-government and e-procurement more often.	There has been progress towards a single rule book, as a common Regulation for 8 shared management funds has been agreed upon. Moreover, the proposed legal framework is significantly simpler in comparison with the 2014-20 period, rationalising overlaps and repetitions and significantly decreasing the number of secondary legislation acts. In the implementation of 2021-27 cohesion policy electronic data exchange will be further developed, which will inter alia ease auditing. In the context of the Public Procurement Action Plan prepared by the Commission, some Member States have prepared national strategies aimed at improving their e-procurement practices, and a Pilot Project developed by the Commission in cooperation with the OECD helped Slovakia and Bulgaria to improve administrative capacity in public procurement.
Leveraging the single market to improve long-term growth and living standards	
Simplify administrative formalities for the establishment and provision of cross-border services, and provide guidance on implementing EU legislation.	Over 2019-20, the Commission has stepped up enforcement efforts to ensure that the Member States correctly transpose and apply the Professional Qualifications Directive. Furthermore, the Commission has systematically pursued infringement actions with regard to the implementation of the Services Directive and the Treaty provisions on freedom of establishment and freedom to provide services. Areas of concern include disproportionate and excessive document requirements and the lack of electronic channels for recognition procedures. The Single Digital Gateway, operational from end-2020, will help in both these areas.
Pursue the planned cross-border co-operation on power system operation and trade, including interconnection capacity calculations and reserve margins.	The Electricity Market Regulation (2019/943/EU) stipulates that, as from 1 January 2020, at least 70% of cross-border interconnection capacity should be made available to the market for trade. While a number of options allow for gradual implementation, this target should be fully achieved by end-2025 at the latest. The Regulation also contains provisions for strengthening cooperation among distribution system operators and mandates the creation of Regional Coordination Centres for transmission system operation.
Develop tools to help member states monitor digital skill needs. Set EU standards for the monitoring of digital skills and task content of occupations.	Cedefop, an EU agency for vocational education and training, has been piloting the use of big data analysis to examine the skills demanded by employers in real-time, including at sectoral and regional level. Although this work covers all skills demand, digital skills needs clearly emerge among them. At a sectoral level, the Blueprint for Sectoral Cooperation on Skills,an initiative launched under the 2016 Skills Agenda for Europe, brings together partnerships within a specific industrial sector to build and deliver a sectoral skills strategy for growth. Digital skills needs are a transversal element in all the Blueprint sectoral projects. The first five projects were launched in 2018, and there have been 3 further rounds since then, covering 21 sectors in total. The Digital Economy and Society Index (DESI) monitors Europe's overall digital performance and tracks the progress of EU countries in their digital competitiveness. In particular, the human capital dimension of DESI monitors digital inclusion and skills, drawing on the European Commission's Digital Skills Indicator, which is computed based on the number and complexity of activities involving the use of digital devices and/or the internet. The Digital Skills Indicator has been recently reviewed. On-going reviews of social statistics (such as the EU Adult Education Survey or the EU Labour Force Survey) include proposals to collect additional information related to digital skills.

MAIN RECOMMENDATIONS	ACTION TAKEN SINCE THE PREVIOUS SURVEY (2018)
Eliminating barriers to people working and supporting intra-EU mobility	
Increase spending on mobility programmes such as Erasmus+, and facilitate access irrespective of socio-economic background.	Funding for the Erasmus+ programme will increase by about 50% in 2021-27 (at constant prices, relative to 2014-20), with expanded learning and training mobility opportunities, including for low-skilled adults.
Foster the harmonisation of professions' curricula at the EU level	The revised Directive on recognition of professional qualifications (2005/36/EC as revised by 2013/55/EU) has introduced the possibility to set up "common training frameworks" and "common training tests", which are voluntary frameworks for the automatic recognition of qualifications of specific professions or activities. The Commission has adopted a Common Training Test for ski instructors in 2019 (Delegated Regulation (EU) 2019/907 of 14 March 2019). Directive 2013/55/EU also provided delegated powers to the Commission to update certain minimum training requirements for professions that fall under the automatic recognition regime. In 2018, the Commission launched a study on training requirements for the profession of general care nurse. The Commission also started work to assess the necessity to update training requirements for the professions of pharmacist and dentist.
Make the electronic European professional card available to all sectors.	No action taken.
Step up efforts at the EU level to coordinate the design and organisation of joint cross-border labour and tax control activities.	The European Labour Authority (ELA) was established in 2019 and is expected to reach full operational capacity in 2024. It aims at facilitating access to information and its cross-border exchange, support cooperation between EU countries and capacity building in the enforcement of relevant Union law, and mediate disputes between national authorities. ELA is currently preparing the ground for the kick-off of joint and concerted inspections within the EU (including in the cross-border regions).
Better protecting EU citizens in the face of change	
Revise application requirements and procedures to speed the use of the European Globalisation Adjustment Fund (EGF) and expand eligibility to workers affected by other shocks, such as automation.	Draft legislation proposes to broaden the scope of the EGF, which would make it more inclusive and more responsive to economic developments such as automation, digitization and the transition to a low-carbon economy. The proposal also envisages a streamlined mobilization procedure, which would allow for quicker deployment of the fund.

2 Enhancing regional convergence in the EU

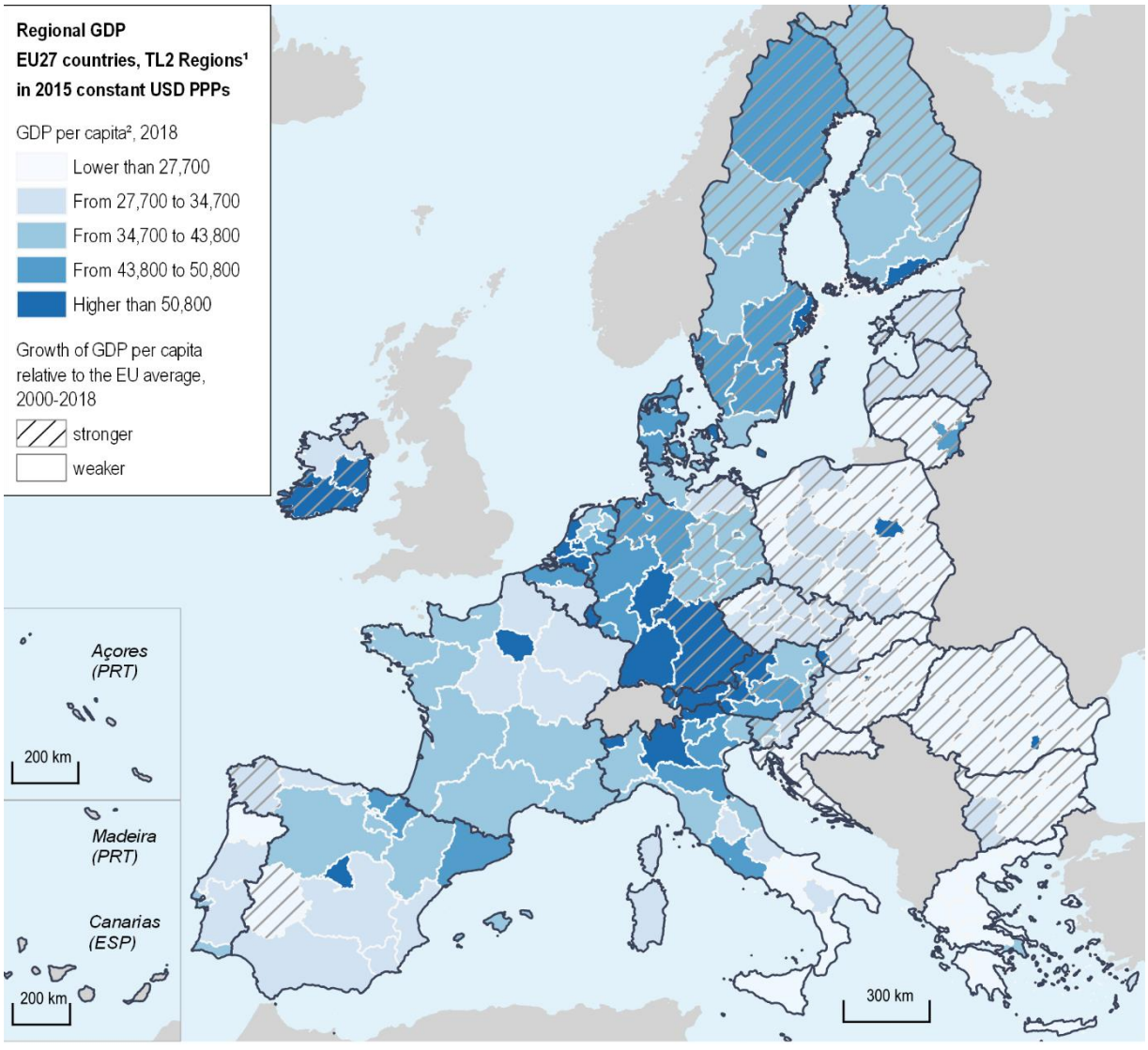
Progress in regional convergence in the EU has been uneven over the last two decades. While Central and Eastern Europe has been catching up, Southern Europe has often lost ground, especially after the global financial crisis. Furthermore, within most countries, gaps between large cities and rural areas have widened. Some challenges to convergence have stemmed from worldwide factors – such as globalisation, digitalisation, global warming, and, more recently, COVID19 – but others are European-specific, like incomplete financial integration, less effective fiscal governance and subpar innovation performance.

This chapter proposes policy action to reduce regional divergence by helping regions upgrade their productive specialisation. Building on new approaches to regional and industrial policies, Europe needs to exploit the full potential of cross-country cooperation in innovation and of urban agglomeration economies. Competition and trade policies need to ensure a level playing field to enhance the benefits of open and competitive markets while responding to new challenges, such as digitalisation or foreign subsidies. Finally, Cohesion Policy and the Common Agricultural Policy, the two largest EU budget instruments, need to become more effective at promoting productive upgrading.

Large and persistent regional disparities are challenging the cohesion of the European Union

Regional convergence is an objective enshrined in EU Treaties but the level of disparities between regions remains very high (Figure 2.1). Even with some adjustment for the fact that living costs tend to be lower in poorer areas, average GDP per capita in the most prosperous regions (defined as accounting for 20% of the EU population) was in 2018 almost 3 times larger than in the regions home to the poorest 20%.

Figure 2.1. GDP per capita varies widely across EU regions



Note: 1. Territorial Level 2 (TL2) refers to large regions, as defined by the OECD classification of geographic units. These categories correspond with Eurostat's NUTS 2 classification, with the exception of Belgium and Germany where the NUTS 1 level corresponds to the OECD TL2. 2. Each of the five GDP per capita groups represents about one fifth of the EU27 population.
Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

Regional divergence can lead to a rise in dissatisfaction within specific geographical areas, threatening social cohesion (OECD, 2019a). Lagging or declining regions from several countries have in recent years voted in large numbers for parties or candidates perceived as extreme (Rodríguez-Pose, 2018). In these elections, inter-regional inequality has been a stronger determinant of discontent than the often much

larger interpersonal inequality (ibidem). In a similar vein, loss of manufacturing employment in regions struggling with industrial transition or protracted meagre GDP growth, even from a high starting level, have tended to stir opposition to European integration (Becker et al., 2017, Dijkstra et al., 2019). Besides economic decay, the closure of local facilities, often housing public services or places of socialisation, also fuels social and political discontent (Algan et al., 2020).

The COVID-19 pandemic could well worsen diverging trends. As suggested by output developments in 2020, southern EU countries have been hit hardest, losing further ground to their northern peers (see Chapter 1). They tend to rely more on tourism and on very small firms, which are often more vulnerable (OECD, 2020a; Doerr and Gambacorta, 2020), and have generally had to impose a more stringent confinement in Spring 2020. In contrast, central and eastern European countries have as a whole suffered output losses smaller than the EU average, at least so far, despite their strong specialisation in car manufacturing, a sector highly exposed to disruption in international supply chains.

The pandemic could also aggravate regional inequalities within countries, though data on regional impacts is still scarce. For instance, despite a worse sanitary situation in the north of the country, Southern Italian regions did not record lower employment losses during the first wave of COVID19 infections (Arbolino and Di Caro, 2020). Poorer regions generally have relatively fewer workers who can telework (IMF, 2020). More fundamentally, due to factors like less diversified economies or weaker institutional capabilities, poorer regions may face greater hurdles to resource reallocation after the pandemic, leaving them more exposed to hysteresis effects.

This first section of the chapter starts with an overview of regional convergence trends over the last two decades. It will then identify the global drivers of increased divergence before pointing at specific European features that have further hampered convergence. The subsequent sections of the chapter propose policy recommendations to restart the convergence process.

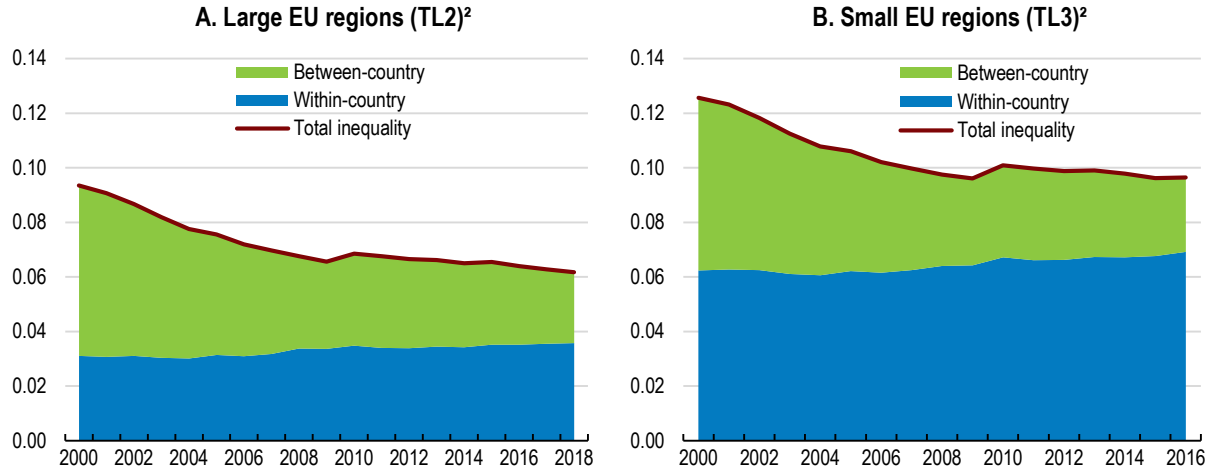
Progress in convergence has been uneven and slowed down

Since the turn of the century achievements on regional convergence have been mixed. Overall regional disparities in GDP per capita declined significantly until the global financial crisis, but much more slowly afterwards (Figure 2.2).

The decrease in GDP per capita disparities during the first decade of this century was driven by a reduction in inequalities between countries (Figure 2.2, green area), rather than across regions of the same country. The reduction of inequality between countries has mainly reflected strong growth and convergence in recent EU members of central and eastern Europe (Figure 2.3). In contrast, among older members, i.e. countries that were members before the enlargement to central and eastern Europe in 2004, hardly any progress took place until the global financial crisis, and renewed divergence has been observed on average in its aftermath (Figures 2.3 and 2.4). Contrasting convergence dynamics between central and eastern Europe, on the one hand, and southern Europe, on the other, have also been observed in total factor productivity (European Commission, 2019a).

Figure 2.2. Convergence between countries has slowed down, and divergence within countries has increased

Theil indices[1] based on the distribution of regional GDP per capita (in 2015 constant USD PPPs)



Note: 1. The (population-weighted) Theil index is computed based on samples of 194 TL2 (Panel A) and 1158 TL3 (Panel B) regions across 25 EU countries for which data on regional GDP per capita are available over the entire reference period, between 2000 and 2018 (2016 for Panel B). Countries include: Austria, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain and Sweden. Countries with only one TL2 region are excluded in Panel A (Estonia, Latvia and Luxembourg) and those with only one TL3 region are excluded in Panel B (Luxembourg). 2. Territorial Levels 2 and 3 (TL2 and TL3, respectively) refer to large and small regions, as defined by the OECD classification of geographic units. These categories correspond with Eurostat's NUTS 2 and NUTS 3 classifications, with the exception of Belgium and Germany where the NUTS 1 level corresponds to the OECD TL2.

Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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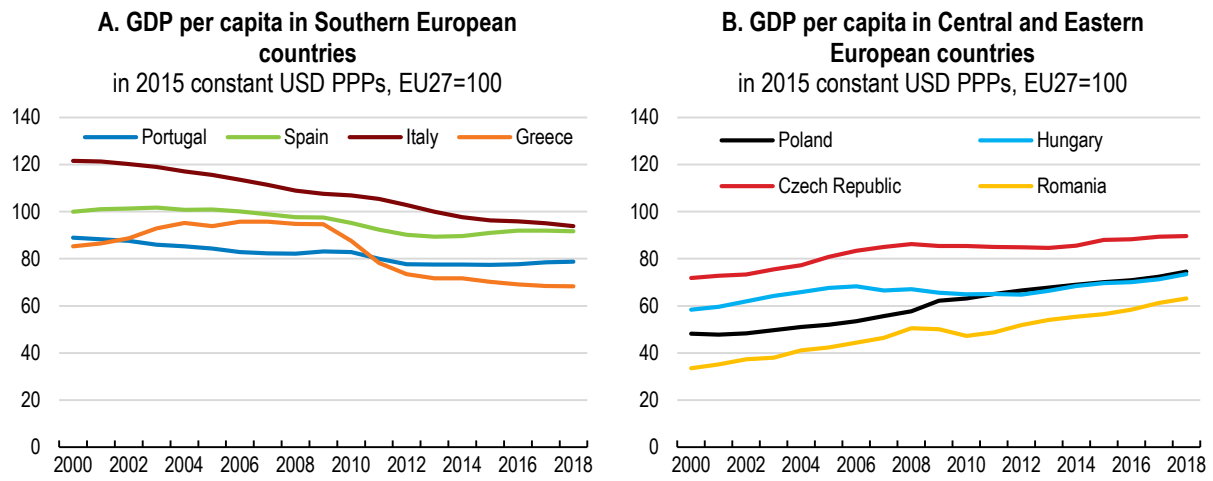
Figure 2.3. Southern and Eastern European countries have had a contrasting growth performance



Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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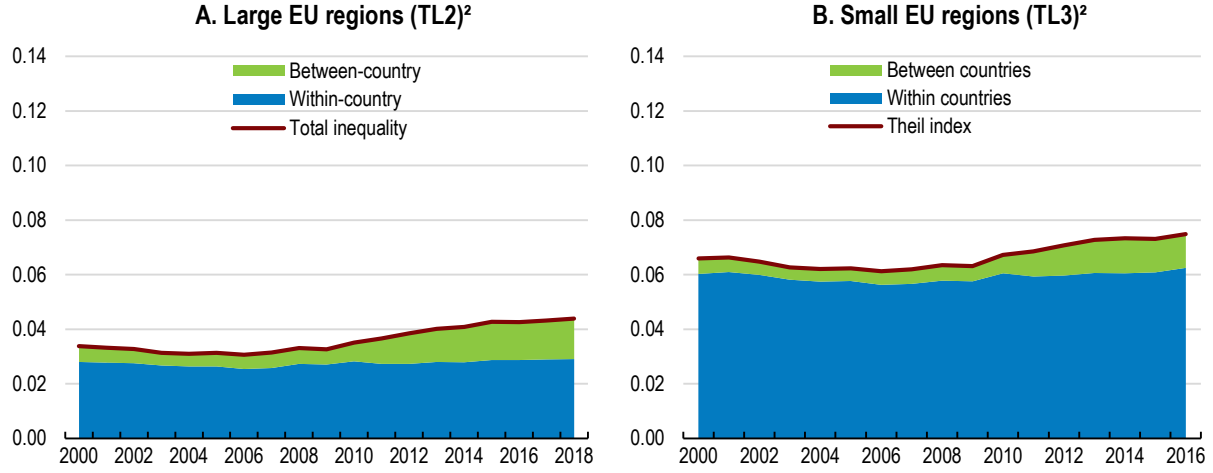
Figure 2.4. Divergence has increased among older EU member states

Theil indices[1] based on the distribution of regional GDP per capita (in 2015 constant USD PPPs)



Note: 1. The (population-weighted) Theil index is computed based on samples of 134 TL2 (Panel A) and 910 TL3 (Panel B) regions across 13 countries that were members of the EU before the 2004 enlargement and for which data on regional GDP per capita are available over the entire reference period, between 2000 and 2018 (2016 for panel B). Countries include: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and Sweden. 2. Territorial Levels 2 and 3 (TL2 and TL3, respectively) refer to large and small regions, as defined by the OECD classification of geographic units. These categories correspond with Eurostat's NUTS 2 and NUTS 3 classifications, with the exception of Belgium and Germany where the NUTS 1 level corresponds to the OECD TL2.
Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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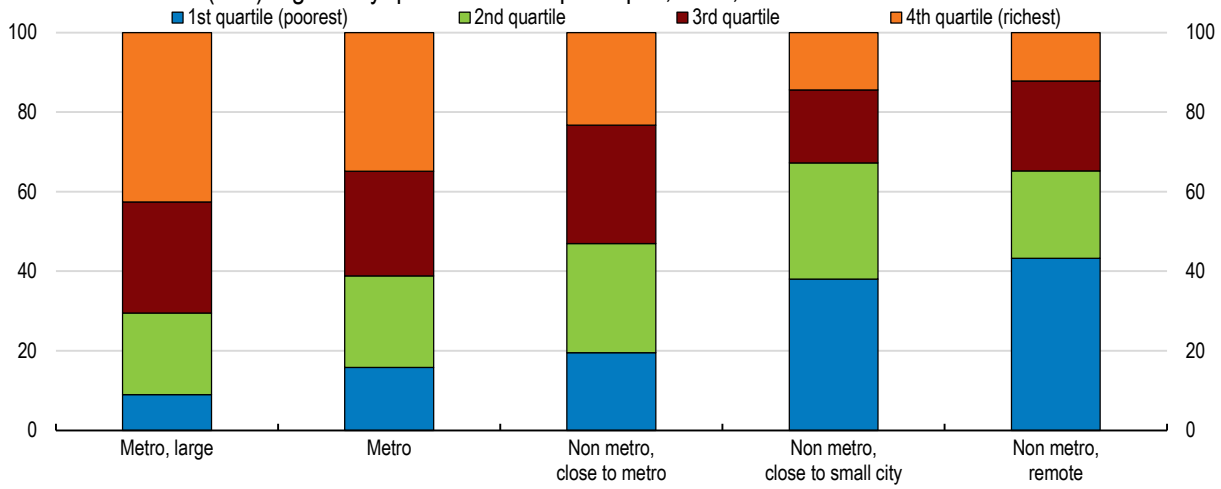
Conversely, regional inequalities within countries have remained broadly flat, even increasing somewhat (Figure 2.4, blue area). The different performance of rural areas, small cities or metropolises helps explain the persistence of disparities. Indeed, across the EU, the proportion of regions that are among the 25% richest is much higher among metropolitan regions than non-metropolitan or remote ones (Figure 2.5, in orange). Among metropolises, capital regions have tended to be particularly successful (Bisciari et al. 2020). Non-metropolitan regions with good accessibility (a 60-minute drive or less) to large cities (at least 250 000 inhabitants) are more often than not in the top half of the cross-regional distribution of GDP per capita and have managed to maintain their relative standing. In contrast, non-metropolitan regions that are remote or close to only a small city are disproportionately poor, and have lost further ground over the past two decades. In some of these regions agriculture still carries significant economic weight.

Figure 2.5. The gap between metropolitan and remote regions is very wide

Distribution of small (TL3) regions by quartile of GDP per capita, 2016, %



Note: Calculations are based on a balanced panel of 1 059 TL3 regions across EU countries that are also members of the OECD (EU22). Regional GDP per capita is measured in 2015 constant USD PPPs. Small (TL3) regions are classified based on the level of access to metropolitan areas. The proposed classification relies on a consistent concept of metropolitan area, which consists of Functional Urban Areas (FUAs) of at least 250 000 inhabitants and groups of contiguous local jurisdictions - mainly municipalities - that are aggregated based on functional criteria. A TL3 region can be classified as follows: Large Metropolitan, if more than 50% of its population lives in a FUA of at least 1.5 million inhabitants; Metropolitan, if more than 50% of its population lives in a FUA of at least 250 000 inhabitants (but fewer than 1.5 million); Non-Metropolitan with access to a Metropolitan TL3 region, if more than 50% of its population lives within a 60 minute drive from a Metropolitan region, or if the TL3 region contains more than 80% of the area of the FUA of at least 250 000 inhabitants; Non-Metropolitan, with access to a small/medium city, if the TL3 region does not have access to a Metropolitan region and 50% of its population has access to a small or medium city (between 50 000 and 250 000 inhabitants) within a 60 minute drive, or if the TL3 region contains more than 80% of the area of a small or medium city; Non-Metropolitan, remote, if 50% of its population does not have access to any FUA within a 60 minute drive. More details on the methodology underpinning TL3 regions' classification according to their metropolitan/non-metropolitan nature are provided in the following paper: Fadic, M., et al. (2019), "Classifying small (TL3) regions based on metropolitan population, low density and remoteness", OECD Regional Development Working Papers, No. 2019/06, OECD Publishing, Paris, https://doi.org/10.1787/b902cc00-en.
Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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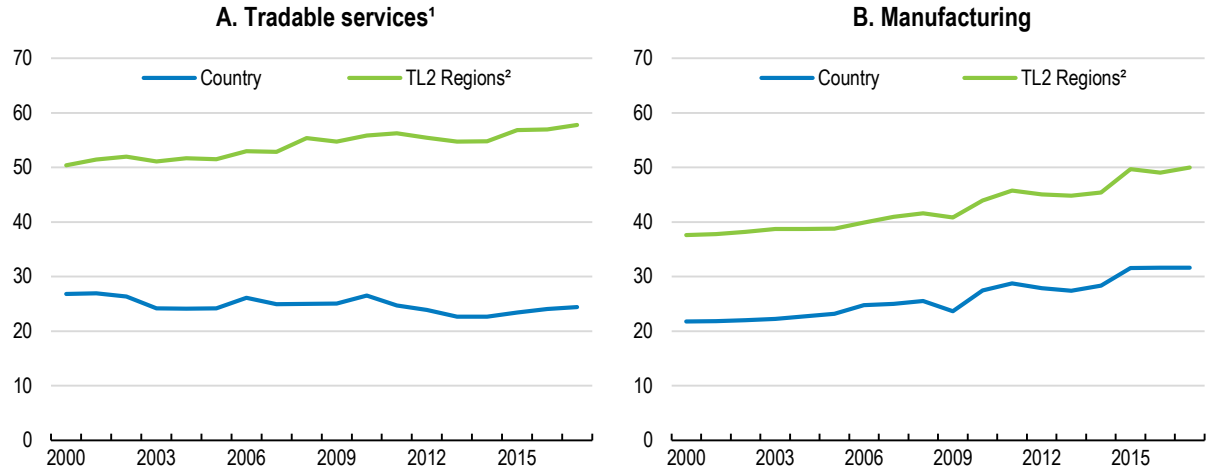
Global trends have hampered regional convergence

Technological progress and globalisation have yielded important aggregate benefits, but have also made regional convergence more challenging (OECD, 2019a). In Europe and elsewhere, high-value added services have become more concentrated at the regional level (Figure 2.6, Panel A). This has mainly benefitted large cities, since productivity in knowledge-intensive sectors has proved particularly sensitive to agglomeration economies. This concentration yields macroeconomic benefits, but also raises equity concerns (Moretti, 2020).

Figure 2.6. Larger regions have diverged in their sectoral specialisation[1]

Coefficients of variation of sectoral shares in total gross value added, EU27



Note: 1. Tradable services are defined as information and communication services (J) plus finance and insurance (K). 2. The charts are based on a sample of 192 TL2 regions from 25 EU countries. Territorial Level 2 (TL2) refer to large regions, as defined by the OECD classification of geographic units. This category corresponds to Eurostat's NUTS 2 classification, with the exception of Belgium and Germany where the NUTS 1 level corresponds to the OECD TL2. For TL2 regions in France GVA data from 2016 have been used for 2017.
Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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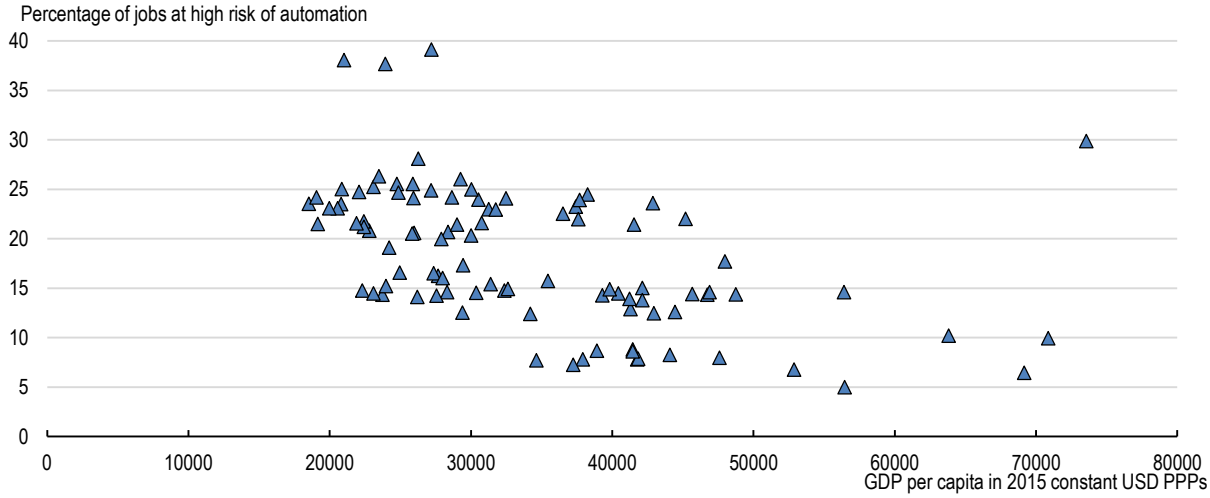
Unable to attract sophisticated, tradable services, non-metropolitan regions have also often seen their manufacturing base wither and unemployment rise, notably due to stronger import competition from emerging economies (Autor et al., 2013). The ensuing higher reliance on non-tradable sectors tends to be detrimental in the long run for growth and jobs (OECD, 2018a), notably as there is often less innovation and productivity growth in sectors that do no export. Spatial divergence has ensued. For instance, since the 1980s, previous income convergence among US regions has been replaced by widening inequalities (Austin et al. 2018; Krugman 2019).

Without corrective action by public policies, the ongoing digitalisation and automation trends, set to accelerate in this decade, will likely aggravate regional divergence. Across European regions, the share of jobs at high risk of automation varies from 4 to 39% (OECD, 2019a), and tends to be correlated with income levels (Figure 2.7). Regions specialised in basic manufacturing will be worst hit, while prosperous regions with a highly-skilled labour force face the lowest risks, and are set to reap substantial gains from automation. The spatial concentration of job creation in Europe could thus intensify over the next decade (McKinsey Global Institute, 2020).

Figure 2.7. Poorer regions have more jobs at high risk of automation

2015



Note: Data reported is from 2015 and corresponds to regions (TL2) in the Czech Republic, Denmark, Estonia, Greece, Spain, Finland, Ireland, Italy, Poland, Sweden, Slovenia and the Slovak Republic. Territorial Level 2 (TL2) refers to large regions, as defined by the OECD classification of geographic units.

Source: OECD (2018), Job Creation and Local Economic Development 2018: Preparing for the Future of Work, https://dx.doi.org/10.1787/9789264305342-en; OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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The evolution towards a greener economy, if not accompanied by appropriate complementary policies, could also worsen regional divergence. Coal extraction and some coal-using industries (e.g. steel) tend to be geographically concentrated (Botta, 2019), often in less prosperous regions with limited productive diversification. In the EU, examples come from some German, Polish and Czech regions (Alves Dias et al., 2018). Closure or restructuring of coal-related activities to meet climate mitigation targets could therefore further impoverish those regions. Furthermore, a sharp reduction in CO2 emissions from transport, also key for climate neutrality by 2050, could disproportionately weigh on incomes in rural areas, given their stronger dependence on private cars for mobility.

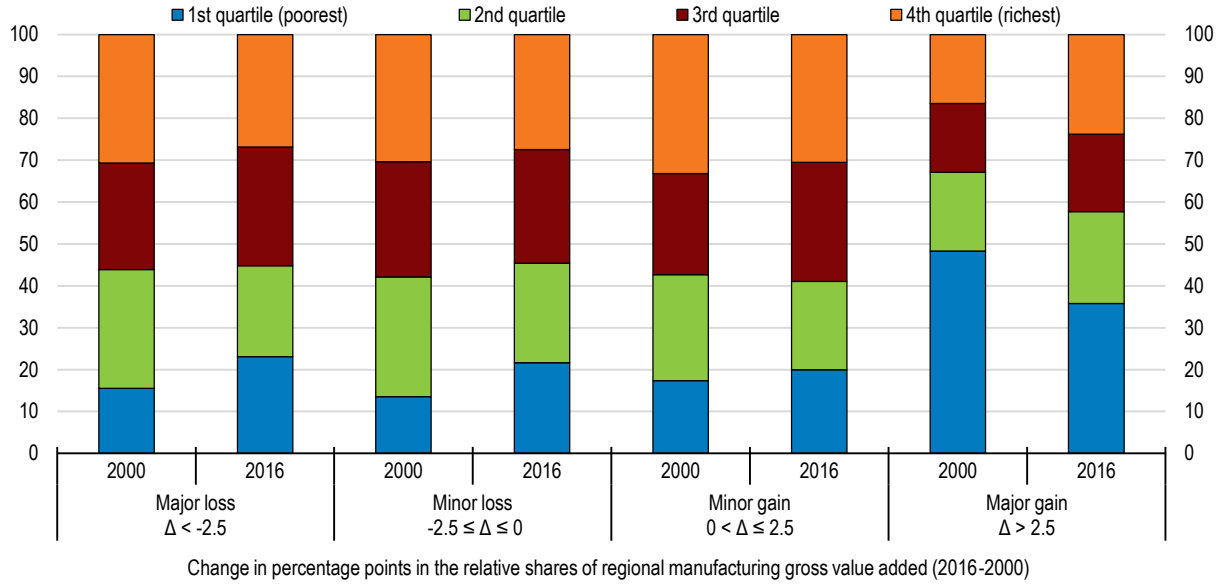
European-specific features have exacerbated those trends

Incomplete integration has compounded convergence challenges

Incomplete financial integration and procyclical fiscal policies have proved major obstacles to convergence in some parts of Europe, while in others cross-border trade and investment have fostered successful catching-up. In both cases, developments in productive specialisation have been major determinants of convergence or divergence (Mongelli *et al.*, 2016). Specialisation in manufacturing, which has become more asymmetric across countries and regions, is a case in point (Figure 2.6, Panel B). The integration of central and eastern European countries into German-centered supply chains, made possible by large-scale FDI from Germany, has been key to preserve or even increase the share of manufacturing in GDP in the countries and regions involved, and a major driver for convergence by the EU new member states (Dauth et al., 2017; Franks et al., 2018). In contrast, much of the rest of the EU has undergone marked deindustrialisation. Regions where manufacturing lost weight have become relatively poorer, sliding to lower quartiles of the cross-regional distribution of GDP per capita (Figure 2.8). Furthermore, countries facing deindustrialisation have tended to witness an increase in income inequality across their regions (OECD, 2017a).

Figure 2.8. Loss of manufacturing has been associated to declining prosperity

Distribution of TL3 regions by quartile of GDP per capita, EU27



Note: Regional GDP per capita is measured in 2015 constant USD PPPs. Territorial Levels 3 (TL3) refer to small regions as defined by the OECD classification of geographic units; they are consistent with NUTS 3 regions, as defined by Eurostat's classification. Calculations are based on a balanced panel of 1 060 TL3 regions from 25 EU countries. For Croatia and some TL3 regions in Italy GDP per capita data from 2001 have been used for 2000.

Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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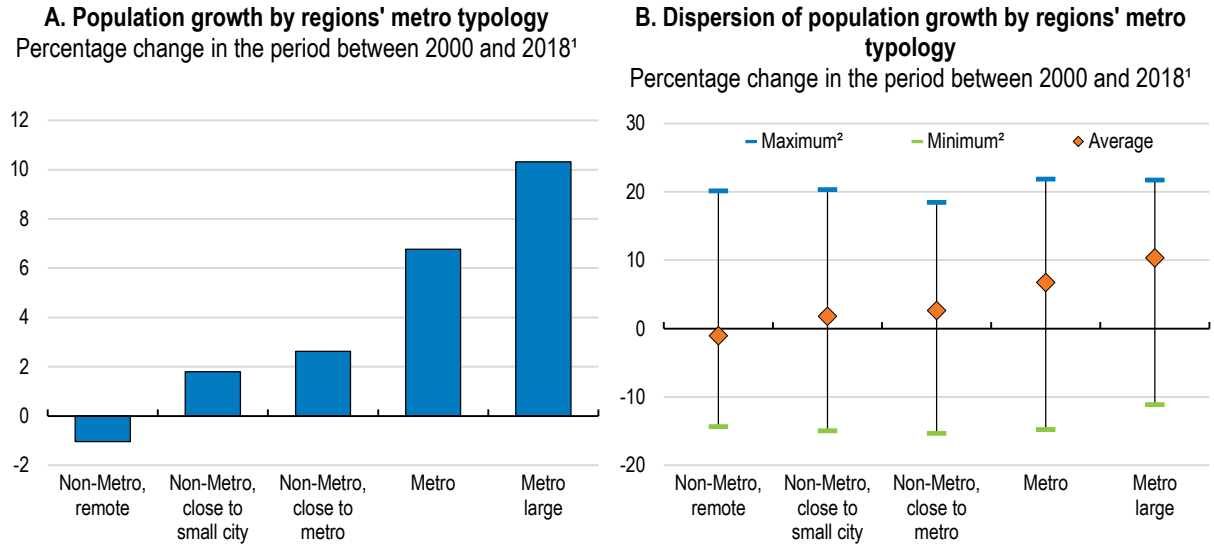
In Southern countries, destabilising capital flows and less effective fiscal governance, including excessive austerity during the sovereign debt crisis, have contributed to adverse developments in productive specialisation. In the run-up to the global financial crisis, large intra-euro area capital flows mainly financed investment in low-productivity, non-tradable sectors, such as construction (Franks et al., 2018). Pro-cyclical fiscal policies have also fuelled the expansion of non-tradables. The ensuing labour cost pressures further undermined the competitiveness of manufacturing, compounding the impact of competition from emerging economies in sectors such as textiles (Mongelli et al., 2016). When the sovereign debt crisis hit, the reversal of capital flows and the absence of European fiscal tools led to an abrupt adjustment and economic divergence.

Labour mobility in the EU has played a modest role in the adjustment to economic shocks. Some mobility has been at play, mainly towards metropolitan regions (Figure 2.9). However, as further discussed in the OECD Economic Survey of the Euro Area, overall mobility between EU countries, despite having increased over the last decade, still remains limited. Furthermore, within EU countries, inter-regional mobility in response to different labour market conditions has also been insufficient, especially in Southern countries like Italy and Spain (OECD, 2017a).

While stronger mobility is desirable, there are nonetheless limits to what it can achieve in terms of reducing regional disparities. For instance, workers with only medium or low qualifications typically have less opportunities and less incentives for moving, notably because shrinking wage premia in cities (Autor, 2019) could be wiped out by the higher urban living cost. In addition, a sizeable share of highly skilled workers among migrants may also entail as a downside significant brain drain for poorer regions, hampering their potential for productive upgrading, as further discussed in the OECD Economic Survey of the Euro Area.

Figure 2.9. People have moved to metropolitan areas

Population growth in different types of regions, 2000-2018



Note: 1. Calculations based on a sample of 1 068 TL3 regions in EU countries that are also members of the OECD (EU22) and for which data are available in both years. See footnote 1 of Figure 2.5 for more details on TL3 regions. 2. Minimum and maximum regional population growth rates, for the period between 2000 and 2018, are computed for each metropolitan typology by excluding percentage changes below and above the 5th and the 95th percentiles, respectively.

Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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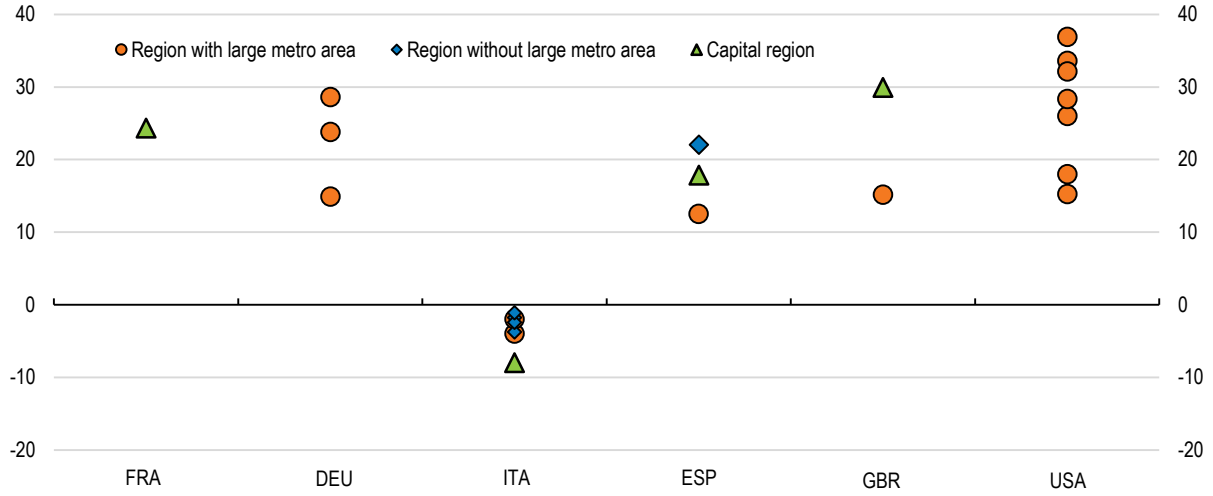
Low growth and low spillovers have posed additional difficulties

Generally modest growth in wealthy European regions has weighed on their ability to generate spillovers to other territories, as well as on aggregate economic performance. GDP per capita growth in the most prosperous European regions has often lagged that of their US counterparts (Figure 2.10). Weaknesses in innovation help explain limited growth, with only slow increases in spending on R&D and much scope to upscale cross-border joint research and innovation projects. Progress on these fronts, and in particular cooperation in developing technologically innovative value chains, would have to rely to a large extent on the most advanced regions, given their stronger resources and capabilities. However, those initiatives would also provide a framework for involving less advanced countries and regions, helping them to upgrade their productive specialisation (Strategic Forum for IPCEI, 2019).

There is also scope to increase spillovers from large European cities to other regions. Productivity spillovers from metropolises can benefit smaller cities and surrounding regions as far as 200 to 300 kilometres away (OECD, 2015a), a likely driver of robust growth in the extended suburbs of US large cities (McKinsey Global Institute, 2019). In Europe, however, it is not uncommon to find underperforming regions within a smaller radius of thriving urban hubs (Bisciari et al., 2020; McKinsey Global Institute, 2020). Furthermore, in several European countries, second-tier cities have often failed to generate substantial agglomeration economies, and thus to achieve rapid productivity growth (OECD, 2020b; OECD, 2011).

Figure 2.10. Growth in the wealthiest European regions has often been outpaced by their US counterparts

Cumulative percentage growth in regional GDP per capita, 2000-2018 (in 2015 constant USD PPPs)



Note: The figure shows growth in Territorial Level 2 (TL2) regions with a level of GDP per capita in 2018 above the respective national average. TL2 regions are considered (not) to have a large metro area if they (do not) contain a Territorial Level 3 (TL3) region classified as a large metropolitan region. Economically small regions (defined as those accounting for less than 1/N of national GDP in 2018, where N is the number of TL2 regions in the respective country) are not displayed.

Source: OECD (2019), OECD calculations based on data from the OECD Regional Statistics (database).

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Resuming convergence calls for a wide set of policy actions

Public policies need to do more to harness the potential of technological, globalisation and environmental trends for growth and well-being, and avoid that those trends, if unmanaged by policy action, further aggravate regional divergence. This chapter proposes two broad strands of action to foster growth and well-being in all regions, and avoid that some lag behind or decline.

Firstly, building on modern approaches to regional development and to industrial policy, place-based policies are needed to help all regions upgrade their productive specialisation, which is key to address the challenges discussed above. To support productive upgrading and thus accelerate growth, the next section first discusses policies to foster the development of innovative value chains in the EU, using tools from R&D support to public procurement, while ensuring that the benefits spread to less prosperous regions. Those policies will be closely linked to those that promote agglomeration economies and spillovers from cities, such as housing and transportation policies. The section will then assess how competition and trade policies can enhance the benefits of open and competitive markets for improvements in productive specialisation. Policies need to address new challenges to competition, stemming notably from digitalisation and foreign subsidies. Finally, the section will discuss productive upgrading as a response to climate change challenges.

Secondly, while the EU budget remains limited in size, it should be used more effectively to support regional convergence, especially using its two largest spending items, cohesion policy and the common agricultural policy. These policies need to be better geared towards improving regional productive specialisation while avoiding any counterproductive impacts, such as support to inefficient firms or activities. In the case of cohesion policy, a long-standing EU tool to address regional disparities, greater effectiveness calls for improvements in institutional quality, project selection and public procurement. These reforms are also key to maximise the impact of Next Generation EU, the recovery plan in response to the pandemic. To help poor rural regions converge, the common agricultural policy should be made

more targeted and more conducive to productivity gains in rural areas, namely by reforming distortive payments to producers, investing more in innovation and through better coordination with cohesion policy.

Policies to help regions upgrade their specialisation in a rapidly changing world

Restructuring or phasing out decaying sectors and moving into new activities of high value-added is a challenge for all regions. This challenge is probably the highest for poorer regions that still rely on carbon-intensive activities, which are meant to be scaled down. But productive upgrading is also a challenge even for the most prosperous European regions, which face increased global competition and must innovate to remain at the technological frontier. There is scope to better exploit complementarities and spillovers between regional strategies, through collaborative efforts and the development of innovative value chains.

Building on new approaches to regional and industrial policies: fostering innovation and agglomeration economies

Place-based strategies for productive upgrading

Since the late 1980s, regional policy has abandoned its former emphasis on the provision of infrastructure and on subsidy-based interventions to influence firm location decisions in favour of poorer or high-unemployment regions. Instead, recognising that sound nation-wide structural settings are often not enough to ensure regional convergence, a place-based approach to regional development has emerged, aimed at fostering regional competitiveness (OECD, 2019a). Place-based policies emphasise the coordination of the different sectoral interventions that may be necessary, in interaction with private actors, to support the development of certain sectors, building on regional strengths. Rather than “picking the winners”, place-based policies aim at favouring the emergence of competitive companies and activities. Sectoral interventions can be as diverse as training, transport, R&D or land use, among others. Diverse policy levers are often in the hands of different levels of government, thus calling for coordination among them. Furthermore, diffusing innovation is acknowledged as key for upgrading the regional productive specialisation (OECD, 2019b). In turn, innovation and its diffusion is favoured by the agglomeration economies in large cities (Puga, 2009).

Modern approaches to industrial policy tend to be supportive of place-based strategies. They emphasize the importance of public support, in partnership with the private sector, for finding what a country or region is good at producing. Promoting entry into new activities and experimentation generates valuable information about the ensuing success or failure and, in the former case, paves the way for imitation and diffusion (Hausmann and Rodrik, 2003). Both place-based regional development and modern industrial policy underline the importance of local conditions for innovation and innovation diffusion, of policy experimentation and of competition-friendly partnerships with the private sector (see below). Both also emphasise that tradable sectors are essential for economic development. Korean technoparks exemplify this policy approach (Box 2.1). Another example are the Industrial Alliances created by the European Commission (e.g. on batteries, circular plastics or hydrogen), in which Member States and the private sector together identify the needs and determine long term strategies. These alliances are an important component of the EU Industrial Strategy (European Commission, 2021a). In cohesion policy, the concept of smart specialisation also largely takes on board these insights. It involves prioritising support to certain sectors, selected through interaction with the private sector, which have the potential to generate agglomeration economies (Correa and Guceri, 2016).

Box 2.1. Supporting regional innovation and development: Korean technoparks

Technoparks were created in 1998 as a response to the growing concentration of economic activity around Seoul. Besides providing basic infrastructure and acting as a business incubator, technoparks aim to support innovation and the development of new industries by fostering cooperation between SMEs, universities and research institutes, the central government and local authorities.

From the initial six technoparks, the network has expanded to the current 19, covering all the provinces and metropolitan areas of Korea (Rhee, 2021). Technoparks have supported a variety of different industries according to regional strengths. Their countrywide presence also illustrates that regional policy concerns all regions, and not only the least prosperous ones.

Together with other regional development programmes, technoparks have contributed to strong economic growth outside Greater Seoul (Rhee, 2021), and thus to keeping regional disparities in GDP per capita at a relatively low level in international comparison.

It is important to ensure that industrial policy along these lines does not conflict with competition policy. Indeed, disciplining devices, such as making support to new activities time-limited, are key to avoid ending up supporting inefficient, rent-seeking incumbents (OECD, 2018b; Rodrik, 2004; Hausmann and Rodrik, 2003). There can be complementarity between competition and industrial policy: when state aid is targeted at competitive sectors or, within a sector, allocated in a competition-friendly way, it tends to be more effective in increasing productivity growth (Aghion et al., 2015). For regions in industrial transition, place-based strategies emphasise the importance of market entry by new players and openness to knowledge from outside the region to avoid lock-in, i.e., enduring specialisation in traditional industries dominated by local incumbents (OECD, 2019b).

While modern regional and industrial policies are relevant to all regions, they are admittedly harder to apply in poorer and more peripheral ones. For instance, less diversified and sophisticated productive structures can make knowledge spillovers among technologically-related sectors and the ensuing emergence of new industries less likely (Asheim et al., 2011). Furthermore, avoiding policy capture by vested interests will be harder in more peripheral regions, with few large players and weaker institutional capabilities (Boschma, 2013).

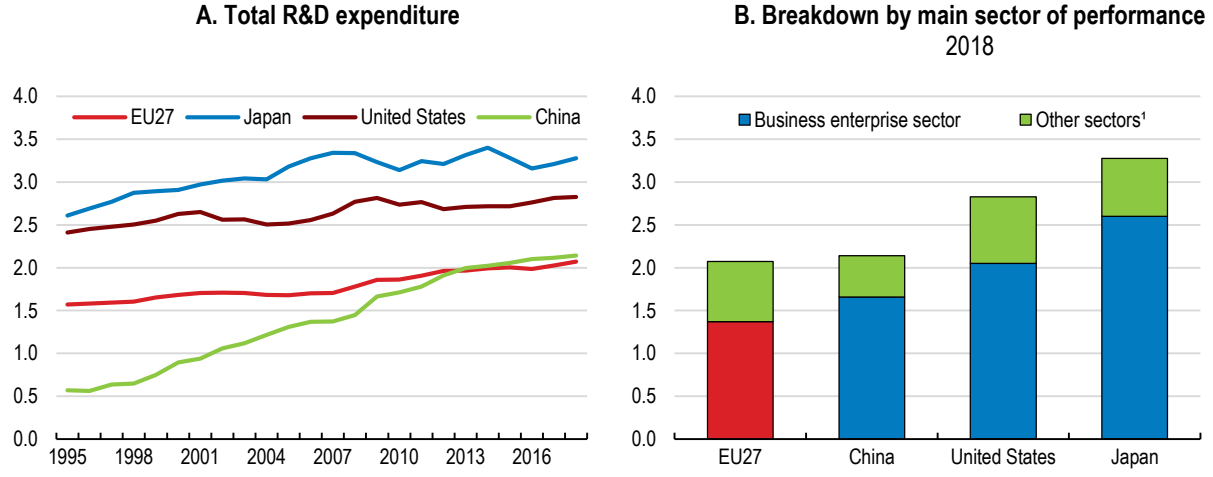
The following sections will assess how European cooperation on innovation policies could be enhanced and how spillovers from large cities could be improved.

Upscaling European cooperation in innovation policies

Europe has been falling behind in innovation, which is a major threat to long-term prosperity. Investment in R&D has been progressing slowly, and remains far below the 3% of GDP target set for 2020 (Figure 2.11). Europe's comparative weakness lies in R&D performed by firms, whose growth over the past two decades has not closed the gap to the USA or Japan and has been strongly outpaced by China. In turn, this weakness is both a cause and a consequence of a smaller weight of high-tech sectors (such as ICT) in the EU economy (European Commission, 2017a; OECD, 2017b). In particular, Europe has performed poorly at scaling up new firms: no European company created in the past 3 decades has made it to the top 100 global firms by market capitalisation (McKinsey & Company, 2019).

Figure 2.11. The EU lags behind in R&D performed by firms

As a percentage of GDP



Note: 1. Other sectors include R&D performed by government, higher education institutions and the private non-profit sector.
Source: OECD (2020), OECD Main Science and Technology Indicators - MSTI (database).

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Incomplete product market integration (which hinders the growth of start-ups) and fragmented capital markets (which contributes to the lack of financing for start-ups) are partly to blame for Europe's relative weakness in turning scientific prowess into innovation and growth. Services sectors are particularly affected by fragmentation, which helps explain their very weak productivity growth since the turn of the century, as analysed in the 2018 OECD Economic Survey of the EU.

Besides market fragmentation, a limited exploitation of synergies between different national and regional efforts has also weighed on Europe's innovation performance. Collaborative innovation efforts across Europe help create critical mass while benefitting from the continent's diversity (McKinsey & Company, 2019), which can be a source of spillovers. To promote synergies, Horizon 2020, the main EU research and innovation programme in 2014-2020, has fostered the creation of cross-border networks and lasting cooperation between national funding agencies. However, the ensuing impact on the orientation of national research strategies and policies has often been small (European Commission, 2017b). Within Horizon 2020, a large number of different funding instruments has reduced readability for potential beneficiaries. The provision of financial support to Covid-19 vaccine development illustrates these limitations: a proliferation of national and European funding schemes makes support more complex and less transparent and, in the end, does not avoid that the overall sums made available remain well below those of others, such as the US (Aghion et al., 2020).

Horizon Europe, the successor of Horizon 2020 for 2021-27, is preparing five large-scale inter-disciplinary mission areas to tackle global challenges (adaptation to climate change, cancer, oceans, cities and soil), which may serve as a catalyst for cross-country cooperation. Mission areas may also help define promising opportunities for private investment, *inter alia* because stronger innovation potential often lies at the intersection of different technologies (Mazzucato, 2018). To these ends, Horizon Europe is pursuing an enhanced and simplified approach to partnerships involving public or private participants, with the potential to pool efforts in promising domains like health innovations, artificial intelligence or hydrogen technologies. Forty nine European Partnerships have been identified: 11 have already been launched and all the others are taking the final steps towards their launch. The new European Innovation Council (EIC), which shares some features of the renowned DARPA agency in the US (Box 2.2), has the potential to further stimulate cross-border collaboration in R&D.

Box 2.2. Fostering breakthrough innovation and collaborative efforts: DARPA and EIC

The Defense Advanced Research Projects Agency (DARPA) is an agency of the US Department of Defense that manages and finances R&D programmes for national security. Created in 1958 as a response to the Soviet Sputnik launch in the previous year, DARPA emphasises high-risk, high-return projects aiming at turning results from fundamental research into practical technological advances. The ensuing innovation breakthroughs often find uses and applications far beyond the military sphere: the Internet, the Global Positioning System (GPS) and automated voice recognition and language translation are some examples.

DARPA benefits from light and flexible administrative and contracting arrangements, enabling it take swift advantage of opportunities. About 100 programme managers, recruited from universities, firms or other government agencies for limited periods (generally 3 to 5 years), oversee around 250 R&D programmes. These managers enjoy large autonomy in the recruitment of researchers and in setting up collaborations involving universities, start-ups or large firms. Regular monitoring and reporting mechanisms ensure that programmes which fail to deliver results (as some will do, due to their high-risk nature) can be discontinued.

At around USD 3 billion per year, DARPA's budget is relatively modest, accounting for only 2% of US federal R&D spending (Congressional Research Service, 2020). However, due to the research collaborations it coordinates, it ends up directly mobilising a higher amount of investment. DARPA's activities are also likely to crowd in private investment in R&D (Moretti et al., 2020).

Part of Horizon Europe, the European Innovation Council (EIC), formally launched in March 2021 but building on a 2018-20 pilot phase, is an ambitious innovation initiative endowed with a budget of EUR 10 billion for the period 2021-2027. Inspired to some extent by DARPA, the EIC aims to identify, develop and scale-up high-risk, high-impact breakthrough technologies and disruptive innovations.

The EIC has two main components, Pathfinder and Accelerator, with Transition activities to bridge any gap between them. The EIC Pathfinder is grant-based and supports research teams to transform scientific advances into new technologies. As in DARPA, programme managers (4 of which had already been appointed by end-2020) will help shape project portfolios and bring together stakeholders to foster collaboration and reach critical mass. The EIC Accelerator supports start-ups, SMEs and exceptionally mid-caps to develop and scale-up innovations, notably through a mix of grants and equity investments (blended finance). This acknowledges the need to substantially increase support to breakthrough, market-creating innovation, as few young and fast-growing innovative companies have taken part in Horizon 2020 (European Commission, 2017b).

The EIC Accelerator is a welcome and innovative feature without parallel in DARPA, which can arguably rely on a large public procurer (the US Department of Defense) to foster innovation development.

Horizon Europe funding remains insufficiently ambitious, but the Recovery and Resilience Facility (RRF, the largest component of the EU recovery plan; see Box 1.5) may be used to boost investment in research and innovation. At EUR 84.9 billion (at 2018 prices, including top-ups from Next Generation EU and competition fines), Horizon Europe's envelope is only 9% larger than Horizon 2020's initial budget, though the increase becomes more sizeable if the comparison takes account of subsequent reductions in Horizon 2020's resources (+14%) and, additionally, if one also subtracts Horizon 2020 expenditure allocated to the UK (+30%). By strongly embedding research and innovation into national recovery and resilience plans (discussed in Chapter 1), RRF funding may be used to help member states deliver on recent commitments, namely in the context of a revamped European Research Area (European Commission, 2020a), such as achieving a 1.25% of GDP public R&D effort by 2030.

Cooperation between EU countries and public support are also important for stages of innovation that are closer to the market (e.g. first industrial deployment) but entail significant risks. An important tool in this context is state aid under the IPCEI (Important Projects of Common European Interest) framework, which supports highly innovative projects involving several member states. Since 2014, three IPCEI projects in the field of research and innovation have been submitted to and approved by the Commission, on microelectronics (2018) and batteries (2019 and 2021). More such projects should be developed, which strong Commission involvement may facilitate, given the need for substantial coordination among countries and firms. Indeed, preparations for a possible IPCEI in the area of hydrogen infrastructure development are underway. Synergies with Horizon Europe partnerships should be exploited, and the state aid notification and scrutiny process streamlined (European Commission, 2019b).

At the same time, it is essential to continue to ensure that distortions to competition are minimised and spillovers to the rest of the economy enhanced. This requires inter alia that: (i) in each project many different companies are supported, including direct competitors; (ii) the project could not be carried out in the absence of aid; and (iii) research results are widely disseminated. Furthermore, to avoid negative impacts on regional convergence, it is of great importance that IPCEIs are accessible for participation to all member states: the three IPCEI projects approved so far have involved a limited, although increasing, number of countries (12 EU member states and the United Kingdom), mostly among the larger and richer ones. Wider participation also calls for greater involvement of firms from other countries, including SMEs, either as direct aid beneficiaries or through their integration in the relevant value chains. The recent proposal to revise the IPCEI framework includes provisions to widen participation across countries and by SMEs, which is welcome in order to make the process more inclusive and transparent.

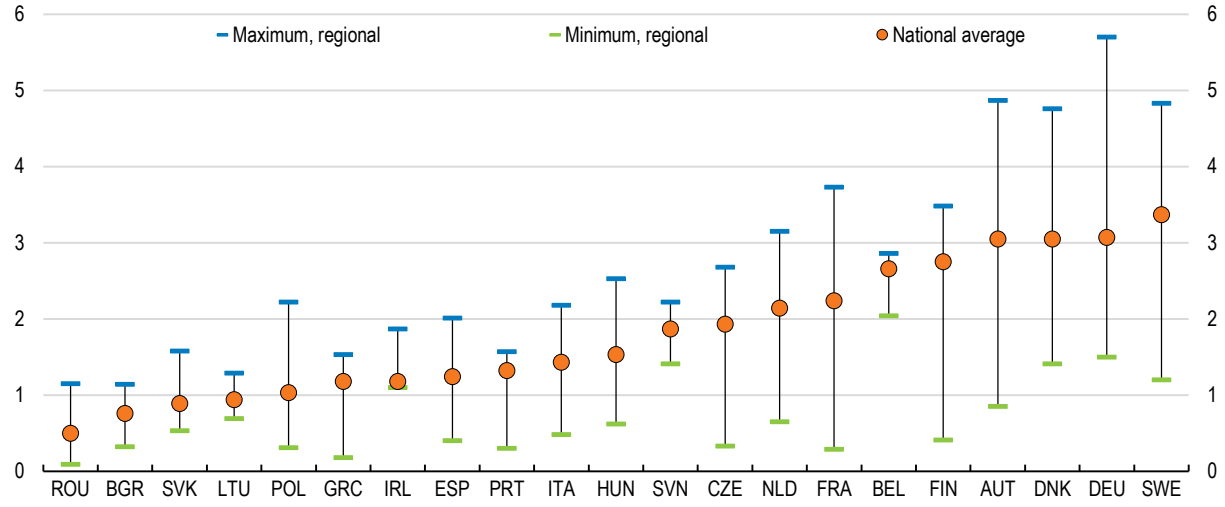
There is also scope for greater integration and cooperation in public procurement, which can help stimulate innovation by creating markets for new products and services. The current fragmentation of public procurement hampers stimulus to innovation, as the demand pull may not reach critical mass (European Commission, 2014). Despite legislation which is open to foreign bidders, in EU countries only about 3% of total public procurement value over 2009-2015 was accounted for by bidders located in a country different from the buyer's, though indirect cross-border procurement via local subsidiaries reached a higher (20%) share (European Commission, 2017c). Greater *de facto* openness by procurers to bidders from other countries would encourage their participation in tenders (which current legislation already amply allows) and increase the odds that an innovator will be able to sell abroad. In tandem, it is important to increase cross-country joint procurement, which remains very small despite dedicated support mechanisms in EU research and innovation programmes. Indeed, alongside R&D funding and state aid, public procurement is a domain where cross-country cooperation is essential to foster the development of strategic value chains in the EU.

Strengthening innovative capacity in less prosperous regions

European countries and regions vary widely in the intensity of their R&D efforts (Figure 2.12), and these are often too small. Some variation in R&D efforts may simply reflect an efficient choice of specialization. Indeed, the comparative advantage of some regions may lie in traditional manufacturing and services, where the scope for R&D investment is more limited than in knowledge-intensive industrial sectors. However, firms in low-tech sectors can also benefit from subsidies for collaborative industrial research, sometimes to a larger extent than firms in technologically advanced industries (Crescenzi *et al*., 2018). Higher R&D investment in low-tech manufacturing or in lagging regions can yield sizeable productivity gains, notably by promoting technology adoption by firms operating below the national productivity frontier (Kierzenkowski et al., 2017; OECD, 2018c, 2019a). The meagre R&D investment observed in many regions is thus an obstacle to innovation and innovation diffusion.

Figure 2.12. Many EU countries and regions have meagre R&D investment

As a percentage of GDP, 2018 or latest year available



Note: 2013 for France; 2015 for Ireland; 2017 for Austria, Belgium, Denmark, Germany, Poland, Portugal, the Slovak Republic, Slovenia and Sweden.

Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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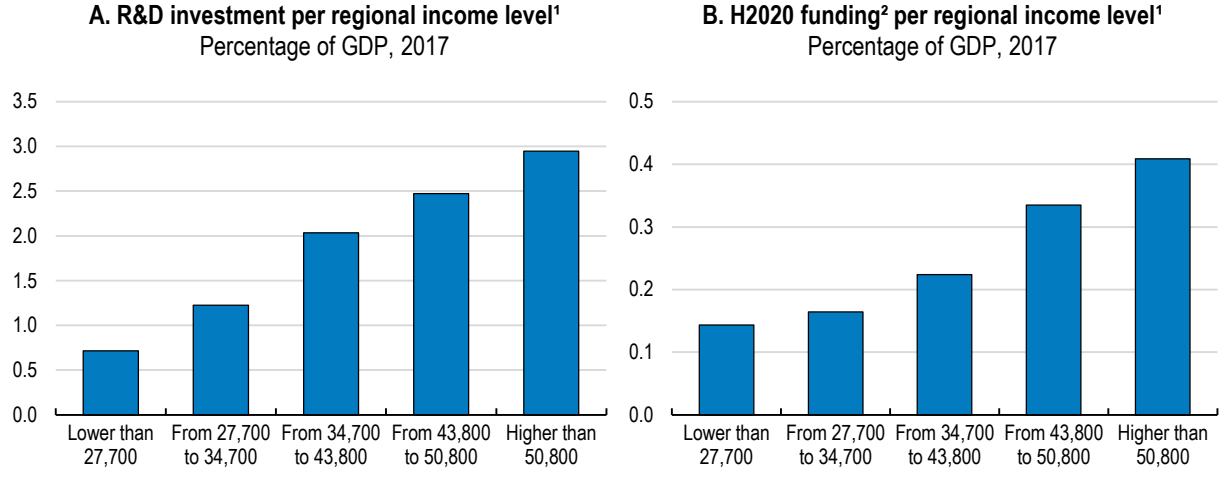
Better integration of research and innovation policy with cohesion policy is key to increasing support to innovation in less prosperous regions, which have small R&D investment (Figure 2.13, Panel A). Their more prosperous counterparts have tended to absorb most of Horizon 2020 funding, in line with their more mature research and innovation systems and the programme's emphasis on excellence as an evaluation criterion (Figure 2.13, Panel B). Besides Horizon 2020 initiatives to widen participation by lagging countries, a number of steps have been recently taken to combine financial resources from cohesion policy with the merit-based assessment mechanisms of R&D programmes.

Figure 2.13. Richer regions invest more in R&D and have received more Horizon 2020 funding



Note: 1. Income level groups of TL2 regions are based on 2018 GDP per capita in 2015 constant USD PPPs. Territorial Level 2 (TL2) refers to large regions, as defined by the OECD classification of geographic units. This category corresponds with Eurostat's NUTS 2 classification, with the exception of Belgium and Germany where the NUTS 1 level corresponds to the OECD TL2. Panel A is based on data for 189 TL2 regions from 24 EU countries. Panel B is based on data for 191 TL2 regions from 25 EU countries. 2. Cumulated funding from 2014 up to 2019.

Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database) and Eurostat Regional Economic Accounts (database).

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The Seal of Excellence label attempts to enlarge the sources of funding for research and innovation projects. The label is awarded to non-funded high quality Horizon 2020 proposals worthy of financial support from other sources. However, available information suggests that alternative public funding for these proposals stays at less than 1% of the amount they had requested from Horizon 2020, inter alia due to difficulties posed by State aid rules (European Commission, 2017b).

The Commission has recently revised State aid rules to facilitate support granted by Member States to SMEs for Seal of Excellence projects, through simpler procedures and the possibility of higher ceilings. The same revision of rules also provides for easier combination of national and Horizon Europe funding for research and innovation activities. Seal of Excellence quality labels will continue to be awarded under Horizon Europe (2021-27).

In another step to more easily use cohesion funding in support of research and innovation, regulations for 2021-27 Cohesion Policy enable countries to transfer up to 5% of their cohesion allocation to Horizon Europe, ring-fenced for competitively selected national projects. These new possibilities should be taken advantage of in support of national and regional innovation policies.

Interregional cooperation supports innovation and, more generally, tends to enhance the benefits from cohesion policy. Recent evidence suggests that greater participation in joint cohesion policy projects with other regions is associated to stronger regional economic growth (Darvas *et al.*, 2019). Often these projects bring together neighbouring regions from different countries, *inter alia* to develop cross-border transport or public services infrastructure. Certain projects may be essential to improve accessibility to markets across the border, and yet they could receive very low priority in a purely national logic. Other fields for cooperation, however, do not require geographical contiguity. For instance, cooperation among regions is of value in the design and implementation of smart specialisation strategies, notably to improve positioning in European value chains, though much scope for larger joint investment remains (European Commission, 2019b; Cohen, 2019). One benefit from cooperation is the possibility of sourcing knowledge from outside the region, which reduces the reliance on incumbent local players and fosters innovation (OECD, 2019b). Cooperation with more advanced partners also contributes to capacity building in poorer regions (Darvas *et al.*, 2019).

To promote interregional cooperation, cohesion policy rules for 2021-27 generalise the possibility, hitherto restricted to specific programmes, for a region to use part of its cohesion allocation to fund joint projects anywhere in the EU. In addition, new provisions will simplify the implementation of cross-border projects, such as the possibility to sometimes apply a country's rules to a project taking place across the border. Countries should make an active use of these new possibilities to further engage in interregional projects.

Making the best of urban spillovers

Large cities play a key role in productive upgrading. Urban agglomeration economies lead to higher productivity, due to a larger pool of skilled workers, better matching in labour markets and supply chains, and the promotion of innovation and knowledge diffusion (Puga, 2009). For similar levels of skills, workers' productivity may increase by 0.2-0.5% in a city with 10% more population (Ahrend et al., 2017). Furthermore, productivity spillovers from metropolises can benefit smaller cities and surrounding regions as far as 200 to 300 kilometres away (OECD, 2015a). However, poor governance arrangements can negate the agglomeration benefits of a larger city. In functional urban areas (defined taking account of commuting patterns), a fragmented administration (i.e., a higher number of municipalities) is associated with lower productivity, especially if no metropolitan governance arrangements exist, reflecting poorer coordination in areas like spatial planning or transport (Ahrend et al., 2017). For instance, inadequate public transport makes areas accessible for daily commuting smaller, and thus labour markets less deep, to the detriment especially of low-income workers (OECD, 2015a).

A flexible and responsive housing supply is essential to enhance agglomeration economies by enabling cities to grow, including those of medium or small size. Supply rigidity makes house prices soar when

demand increases, which hampers the creation of high-productivity jobs by preventing suitable candidates from relocating, with large ensuing macroeconomic costs (Hsieh and Moretti, 2019). In several EU economies, including the largest ones, national-level estimates point to significant supply rigidity (Cavalleri et al., 2019), which is corroborated at the level of large cities and their surrounding commuting zones (Bétin and Ziemann, 2019). At this latter level, current residents will not likely be enough to fill projected job creation over the coming decade (McKinsey Global Institute, 2020).

Making land use regulation less restrictive is a key policy lever to increase the responsiveness of housing supply. Entrusting zoning to local authorities, or effectively giving them veto rights in the matter, is associated to a less elastic supply (Cavalleri et al., 2019), likely because not-in-my-backyard behaviour by local owners gains greater political clout. Delegating land use regulation to higher-level, metropolitan authorities is thus advisable, and could be made easier if those authorities are elected, and thus have reinforced democratic legitimacy. Tight rent controls and generous tax relief for home ownership are other policy drivers of housing supply rigidity, and thus should also be areas for reform. Long overdue investment to make housing more energy-efficient is projected to put upward pressure on prices (Cournède *et al.*, 2020), making reforms to enhance supply responsiveness even more urgent.

Making more territories benefit from agglomeration economies should also be a priority. Reducing travel time from smaller towns to large cities can help the former benefit from agglomeration economies, and thus achieve higher productivity (OECD, 2019b). High-quality internet connectivity at competitive prices will help increase the size of local labour markets through more widespread teleworking. Second-tier cities can gain critical mass to generate stronger agglomeration economies through closer integration with their surrounding regions and smaller towns, for instance by planning joint infrastructure or enhanced collaboration between universities and firms (OECD, 2020b). This often requires effective coordination between different levels of government (e.g. central, regional, metropolitan, local), as well as between similar-level authorities (e.g. municipalities). In Hungary, the city of Gyor, with only about 130,000 inhabitants, illustrates the importance of engaging with the local business sector (where FDI plays a major role) and educational institutions to generate agglomeration effects (Lux, 2015), as analysed in the 2019 OECD Economic Survey of Hungary.

Trade and competition policies for a level playing field

Competitive product markets are essential for the success of place-based strategies, since they strengthen incentives to innovate and promote innovation diffusion (Andrews et al 2015). Active enforcement of competition rules in the European market and openness to international trade and investment should therefore remain policy priorities.

At the same time, preserving a level playing field and avoiding competitive distortions requires that competition, trade and investment policies adapt their tools to respond to new challenges brought about by globalisation and technological change. These concerns are acknowledged by recent Commission work on competition policy, as well as by its trade policy review. For instance, market characteristics favoured by digitalisation, such as strong economies of scale and network effects, may in certain cases hamper competition. Distortions induced by subsidies from non-EU governments or public bodies (henceforth, foreign subsidies), which fall outside EU State aid control, are another case in point.

Trade and investment policies to minimise competitive distortions

The implications of subsidies for international trade are regulated by the WTO's Agreement on Subsidies and Countervailing Measures, but this framework has increasingly come under strain. Under current rules, a few categories of subsidies are forbidden (e.g. subsidies contingent on export performance), while all the others are permissible provided international trade is not distorted. However, WTO rules work best for financial contributions granted by public authorities and for simple supply chains contained within national borders. Today's reality of complex, international value chains and of multiple forms of public support, far

beyond direct grants and sometimes through State-owned entreprises or the financial system, raises the burden of proof and makes rules harder to enforce (Jean *et al.,* 2019; OECD, 2019c). Furthermore, WTO members often do not comply with subsidy notification requirements.

A country harmed by an allegedly distortive foreign subsidy may investigate the matter and apply, under WTO conditions and limits, countervailing duties. Alternatively, the country may seize the WTO's dispute settlement mechanism. In this case, if the subsidy is deemed illegal and not discontinued, the injured party can adopt retaliatory countermeasures (e.g. higher customs duties) only at the end of the dispute settlement procedure, including a possible appeal.

To better address distortive subsidies, the EU strengthened its trade defence instruments in 2018. Notably, this reform has enabled the Commission to impose countervailing duties to offset the full extent of subsidisation, and it has streamlined the procedural framework to provide more effective protection against opaque foreign subsidisation. Furthermore, the Commission has continued to address new forms of subsidisation by third countries, notably those resulting from international value chains. These steps may help to curb distortive practices, but they have limitations. For instance, upgraded trade defence instruments cannot deal with all detrimental effects of industrial subsidies, such as the distortion of competition in third markets.

Importantly, the EU trade policy review (European Commission, 2021b) is not limited to autonomous measures (taken individually by the EU), such as trade defence and enforcement. In line with a model of open strategic autonomy, strong emphasis is placed on bilateral and multilateral cooperation to advance a level playing field agenda, aiming inter alia at strengthening international rules on industrial subsidies. In this context, the EU advocates reform of the WTO in its three main functions (negotiation, monitoring and dispute settlement). Trade policy is also regarded as a tool to support the digital and green transitions.

When the WTO's dispute settlement mechanism is seized and an appeal takes place, the procedure will currently be left unfinished due to insufficient quorum to hear appeals (since December 2019). To tackle these cases, recent legislative changes will enable the EU to impose countermeasures in the wake of a favourable WTO panel report (the procedural phase before a possible appeal) if the appeal cannot proceed through another form. Moreover, the EU has created, with more than 20 other WTO members, an interim appeal arrangement, which would allow an appeal to proceed in a concrete case if the other WTO member-party to the dispute agrees.

FDI can be a powerful catalyst for competition and innovation, but in some cases may also pose security concerns or be a vehicle for anti-competitive behaviour. Technological and geopolitical developments have heightened security concerns in the past few years, making many recipient countries adopt or reform investment policies to safeguard their essential security interests (OECD, 2020c). In 2019, the EU adopted a framework for the screening of FDI from third countries on grounds of security and public order, in force since October 2020. The EU country where the investment takes place retains the final word on authorisation and possible associated conditions but must address requests for information from other Member States and the Commission and take account of their comments. This framework is welcome, given freedom of establishment and free movement of capital among EU economies, which heightens interdependence. Until the recent past, exchange of information on FDI between EU countries has been limited (European Court of Auditors, 2020). At the same time, it is essential to preserve legal certainty and openness to FDI, which can play a key role in avoiding rising concentration in certain markets associated to pandemic-induced insolvencies.

The Commission has recently put forward a draft Regulation to address distortions caused by foreign subsidies in the Single Market (European Commission, 2021c), building on a previous White Paper (European Commission, 2020b). In the case of foreign subsidies facilitating the concentration of undertakings active in the EU, an issue not specifically tackled by the above FDI screening, the proposed Regulation envisages a compulsory ex-ante notification when certain thresholds are met, which gives rise to a review by the Commission. A concentration (i.e. an acquisition, merger or a joint venture) facilitated

by foreign subsidies found to distort the internal market (without sufficient compensating positive impacts) would be subject to redressive measures or, as a last resort, prohibited. Distortions could stem, for instance, from preventing non-subsidised acquirers from accessing certain technologies (European Commission, 2020b), to the detriment of innovation-driven productive upgrading. Redressive measures could also be imposed in the case of below-thresholds concentrations, which the Commission could investigate on its own initiative.

Enhancing tools to enforce competition

Competition policy is key to promote efficient resource allocation, foster innovation and investment, and preserve the purchasing power of consumers. In the EU, the European Commission, with the national competition authorities, directly enforces EU competition rules, which are essential to deepen and preserve the integrity of the internal market and have brought to Europe huge benefits. Since the turn of the century, profit margins and concentration in most sectors of activity have increased less in Europe than in the US (Philippon, 2019). Vigorous competition enforcement in the internal market should therefore be ensured.

An immediate concern is to provide State aid to support the economy in the context of the pandemic and its aftermath while minimising risks of market distortions. The Commission adopted in March 2020, and then successively extended, a Temporary Framework to enable Member States to use the full flexibility foreseen under State aid rules, currently due to remain in force until end-2021. Approved aid measures have varied widely across EU countries, with Germany accounting for more than half of the total (Hermet and de Franclieu, 2020), which initially fuelled concerns that member states with more fiscal space would provide more generous support to their domestic companies. This would distort competition (Motta and Peitz, 2020) and exacerbate risks of economic divergence in the EU, since poorer countries have more limited budget resources.

Available data on aid disbursements until end-2020 tends to assuage those concerns, as more highly indebted countries (Spain, France, Italy and Greece) are the ones having granted more aid as a share of pre-crisis GDP (Mathieu Collin et al., 2021). By reducing cross-country asymmetries in fiscal space, the EU recovery plan also goes some way to reduce those risks. Nonetheless, countries with less fiscal space have tended to rely more on repayable support, such as loan guarantees (Mathieu Collin et al., 2021; Figure 1.13 in Chapter 1), which is a source of future vulnerabilities. Safeguards to avoid that aid generates distortions, such as focussing on firms that were solvent before the crisis, should continue to be carefully enforced. Once the recovery gathers sustained pace, the Temporary Framework for State aid should be terminated.

However, many viable firms will exit the crisis with heavy debt burdens, and may need equity support to stave off bankruptcy. Recapitalisation aid, already a strand of the Temporary Framework, may need to outlive it in some form, for instance by making it possible to transform some loans into equity. When providing State aid, public authorities should take advantage of private sector expertise, and exploit opportunities to co-invest with private investors (OECD, 2020d). Across-the-board measures for balance sheet repair, such as removing incentives to withdraw equity by reducing or eliminating corporate taxes on retained earnings for SMEs, may have the additional advantage of not raising concerns of competitive distortions.

The emergence in high-technology sectors of European firms that are major global players would be a desirable outcome of the pro-competitive industrial policies discussed in the previous section on innovation. In contrast, promoting the emergence of “European champions” through a laxer application of competition rules, especially as regards mergers, is fraught with pitfalls, as are traditional industrial policies aiming to create or support national champions. Identifying a “champion” on the basis of objective economic criteria is very hard, if not impossible, potentially opening the door for special interests to guide the choice of which companies to support (Heim and Midões, 2019). Protection of incumbents brings risks of regulatory forbearance and capture, and could worsen levels of corruption (OECD, 2018b). Furthermore,

promoting European champions would likely worsen regional disparities across Europe. Those firms would tend to come from large and prosperous member states, and, within them, from affluent regions, deriving profits at the expense of consumers in the rest of the Union (Jenny and Neven, 2019).

In any case, European competition policy has seldom prevented firms from achieving scale and greater efficiency through mergers. Most proposed consolidations have been accepted, sometimes actually giving rise to European champions. Less than 3% of all mergers notified to the Commission in 2010-2018 have been prohibited or the respective notification withdrawn (Jean *et al.*, 2019). This overwhelming majority of approvals also holds for notifications by large EU companies, though in these cases remedies are more often imposed (Helm and Midões, 2019).

In some areas, there is a case for strengthening, not weakening, competition enforcement. A case in point concerns the loosely called "killer acquisitions", where large firms buy smaller rivals to pre-empt future competition. This pre-emption may take place by discontinuing at an early stage of development a rival's innovative project, which in the future could potentially outperform some of the incumbent's products, such as pharmaceuticals (Cunningham et al., 2018; OECD, 2020e). In the digital field, innovation by the target firm is often not thwarted, but anti-competitive effects could stem from the target's integration into the purchaser's platform or ecosystem, which may increase barriers to entry, for instance by making it easier to retain users (Crémer et al., 2019). These acquisitions often escape merger control by the Commission because of the modest turnover of the purchased start-ups, far below the turnover-based notification thresholds.

There are different possibilities to increase the likelihood that killer acquisitions are scrutinised by competition authorities, but they are not free from drawbacks. Given that incumbents sometimes pay large amounts to purchase promising start-ups, one route would be to supplement turnover thresholds with transaction value thresholds, as recently done in Austria and Germany, thus triggering merger control procedures more often. However, setting these thresholds is not easy: a high value risks missing numerous killer acquisitions (as argued by Cunningham et al., 2018, in the case of the pharmaceutical industry), while a low value would generate too many cases for scrutiny. In addition, transaction values can be manipulated (Jean et al., 2019). An alternative avenue would be to allow for ex-post examination of mergers, as in several OECD countries, including the United States (OECD, 2016). This would nonetheless create legal uncertainty, and there would be considerable practical problems in undoing a consummated merger or applying structural remedies, especially if some time has elapsed. Another possibility to capture transactions falling below national thresholds, already chosen by the Commission, could be the strengthened use of upward referrals to the Commission.

Digitalisation also poses challenges to competition policy, as it often favours market characteristics conducive to a structural lack of competition, or to threats thereof. Features like strong network and scale effects, consumer lock-in or lack of access to data, which are particularly prominent in digital markets, can lead to structural competition problems, which existing competition tools find it hard to tackle, as no mergers, anti-competitive agreements or abuses of dominant position are necessarily involved. The Commission has thus been exploring the need for a possible new competition tool, which would allow the imposition of behavioural or structural remedies to address these structural competition problems, including but not limited to the digital sector (European Commission, 2020c). Enforcement powers not triggered by mergers or firm conduct already exist in some jurisdictions, as in the case of the UK's market investigations (OECD, 2015b) and also in Greece and Romania.

Ex-ante regulation of digital platforms can complement competition enforcement. In December 2020, the Commission proposed legislation (the Digital Markets Act, DMA) along these lines. The DMA combines together the Commission's consultation on ex ante rules for large digital platforms and the work on a new competition tool. In the Commission's view, there was a need for additional regulation in digital, where problems of contestability and fairness were perceived as more urgent and pressing from an internal market perspective. The DMA aims to prevent that online platforms acting as gatekeepers engage in

conducts towards end users and businesses that are unfair or limit contestability, and to ease the scaling up of smaller platforms. For instance, under the DMA proposal, firms using large platforms must be allowed to promote and sell their products elsewhere. Non-compliant gatekeepers face hefty fines and, in case of systematic infringements, also the prospect of additional remedies. Regulation along these lines will make digital markets more competitive and, more broadly, increase firms' incentives to invest in digital tools and activities.

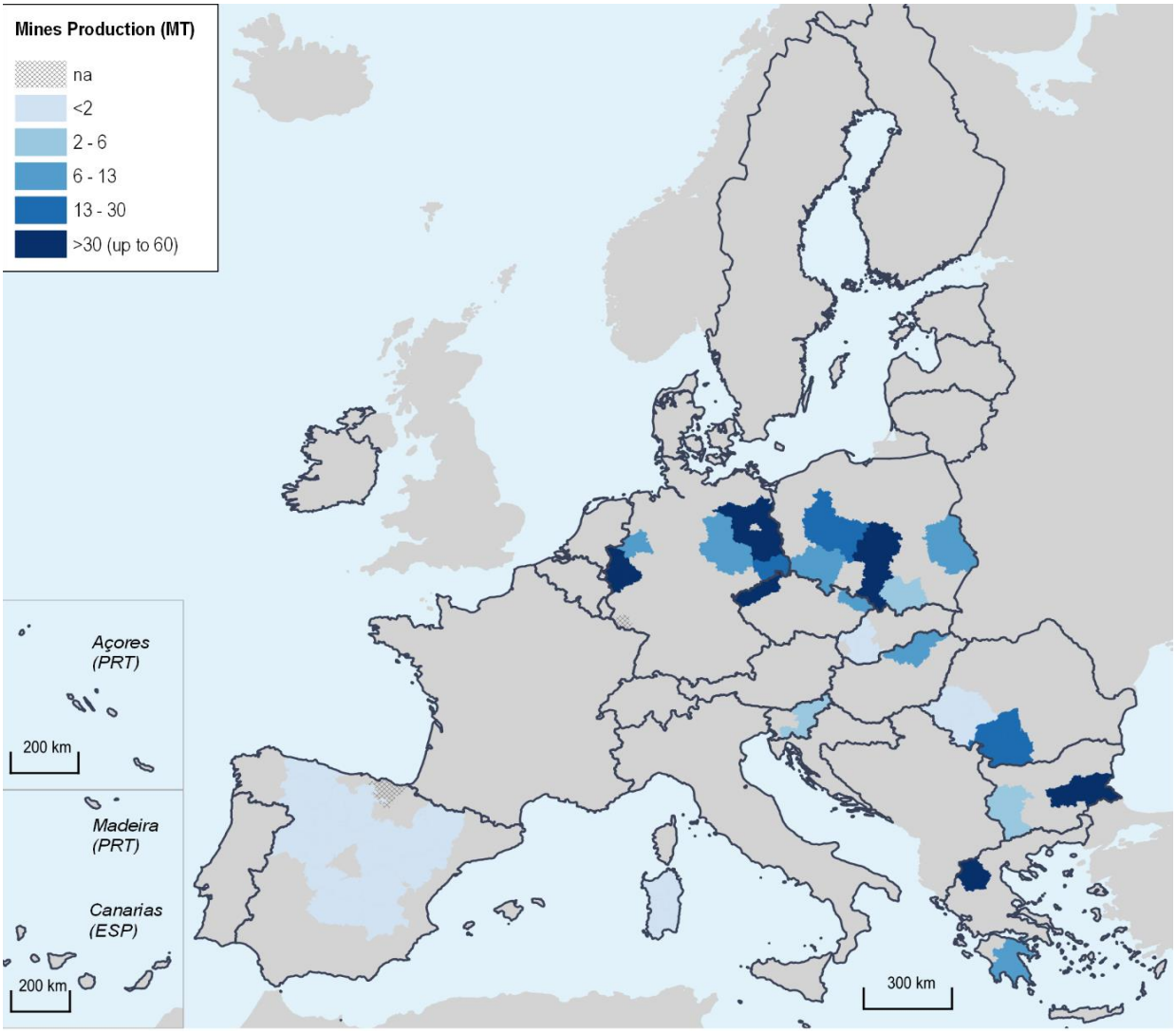
The Commission's recent draft Regulation on foreign subsidies is not limited to concentrations, discussed above, but rather aims to tackle distortions in the Single Market caused by those subsidies in any market situation. Accordingly, it is proposed that the Commission is entitled to open market investigations. A firm benefitting from a subsidy would be subject to redressive measures or could offer commitments if the subsidy is found to be distortive without sufficient compensating positive effects. These measures and commitments would include a range of structural or behavioural remedies (e.g. divestment of certain assets or prohibition of a specific market conduct, respectively). As for concentrations, an ex-ante notification obligation would also apply to bids in public procurements reaching certain thresholds. Avoiding that publicly supported firms gain undue advantages over competitors is important (OECD, 2012). At the same time, care should be taken to avoid using this framework as a protectionist tool that decreases competition in the internal market.

Climate change mitigation implies productive reconversion in some regions

Achieving carbon neutrality by 2050 will heighten industrial transition challenges, especially for regions relying heavily on high-carbon industries. At national or EU level, the net employment effects from higher carbon prices could be fairly limited (Chateau *et al.*, 2018), as jobs created in greener businesses, including in construction and services, are projected to offset job losses in mining and carbon-intensive industries (European Commission, 2019a). However, as the latter industries tend to be geographically concentrated (OECD, 2012), phasing them out will create a potential for mass lay-offs in some regions (Figure 2.14).

Figure 2.14. Coal mining in the EU is geographically concentrated

Annual production of coal mines, aggregated at NUTS-2 level (2015)



Source: Alves Dias, P., Kanellopoulos, K., Medarac, H., et al. (2018), EU coal regions: opportunities and challenges ahead, EUR 29292 EN, Publications Office of the European Union, Luxembourg, http://dx.doi.org/10.2760/064809.

Broader stakeholders' consensus on the need to phase out certain industries has proven to be associated with more resilient transition strategies (Campbell and Coenen, 2017). Moreover, long-term transition plans could smooth the management of stranded assets through early-stage policy intervention. Regional policies to move towards carbon neutrality should thus be grounded on detailed long-term transition plans, aligned with broader development strategies. Those plans require coordination across different levels of government and should involve social partners.

Regional policies promoting innovation and private sector involvement are key to a successful reallocation of capital towards carbon-neutral assets and infrastructure. Empirical evidence points to the positive impact of direct financial support for R&D, at both national and regional levels, on firm innovation outcomes (Howell, 2017; Busom et al., 2014; Westmore, 2013). Support to innovation can play a major role in upgrading the regional productive specialisation (Box 2.3).

Box 2.3. Productive upgrading in former coal mining regions: the case of Limburg

Limburg, a southern Dutch region bordering Belgium and Germany, was a major European coal mining centre. The closure of the coal mines in the early 1970s led to high unemployment and set in motion a long and eventually successful process of economic restructuring.

In the late 1970s Limburg had the highest unemployment rate in the Netherlands (OECD, 1980). Public support to the region made the government relocate some of its services there, and, more importantly, try to foster the development of new industries. Today's regional specialisation largely relies on the health care, trade and logistics, high-tech manufacturing and agriculture sectors. Limburg accounts for 6.5% of Dutch population and 5.7% of Dutch GDP (2018 data), and it ranks 6th in GDP per capita among the 12 Dutch TL2 regions, with the second highest growth since 2000.

Fostering innovation has long been a mainstay of Limburg's regional development policy. Since the 1990s, Limburg has supported knowledge transfer and collaboration between SMEs and research institutions, having pioneered in 1997 the use of innovation vouchers (OECD, 2019b). Building on its mining past, the region has also become a hub for new energy research. It is now home to one of the largest geothermal district heating systems using mine water in the world (Alves Dias et al., 2018).

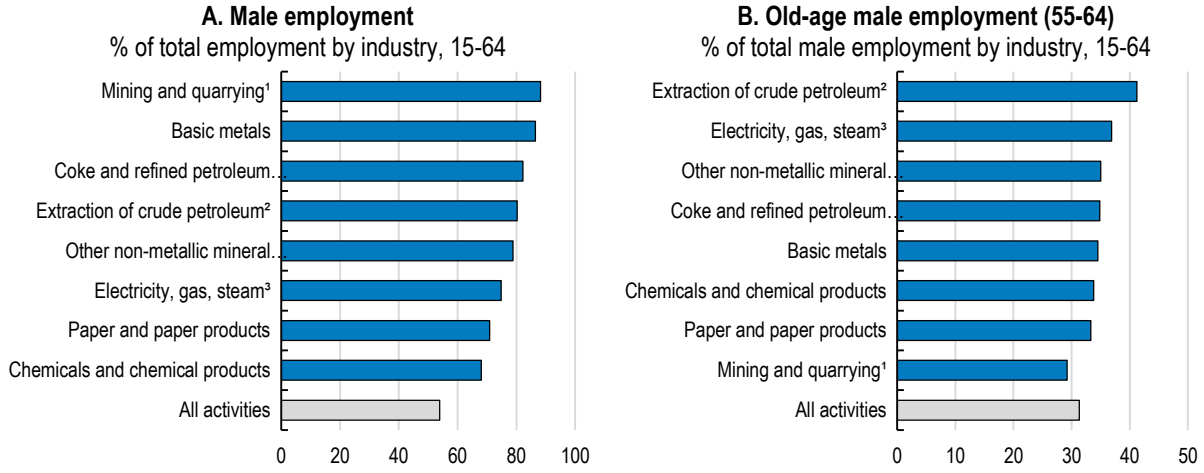
Besides long-standing cross-border cooperation with neighbouring Belgian and German regions, Limburg has also been an active participant in interregional projects with counterparts across Europe aiming at knowledge sharing and innovation. Some of these projects have focused on prominent economic sectors in Limburg, such as the food and medical technology industries.

Moving towards carbon neutrality will require significant labour reallocation across sectors (European Commission, 2019a) and affects the skill sets required in local labour markets. For the large majority of green jobs, empirical evidence points to the need for relatively limited top-ups of existing skills (Eurofound, 2014): workers in declining carbon-intensive industries already likely possess skills of some relevance for more modern industries, which should be properly identified and validated. However, these workers are often ill-prepared to identify alternative career opportunities, and hence will benefit from job search assistance and training well-aligned with the skill needs of regional employers (OECD, 2015c; OECD, 2015d; OECD, 2017c). At the same time, completely new job profiles related to new goods and services and new production methods or business models will emerge in some areas, often creating a need for significant upskilling or reskilling (European Commission, 2019a; Bowen and Hancké, 2019).

Some categories of displaced workers will require targeted policy support, especially in less diversified regions, where green job creation will be more difficult. In particular, old male workers are over-represented in carbon-intensive and extractive industries (Figure 2.15). These workers face serious re-employment challenges because of seniority-based wage systems, higher health insurance costs and, often, modest formal education and weak digital skills.

Different policy tools can be used to support elderly displaced workers. Age-specific wage subsidies or labour tax reductions, in place in several countries, help reduce labour costs. Additionally, training schemes should entail strong on-the-job components, as success rates of stand-alone retraining programmes have been found to be lower (Sartor, 2018). Targeted awareness-raising campaigns could complement these measures by helping remove negative perceptions around ageing workers (Cedefop, 2015). Some close-to-retirement and less-educated displaced workers may, in addition, require specific social safety nets, including bridges to early retirement or other social assistance payments (World Bank, 2018).

Figure 2.15. Men are over-represented in brown industries, especially at older ages
2019, EU27



Note: 1. Excluding the extraction of crude petroleum and natural gas. 2. Extraction of crude petroleum and natural gas. 3. Electricity, gas, steam and air conditioning supply.
Source: Eurostat (2021), "Employment by sex, age and detailed economic activity", Eurostat Database.

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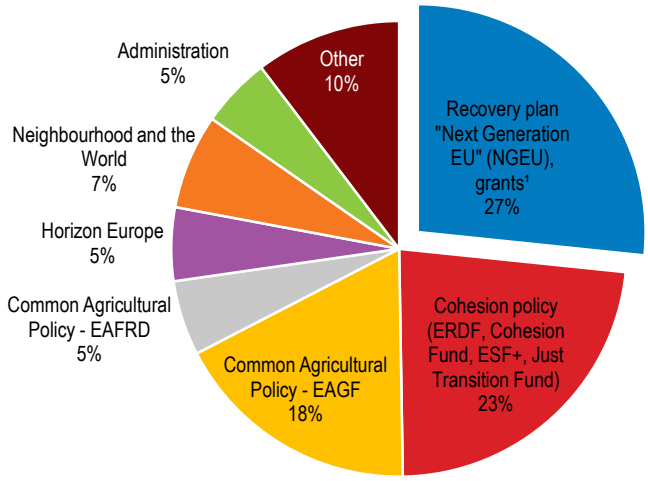
Cohesion policy is a helpful instrument to address these policy challenges. In particular, the new Just Transition Fund (endowed with EUR 17.5 billion, 10 of which from the EU recovery plan) is a specific tool to mitigate the socio-economic consequences of pursuing carbon neutrality in those regions most affected. Countries are required to prepare plans for eligible regions setting out a long-term transition strategy, its governance and the envisaged priorities for funding, which may comprise reskilling, environmental rehabilitation and investments to support new activities. The emphasis on dedicated long-term regional plans is welcome.

Using the EU budget more efficiently to support regional convergence

The EU budget is a key policy tool to support regional growth and convergence. Its two largest spending items, cohesion policy and the Common Agricultural Policy (CAP), share explicit concerns of balanced territorial development. In the current and coming years, the 2021-27 EU budget will be complemented by grants from Next Generation EU, whose objectives and overall amounts are broadly similar to those of cohesion policy (Figure 2.16).

Figure 2.16. Policies with a territorial dimension account for most of the EU budget
EU 2021-27 budget, 2018 prices, EU27, per cent



Note: The acronyms used in the chart stand for: EAFRD = European Agricultural Fund for Rural Development, EAGF = European Agricultural Guarantee Fund , ERDF = European Regional Development Fund, ESF+ = European Social Fund+. 1. The "Next Generation EU" (NGEU) grants cover fund allocations to Horizon Europe, InvestEU fund, REACT EU, Recovery and Resilience Facility, rescEU, EAFRD and the Just Transition Fund and exclude loan allocations under NGEU.
Source: European Commission: MULTIANNUAL FINANCIAL FRAMEWORK 2021-2027.

StatLink https://doi.org/10.1787/888934278617

Policies for balanced territorial development generally have a redistributive dimension, concentrating spending on the least favoured countries and regions. This is the case with cohesion policy, where three quarters of resources are allocated to regions with a GDP per capita below 75% of the EU average (Box 2.4), though an even stronger concentration would be welcome, as argued in the 2018 OECD Economic Survey of the EU. Strong redistribution is also present in the allocation of NGEU grants, where unemployment rates and the impact of the pandemic play an important role alongside GDP per capita. In contrast, the allocation of CAP spending still relies to a large extent on historical entitlements, displaying high inertia and being much less redistributive across countries. Most spending still accrues as payments to producers in relatively prosperous areas, where, as discussed below, those payments are often no longer needed. Gradually reducing these outlays while preserving CAP support to increase productivity in the poorest rural regions would free budget resources to other areas, such as innovation.

While concentrating spending on the least prosperous areas is welcome and necessary, policies to reduce territorial imbalances should further increase efforts to go beyond redistribution and actively promote structural transformation. This implies avoiding to support inefficient firms or activities, which would risk entrenching structural divergence. For instance, if favouring local incumbent firms through the award of grants or procurement contracts, cohesion policy might end up hampering productivity-enhancing innovation and resource reallocation. Likewise, CAP subsidies to certain crops could hamper switching to others with higher productivity. This section discusses how to make cohesion policy and the CAP more efficient in supporting regional strategies for productive upgrading. The discussion on cohesion policy also largely applies to the EU recovery plan, which in some cases directly tops up cohesion policy funding.

Box 2.4. EU budget tools for a balanced territorial development and their allocation

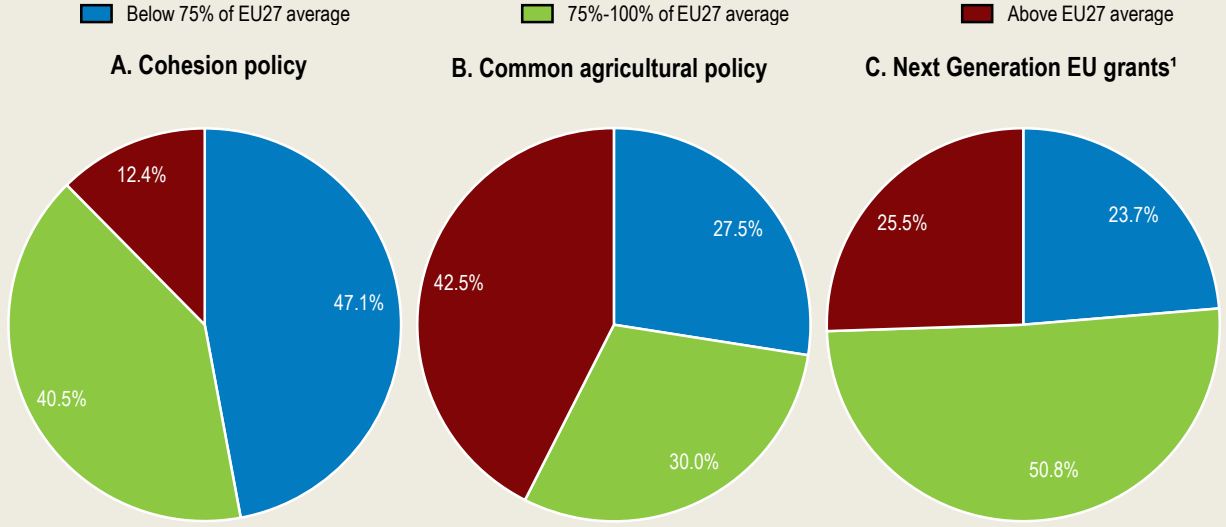
Cohesion policy is the EU's main investment policy, aiming at reducing regional disparities through support to structural transformation and sustainable development in the least favoured regions. Accounting for about 30% of the EU budget, cohesion policy finances a wide range of investments, including transport, energy and digital infrastructure, innovation, carbon abatement, SME competitiveness, education and social inclusion. The relative prosperity of countries and regions, mostly measured by GDP per capita, is the main criterion for fund allocation, giving this policy a strong redistributive dimension (Figure 2.17).

The objectives of the Common Agricultural Policy (CAP) include ensuring food security and a fair standard of living for farmers, bolstering environmental care and climate action and strengthening the socio-economic fabric of rural areas (European Commission, 2018). The CAP has two pillars. Pillar 1 (about three quarters of total funding) finances direct payments to farmers and, to a much smaller extent, market intervention measures (e.g. private storage aid) under the common market organisation. Pillar 2 funds rural development plans, which can support multiple policy areas, such as innovation, competitiveness of agriculture, environmental protection, poverty reduction and economic development of rural areas. Criteria for funds allocation are complex and still reflect legacy effects, such as the fact that some of the current payments originated as compensation for reductions in price support for certain productions (support which tended to benefit prosperous countries the most). As a result, countries with above-average GDP per capita receive a very substantial share of funding (Figure 2.17), even though the poorest member states generally have higher allocations as a share of GDP.

Next Generation EU (NGEU) is a stimulus package to support the post-pandemic recovery through investment and reforms (Box 1.5 in Chapter 1 provides further information). Compared to cohesion policy, the allocation criteria for NGEU grants give a larger weight to relative unemployment rates and to the short-run impact of the pandemic on GDP, which tends to benefit Southern EU countries like Italy and Spain (Figure 2.17).

Figure 2.17. EU budget tools differ in their degree of redistribution

Share of 2021-27 funding allocated to countries with different levels of GDP per capita



Note: National levels of prosperity are based on 2018 GDP per capita (in 2015 constant USD PPPs) relative to the EU average. 1. The Next Generation EU grants includes Recovery and Resilience Facility, REACT-EU for 2021 and Just Transition Fund allocations.
Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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Towards a more efficient cohesion policy

The empirical evidence on the impact of cohesion policy on GDP growth is only mildly encouraging, suggesting that there is ample room to increase policy effectiveness. Most econometric studies have found a positive, albeit small, impact, but some analyses have pointed to insignificant or even negative impacts (Pienkowski and Berkowitz, 2015). Besides issues like different samples, data sources or estimation methodologies, contradictory empirical findings also stem from the high heterogeneity of cohesion policy, both in terms of types of interventions (e.g. support for infrastructure, training or business investment) and in the context of implementation (Bachtrogler *et al.*, 2020). This context refers to the territorial characteristics of recipient regions, which differ in their level of prosperity, sectoral structure, human capital or institutional quality.

In recent years, institutional quality has been increasingly acknowledged as a potent determinant of the effectiveness of cohesion policy. In Europe, institutional dimensions such as the rule of law, the degree of corruption and government quality display important variation not only between countries but also across regions of the same country (Charron et al., 2019). Several studies have highlighted that government quality and administrative capacity greatly matter for the efficient use of EU cohesion funding, either in specific areas of intervention, such as transport infrastructure (Crescenzi *et al.*, 2016) or across the board (OECD, 2019d; Darvas et al., 2019). Indeed, above a certain threshold of cohesion funds received per capita, improving the quality of government is a far more powerful lever for development than additional public investment (Rodriguez-Pose and Garcilazo, 2015). This section proposes reforms in several dimensions of cohesion policy implementation for which administrative capacity is particularly important.

Improving funds allocation through better project selection and public procurement

Though comprehensive data on project selection procedures is not available, some evidence suggests that selection could be made more competitive. Projects are often selected on a first-come first-served basis and more consideration could be given to indicators of their ultimate contribution to regional development objectives (European Court of Auditors, 2018a) – for instance, indicators of employability of trainees, rather than hours of training. Member States, which have full responsibility for project selection, should move towards selection procedures that involve a results-oriented comparison between applications (European Court of Auditors, 2018a). Evidence about programmes supporting innovation suggests that only subsidies awarded through a competitive procedure generate positive effects (Crescenzi et al., 2018).

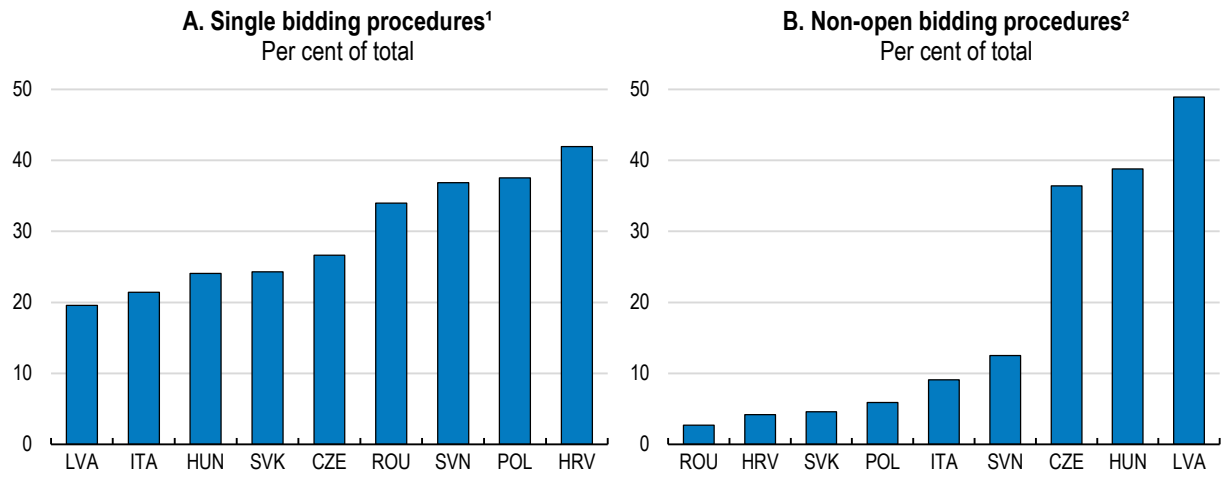
Better project selection requires stronger capacity of the agencies in charge of managing cohesion policy programmes. Risk-aversion, inducing these agencies to manage funds in a way that mirrors past experience, or a greater emphasis on the timely absorption of funds than on the quality of their allocation, may be an obstacle to the selection of innovative projects (OECD, 2020f). Instead, in line with cohesion policy regulations, agencies need to develop a more strategic approach to programme implementation, setting investment priorities well attuned to regional developments needs (OECD, 2014; OECD, 2020f) and selecting projects accordingly. Additionally, engaging with potential beneficiaries, helping them address capacity gaps and ensuring that project calls match their ability to respond could enlarge the pool of applicants. Project proposals often come from larger and more productive firms (Benkovskis et al., 2018), which tend to be few in poorer regions and thus may face limited competition in accessing cohesion policy funds.

Across the EU, public procurement is, in practice, often marred by low competition and transparency (Fazekas, 2017). This can weigh heavily on the efficiency of cohesion policy, since close to half of its funding is spent through public procurement (Fazekas, 2019). Available evidence suggests a significant prevalence of single bidding in projects co-funded by cohesion policy: in a sample of 10 countries including most of the largest recipients of cohesion funding (Fazekas, 2019), the share of contracts with only one bidder was often high (Figure 2.18, Panel A). In addition, non-open tendering procedures (e.g. negotiated

procedures without a call for bids) are often resorted to (Figure 2.18, Panel B), which may be justified in specific cases (typically few) but used to restrict competition in others. A broadly similar picture, with no consistent signs of improvement over time, stems from indicators referring to public procurement as a whole, regardless of whether cohesion funds are involved (European Commission, 2019c).

Unsurprisingly, low competition is often associated to contracts being awarded to suppliers of the same country, and even region, of the buyer. Though segmentation is strongest along national borders, regional border effects within countries are also sizeable (Herz and Varela-Irimia, 2017). This may stem from the local specificities of some projects, but could also reflect routine-based, risk-averse behaviour by contracting authorities or, worse, a wish to favour local suppliers, which is often regarded as a detrimental form of industrial policy (OECD, 2018b). In some cases, uncompetitive public procurement is also associated to fraud and corruption (European Court of Auditors, 2015).

Figure 2.18. Public procurement in cohesion policy could be made more competitive and transparent



Note: 1. Contracts awarded following public tender procedures with only one submitted bid. 2. Non-open bidding includes restricted, negotiated and competitive procedures, where the Contracting Authority does not have the obligation to issue the public tender documentation to all who express an interest.
Source: Fazekas, M. (2019), "Single bidding and non-competitive tendering procedures in EU co-funded projects", Report for the European Commission, Brussels.

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Increased centralisation of public procurement, at national, regional or sectoral levels, is a promising avenue to tackle the above problems. Through more extensive use of central purchasing bodies, as well as of tools like framework agreements for homogenous goods, countries and regions can make procurement more competitive and achieve significant cost savings (OECD, 2015e; Fazekas, 2017). In Italy, before the centralisation reform implemented in the wake of the euro area crisis, there was significant variation in the price of identical goods and services; the reform has reduced this variation while lowering average prices. Joint procurement across smaller purchasers, such as municipalities, should also be pursued further. Furthermore, moving beyond an over-reliance on price as the key award criterion in tenders, and giving greater weight to quality and innovation, is another strand of reform to make public procurement more competitive and enhance its contribution to regional development. Procurement's demand-side stimulus to innovation and quality upgrading by suppliers, discussed above, is also relevant for the effectiveness of cohesion policy.

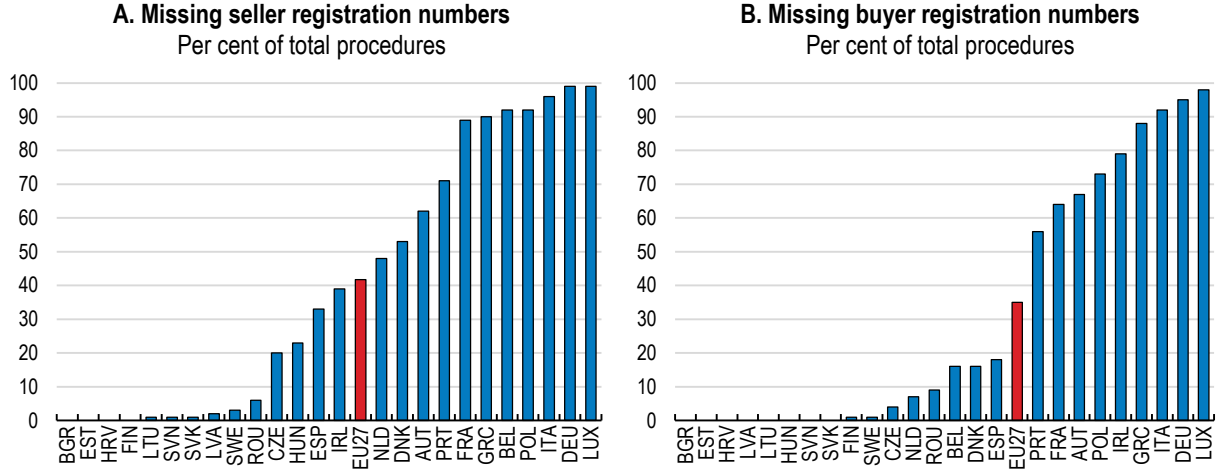
More competitive and transparent procurement also requires greater professionalisation of procurement officials. There continues to be a lack of administrative capacity in public procurement (OECD, 2019e), likely to be more acute at sub-national level, which hampers efficiency and can be a source of inadvertent

non-compliance with procurement rules. This calls for regular training, rigorous integrity standards, and attractive career prospects for procurement officials (OECD, 2015e). In this vein, the Commission adopted a recommendation on the professionalisation of public procurement (2017) and designed ProcurCompEU, a competency framework for public procurement professionals (2020). Achieving a common understanding of often complex public procurement rules also calls for stronger capacity in the area of non-procurement officials, such as those working in cohesion policy management, control and auditing.

Better definition and enforcement of public procurement data requirements would also enhance competition, transparency and compliance with procurement rules, *inter alia* by maximising the gains from e-procurement. Despite advances in the latter, such as mandatory electronic tender submission from October 2018, there remain important gaps in data entry and publication standards. For instance, in the Tenders Electronic Daily (TED) database, where all procurement notices above certain thresholds need to be published, seemingly straightforward information such as the registration numbers of buyers and sellers is often missing (Figure 2.19). National procurement databases also present important gaps and, moreover, tend not to be comparable (Fazekas, 2017, 2019). Comprehensive and high-quality data is also essential for the effectiveness of fraud alert data mining tools like Arachne (European Court of Auditors, 2015). In 2021-27, cohesion policy regulations require a robust infrastructure of data collection on public procurement, which will help enhance competition and transparency.

Figure 2.19. Data in procurement procedures is often incomplete

2019



Note: Proportion of procedures where the registration number of a seller (Panel A), or a buyer (Panel B), was not included.
Source: European Commission (2020), Single Market Scoreboard: Performance in Public Procurement, https://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm.

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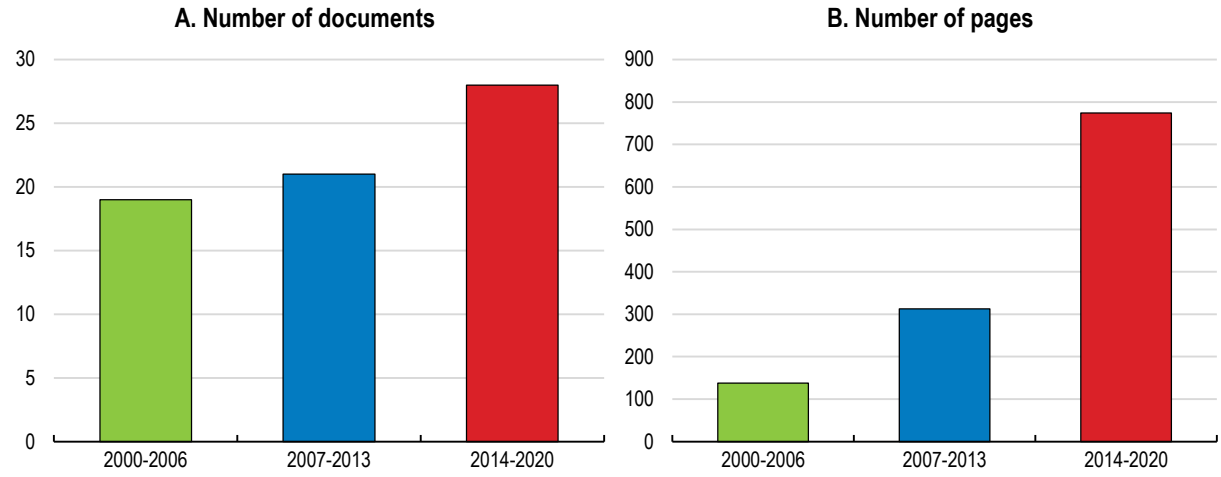
Reducing administrative burdens

Simplification of cohesion policy is essential to reduce administrative burdens, which SMEs and local governments may find it hardest to cope with. Those burdens often deter project proponents from applying to funding. For 2021-27, the legislative framework attempts to reverse a trend of growing complexity (Figure 2.20). There is some progress towards a single rulebook for different funds, though fund-specific regulations still exist. Less secondary legislation, streamlined reporting, less reporting obligations, fewer cases where the same project can be audited by different authorities and lighter audit and verification requirements for projects considered to be low risk have also been set up.

Figure 2.20. Cohesion policy has become more complex over time

Documents concerning EU regulations and Commission's decisions



Note: As of April 2018.

Source: European Court of Auditors (2018), Simplification in post-2020 delivery of Cohesion Policy, Briefing Paper, May 2018, Brussels.

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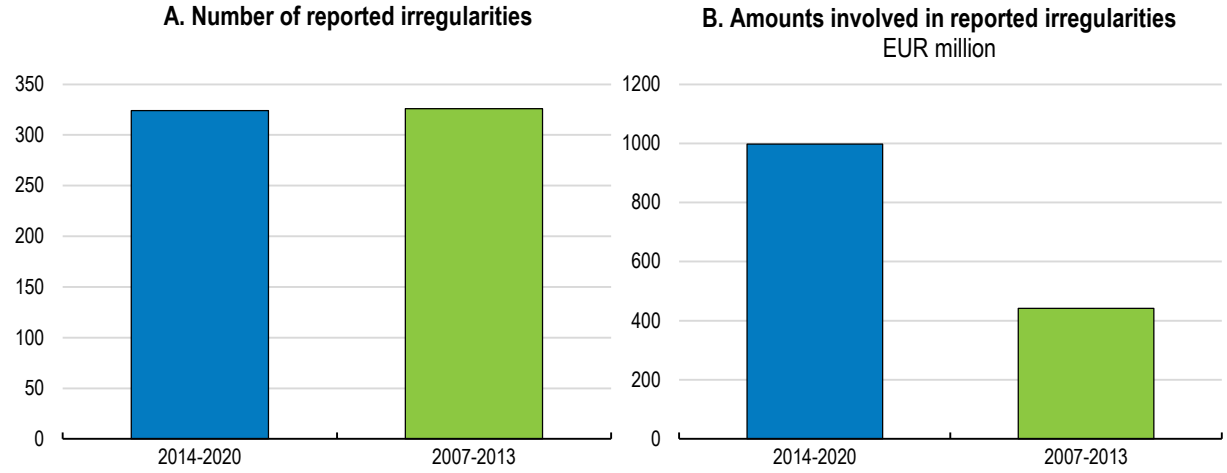
Simplified cost options, whereby grants to beneficiaries take the form of unit costs, lump sums or flat rates, rather than reimbursement of invoices, are highly effective in reducing administrative burdens (European Court of Auditors, 2018b). They may also alleviate problems of fraud and corruption as it would not be possible anymore to exaggerate invoiced costs. In 2014-2020, use of simplified cost options has been still modest, covering about one-third of programme budgets of the European Social Fund, but only a residual fraction in the case of other funds. Furthermore, take-up has been higher in more developed regions (Brignani and Santin, 2018). Cohesion policy legislation for 2021-27 encourage further the use of simplified cost options and make them compulsory for a larger range of small projects, which is welcome. Countries should increase take-up of this form of support, which requires making the necessary administrative preparations (e.g. defining calculation methods). At the same time, it is important to further increase legal certainty in terms of the compatibility of simplified cost options with public procurement or State aid rules.

Curbing fraud and corruption

Within the EU budget, cohesion policy has a high incidence of fraud. Between 2013 and 2017, this policy accounted for 72% of the amounts involved in irregularities reported as fraudulent in all EU policy areas, which is much higher than its one-third share in the EU budget (European Court of Auditors, 2019). Taking a similar period of time since the start of each programming period, the amounts involved in irregularities reported as fraudulent have increased in 2014-2020 relative to 2007-2013 (Figure 2.21), which does not necessarily imply greater incidence of fraud (detection may have improved), but shows that the problem remains persistent.

Figure 2.21. Amounts involved in irregularities reported as fraudulent have increased

By programming period, Cohesion Policy programmes



Note: For comparability, data for each programming period considers a similar period of time since the respective start.

Source: European Commission (2019). "Statistical evaluation of irregularities reported for 2019: own resources, agriculture, cohesion and fisheries policies, pre-accession and direct expenditure", Part 2/3, Accompanying the document Reports from the Commission to the European Parliament and the Council, 31th Annual Report on the Protection of the European Union's financial interests – Fight against fraud – 2019.

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Despite monitoring and controls at EU and national levels, EU cohesion policy funds may end up being more vulnerable to corruption and fraud than national monies, *inter alia* because of a weaker link between domestic civil society, taxation and policy performance (Fazekas and Tóth, 2016). Besides other economic and social costs, corruption and fraud involving cohesion funding may hamper resource reallocation by entrenching the market power of politically-connected incumbents. Indeed, corruption and fraud could be one of the reasons why the same firms tend to successively benefit from cohesion funding (Mungiu-Pippidi, 2020).

Fighting fraud should be done at multiple levels. Respect for the rule of law is an essential precondition, which calls for enforcing the new possibility of suspending payments from the EU budget or adopting other appropriate financial measures in case of relevant rule of law breaches (see Chapter 1). In more operational terms, preventive and detective actions, such as risk-based control activities, should be enhanced to deter fraud before it occurs and avoid a "pay and chase" model (OECD, 2019f). Systematic data collection and analysis is essential for those actions. In 2013, the Commission made available to countries a data-driven risk-scoring tool, Arachne, to identify cohesion policy projects at risk of fraud. This potentially powerful tool requires that national authorities input data on fraudulent economic operators. However, Arachne still has limited or no use in several Member States (European Court of Auditors, 2019; Bonnemains et al., 2018). Reasons invoked by countries for lack of use include data incompleteness and inaccuracy, a high number of false positives and legislative barriers, in particular compliance with national data protection laws (Bonnemains et al., 2018). Greater use should be made of this tool, which requires a coordinated effort by countries towards prompt and complete data input. To encourage its use, the Commission also plans to improve it further.

Reforming the Common Agricultural Policy to enhance rural development

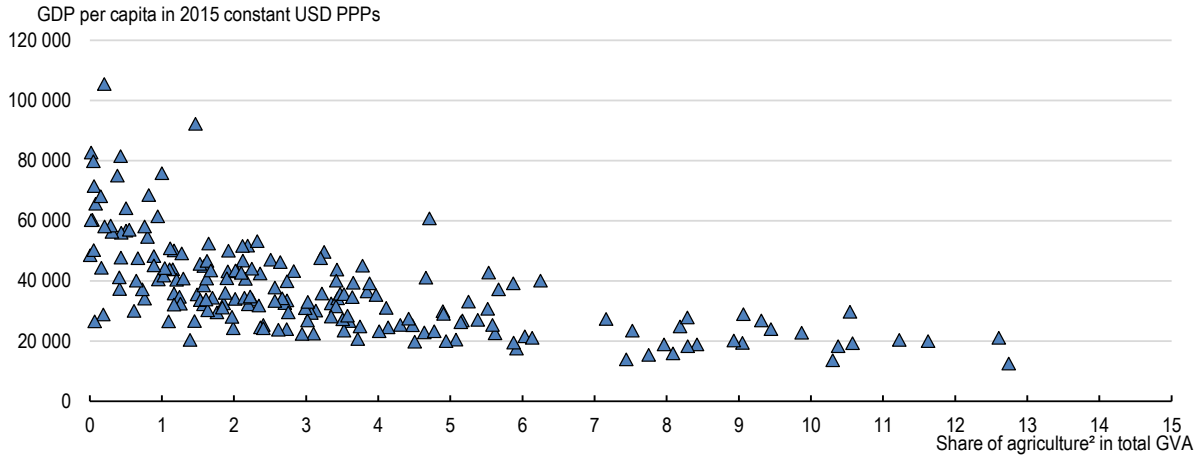
While the future CAP will be strongly framed within the objectives of the European Green Deal and the ensuing Farm to Fork Strategy for a sustainable food system, support to farmers through the CAP is currently delivered through different programmes under two pillars. Pillar 1 is comprised of direct payments to farmers and a variety of market intervention measures. Most direct payments are decoupled from the level of production, i.e., support is provided on a per hectare basis and not by volume of production. In

2014-20, Member States have also been able to allocate up to 13% of their direct payments envelope to commodity-specific payments (OECD, 2020g). Pillar 1 also contains the framework for market intervention measures such as private storage aid or public purchases. Pillar 2 finances rural development policy, including investments in agriculture and forestry, improvements in living conditions in rural areas, and measures for knowledge transfer and innovation. It also funds payments per hectare or cattle unit to pursue environmental goals such as soil conservation (agri-environmental payments) or to support farming in areas with natural constraints (e.g. mountains), as well as a variety of other measures with a smaller budgetary impact (e.g. aid to young farmers and LEADER/CLLD interventions, discussed below).

Given that lagging regions tend to rely more on agriculture (Figure 2.22), CAP support directed towards effective investment and productivity gains can make an important contribution to regional convergence and structural transformation. This is envisaged by the objectives for the future CAP, which include support to generational renewal and to jobs and growth in rural areas. Some CAP parameters have been defined at the outset of the 2021-27 EU long-term budget and are hard or impossible to change afterwards, but others will be able to be adjusted during the seven-year period, creating opportunities for reform. For instance, within certain limits, member states can transfer resources between both pillars, decide the extent of production-based payments or modulate uncoupled payments according to the size of the farms. National degrees of freedom under pillar 1 will increase considerably from 2023 on, especially as regards the use of direct payments to provide stronger incentives for better environmental outcomes, an issue further discussed in Chapter 1. While awaiting the finalisation of new CAP regulations and national strategic plans, transitional rules will apply in 2021-22, essentially prolonging the 2014-20 CAP.

Figure 2.22. Agricultural regions are often lagging

TL-2 regions[1], 2017



Note: 1. The chart is based on a sample of 192 TL2 regions from 25 EU countries. Territorial Level 2 (TL2) refer to large regions, as defined by the OECD classification of geographic units. This category corresponds to Eurostat's NUTS 2 classification, with the exception of Belgium and Germany where the NUTS 1 level corresponds to the OECD TL2. For TL2 regions in France GVA data from 2016 have been used for 2017. 2. Agriculture refers to section A of the ISIC rev. 4.

Source: OECD (2020), OECD calculations based on data from the OECD Regional Statistics (database).

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Making support to producers less distortive and more productivity-enhancing

Production-based payments are a highly inefficient form of support, as they distort production choices and only partially contribute to increase farm income (OECD, 2003). By reducing farmers' incentives to switch to higher value added crops, these payments do not promote, and may even hamper, productivity gains (World Bank, 2017; European Commission, 2018). Furthermore, this form of support can affect a level playing field in the EU and, as discussed in Chapter 1, also tends to be more harmful from an environmental viewpoint. While the possibility for Member States to provide support coupled to the production of specific

commodities has been retained in the 2021-27 CAP, though within a strict budgetary and regulatory framework, it is recommended that countries phase out these payments.

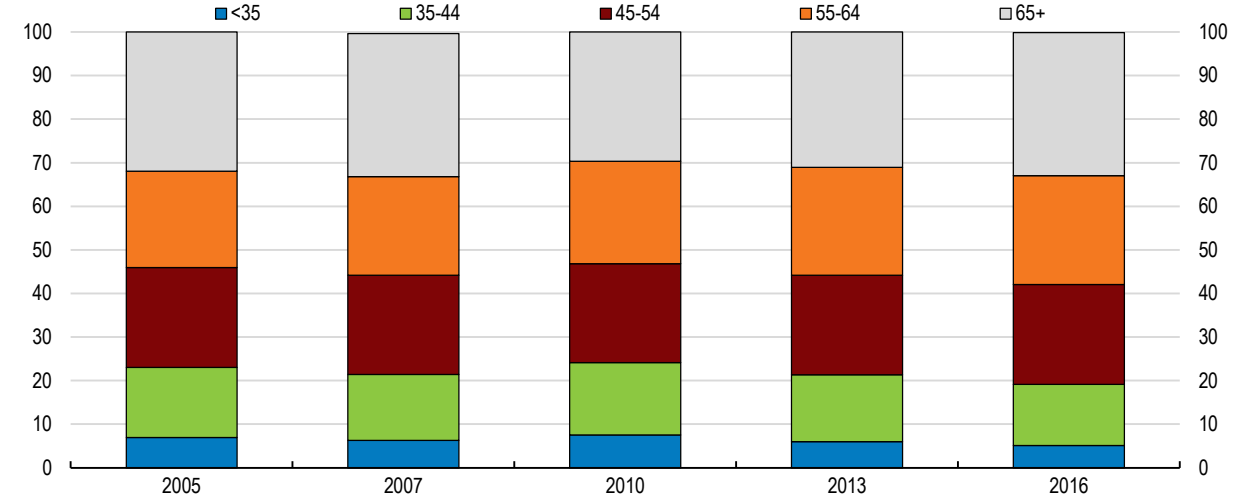
In some circumstances, decoupled payments can play a role in supporting agricultural productivity growth, reducing rural poverty and contributing to public goods such as landscape preservation. Even though they are not targeted to productivity and innovation, these payments increase and help stabilise farmers' income in poor rural areas, enabling farmers to carry out productivity-enhancing investments (World Bank, 2017). By making farming viable in those areas, this income support may prevent land abandonment. In general, however, decoupled payments tend to have a neutral impact on the productivity of crop farms, although a positive impact has often been found for livestock farms (DeBoe, 2020). In addition, the overall contribution of decoupled payments to environmental objectives has generally been very modest (Chapter 1). The 2021-27 CAP aims at a stronger link between direct payments to farmers and improved environmental outcomes.

Furthermore, decoupled payments are often poorly targeted from a policy perspective, and can have adverse distributional impacts. In prosperous regions they are often no longer needed. Furthermore, because support is mostly defined on a per hectare basis, the bulk of these payments accrue to large farms – approximately 80% of CAP direct payments go to only 20% of EU farmers (World Bank, 2017). Modalities envisaged so far to address this problem, such as higher payments to the first hectares or degressivity above certain thresholds, have witnessed limited take-up by member states (OECD, 2020g). The recent political agreement on the 2021-27 CAP requires member states to redirect at least 10% of direct payments in favour of smaller farms. Countries should take more vigorous steps to cap support to large farms, and could consider means-testing support to better achieve income support objectives.

In addition, decoupled payments are not targeted to innovation, and may actually undermine it, as they hamper generational renewal in agriculture. These payments lead to higher land prices, with capitalisation rates sometimes estimated at more than 70% (World Bank, 2017). High land prices are a major barrier to entry by young farmers (European Court of Auditors, 2017), impeding generational renewal (Figure 2.23). Though the 2014-20 CAP includes measures to support young farmers, such as setting up support (Pillar 2) or a top-up direct payment (Pillar 1), they are unlikely to outweigh the impact of decoupled payments on land prices. The political agreement on the 2021-27 CAP envisages an increased level of support to young farmers (a new mandatory minimum level of 3% of Member States' budgets for CAP income support).

Figure 2.23. Generational renewal in agriculture remains insufficient

Age of the farm manager, per cent, EU27



Note: Data for 2005 exclude Croatia.
Source: Eurostat Database (2020) - Farm Structure Survey.

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Exploring synergies between available tools for rural development

There is a clear case for coordination between rural development and cohesion policies. Many lagging regions still have a large agricultural sector, making them eligible for sizeable support from both the rural development pillar of the CAP and from Cohesion Policy. Exploiting complementarities can lead to efficiency gains: for instance, investments in agricultural equipment or farm management can yield higher returns if accompanied by adequate transport or telecommunications infrastructure, which can be co-financed by Cohesion Policy. The possibility of increased synergies with Cohesion Policy also extends to administrative simplification and efforts to curb fraud. For instance, there is scope for greater use of simplified cost options (European Court of Auditors, 2018c) and risk-scoring tools for fraud prevention (OECD, 2019f) in rural development projects.

However, there remains much scope for better exploiting synergies between Pillar 2 of the CAP and Cohesion Policy (World Bank, 2017; European Commission, 2018; Calegari et al., 2020). Different sets of rules at EU level and different managing agencies and responsible political authorities at national or regional levels have often led to little coordination between rural development programmes and cohesion policy programmes (Kah et al., 2020). In 2014-20, building on the existing LEADER approach to rural development, a new instrument – Community-led Local Development (CLLD) – made it possible to combine cohesion and rural development funding in support of local development strategies, but this possibility has had relatively modest take-up and administrative procedures for each funding source remained different.

In 2021-27, there is increased potential for better policy coordination. Cohesion policy objectives give further prominence to the involvement of local stakeholders in development strategies for rural, urban and coastal areas, and in a CLLD combining multiple funds it will be possible to nominate a “lead” fund and apply only its rules. Taking advantage of these new possibilities is essential for greater policy effectiveness in rural areas. Areas for integrated investment strategies include support for innovation by agricultural SMEs, better digital connectivity of rural areas and the development of tourism.

Table 2.1. Recommendations to enhance regional convergence in the EU

FINDINGS (main in bold)	RECOMMENDATIONS (key in bold)
Upgrading the productive specialisation of regions	
Spending on research and development (R&D) in the EU remains far below the 3% of GDP target, and national innovation strategies are insufficiently coordinated.	**Promote cross-country collaboration in R&D and in innovative industrial projects.**
Poorer regions tend to have very low R&D investment, which hampers innovation and its diffusion.	**Devote more cohesion funds in poorer regions to R&D projects.**
There is scope to expand productivity spillovers from large cities to surrounding territories. In addition, second-tier cities have often failed to generate substantial agglomeration economies.	**Make more regions benefit from agglomeration economies, through reduced travel time to large cities, better ability to telework and closer integration of second-tier cities with surrounding territories.**
Competition policy has kept concentration and market power in check. However, it faces new challenges from digitalisation, subsidies from non-EU governments and "killer acquisitions" (firms buying smaller rivals to pre-empt future competition).	**Adjust competition rules and enforcement to new challenges:** • **closely review and prevent "killer acquisitions"** • **develop new instruments to address distortive foreign subsidies** • **increase competition in digital markets** Avoid a laxer application of merger control rules as a way to allow European firms to gain scale.
In many EU countries, the rigidity in housing supply hampers the growth of cities and the creation of high-productivity jobs.	To boost housing construction in cities, make land use regulation less restrictive, using national and sub-national policy levers
Some regions still rely heavily on carbon-intensive sectors, which need to undergo closure or restructuring for the EU to achieve carbon neutrality by 2050.	Prepare and implement long-term transition plans for those regions, with job search assistance, training and adequate social safety nets for displaced workers.
Public procurement can stimulate innovation by creating markets for new products and services. Procurement fragmentation along national borders hampers that stimulus.	Public procurers should be *de facto* more open to bidders from other countries. Make greater use of cross-country joint procurement for new products and services.
Making EU budget support to regional productive upgrading more efficient	
Cohesion Policy	
Half of cohesion funding is spent through public procurement, but tendering procedures are often not competitive enough, which could hinder the selection of the most efficient or innovative providers.	**Make public procurement more competitive by increasing the centralization of procurement and the professionalization of officials. Ensure compliance with transparency requirements in procurement procedures.**
Projects are often selected on a first-come first-served basis and more consideration could be given to how they contribute to achieving regional growth objectives.	**Further adopt competitive project selection procedures, with an emphasis on projects' contribution to regional growth objectives.** To enlarge the pool of applicants, adjust project calls to the ability to respond of potential beneficiaries, and help them address capacity gaps.
Within the EU budget, cohesion policy has a high incidence of fraud. Europe-wide risk-scoring tools, which help identify high-risk projects, have still limited use.	**Step up prevention and detection of fraud and corruption involving cohesion funds, notably through the greater use and updating of common risk-scoring tools.**
Administrative burdens have tended to increase, wasting resources and sometimes deterring project proponents from applying to funding.	To reduce administrative burdens, increasingly provide funding through simpler alternatives to the reimbursement of invoices (e.g. flat rates).
Interregional cooperation tends to enhance the benefits from cohesion policy and favours the implementation of regional development strategies.	Further engage in interregional cooperation and joint projects in cohesion and innovation policies, especially across national borders and involving regions of different levels of development.
Common Agricultural Policy (CAP)	
Rural regions are often eligible for sizeable support from both rural development policy and cohesion policy, but their interventions are poorly coordinated.	**Improve coordination between rural development policy and cohesion policy by implementing integrated strategies funded by both.**
Direct payments to farmers often fail to support productivity growth and are inefficient in supporting income. Payments coupled to certain products distort production choices. Payments independent from production mostly accrue to large farmers and raise land prices. In 2021-27, countries will have minimum requirements for redirecting payments towards smaller farms.	Phase out support to farmers that is coupled to production of specific commodities. Make direct payments per hectare decrease with farm area and consider means-testing to better achieve income-support objectives.

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EUROPEAN UNION

The COVID-19 pandemic plunged the EU into its worst-ever recession and risks increasing inequalities, notably between regions. Thanks to a bold and innovative policy response, including a common instrument to finance national recovery plans (Next Generation EU), growth is rebounding, but ambitious reforms will be essential to heal the scars of the pandemic and succeed in the green and digital transitions. This Survey has three main messages. Firstly, increasing public and private investment is key to speed up the recovery. Improving European interconnections and fostering cross-country collaboration in innovative industrial projects should be priorities. Secondly, the transition towards climate neutrality and a circular economy will enhance well-being while improving European industrial strengths. Better pricing of carbon emissions, new regulatory tools and more R&D funding will all help reinforcing the transition towards a greener economy. Finally, to avoid the rise in regional inequalities, poorer regions need to improve their productive specialisation. For that purpose, cohesion and rural development policies need to be revamped to gain in efficiency, notably by supporting more effectively innovation.

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