



INVESTMENT REPORT  
2021/2022



Recovery as  
a springboard  
for change

Chapter 4

**Regional and social cohesion:  
Widened gaps and how to close them**

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# Recovery as a springboard for change

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

## Chapter 4 **Regional and social cohesion: Widened gaps and how to close them**

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

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### **About the Report**

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

### **About the Economics Department of the EIB**

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

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# Chapter 4

## **Regional and social cohesion: Widened gaps and how to close them**



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## Chapter 4

### Regional and social cohesion: Widened gaps and how to close them

**The pandemic has highlighted gaps among regions and societal groups.** Where people live and what jobs they do influences their health, their career opportunities and their ability to weather a crisis. This crisis hit some groups of people and some places particularly hard.

**COVID-19 amplified existing geographical and social inequalities.** Disruption was more pronounced in regions with economic activity heavily exposed to the economic crisis and where working remotely was more difficult. Already vulnerable groups, such as young adults and workers with lower levels of education, felt the adverse labour market effects of the crisis more acutely.

**The shock caused by the pandemic could weigh on cohesion in the European Union for some time.** Lockdowns disrupted learning, in schools and in workplaces. These disruptions could have longer-term effects on earnings and career progression. They might also exacerbate inequality as students from disadvantaged backgrounds were more heavily affected. The impact of the crisis on firms was uneven, too. Firms are now emerging from the crisis at different speeds, which will have consequences for competitiveness and employment.

**The crisis accelerated structural economic and societal change, creating some risks for cohesion.** Restrictions on personal movement and gatherings accelerated digitalisation. In addition, certain EU members have stepped up plans for becoming carbon neutral. Some parts of Europe, and some groups of people, will have a harder time reaping the benefits of these structural changes.

**Policies must ensure that the opportunities of the transition to a greener and more digital economy will be realised across the European Union and that the benefits will be shared broadly.** To help lagging regions to catch up, basic infrastructure must be upgraded and made more climate-friendly. Firms need support to develop and move up the value chain. Gaps in the availability of finance and in regions' capacities — related to administration, technical expertise and planning — need to be addressed for cohesion funds to have the most impact. The political and regulatory environment must become more investment-friendly to foster entrepreneurship and to encourage transformative investments in new technologies, including green and digital, as well as in human capital. Investment in social infrastructure, and particularly in education and skills, is paramount for equality and economic growth across the European Union. Joint action to support cohesion together with the green and digital transition is key to boosting Europe's resilience in the future. Without cohesion, the green and digital transformation is unlikely to succeed.

## Introduction

Support for economic, social and geographical cohesion has been an integral part of the European Union from the very start. Regional and social disparities can exacerbate social, political and economic risks. Geographical differences in prosperity are linked to divergences in working and living conditions, and ultimately affect the opportunities available to 447 million people across the European Union.

EU integration created opportunities for many people and drove economic convergence, but challenges remain. Regional convergence slowed in the aftermath of the global financial crisis. Stagnation and increasing discrepancies in economic opportunities fuelled discontent in many regions. In European labour markets, the well-educated were in a better position to benefit from changes in the demand for skills linked to globalisation and digitalisation. In contrast, many workers with lower levels of education saw their jobs disappear.

The COVID-19 crisis could exacerbate existing inequalities. The pandemic's impact was not felt evenly across Europe, and regions are rebounding at differing speeds. Increased digitalisation and the greening of the economy will bring profound structural change. Europe risks becoming more unequal once the pandemic has receded.

The COVID-19 shock demonstrated the power of policy. Recent months have shown that support can make a difference and soften the impact of economic shocks on firms and households. Furthermore, Europe's swift and joint response showed that it can act fast to address crises and challenges in a coordinated way.

This chapter describes regional and social cohesion in the European Union before the pandemic, how the pandemic affected it and how policy needs to support cohesion. The first section focuses on social cohesion, while the second one focuses on regional cohesion. The third section examines the risk that the COVID-19 crisis might cause long-term scars and slow cohesion in the European Union. The fourth section discusses how the transition towards a smart and green economy might be leveraged to more social and geographical cohesion. The fifth section summarises the policy implications and draws conclusions.

## Social cohesion patterns, trends and COVID-19 effects

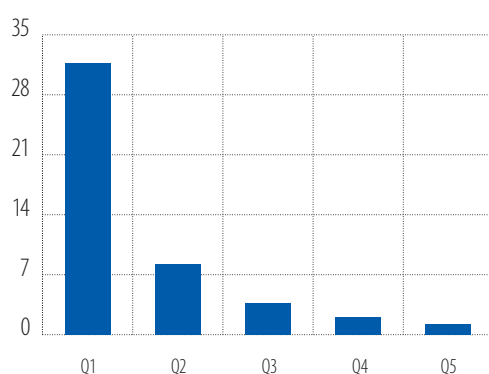
**Just before the pandemic began, record levels of employment in the European Union and improved average living standards coexisted with stark differences in working and living conditions.** Median incomes had increased in most EU members and fewer people were facing poverty and social exclusion compared to peak levels in 2012. The employment rate exceeded 73% in 2019 and unemployment had dropped to a 12-year low. Youth unemployment and the share of young people not in employment, education or training had similarly decreased from peaks experienced in the aftermath of the global financial crisis and the European debt crisis. The EU labour force had become older but also better educated and more diverse, with more female and foreign-born workers. More people were self-employed (without employees), sometimes benefiting from flexibility and autonomy but also facing less security. Younger workers and those with lower levels of education more often experienced less certain and sometimes precarious working conditions. Gender pay gaps persisted and some vulnerable groups such as migrants faced challenges in entering the labour market, despite conditions having improved overall.

**The digital transformation had spurred profound changes in EU labour markets.** Digital technologies had changed how people work and the skills they need to perform jobs. Changing labour demands raised the risk of skill shortages and mismatches as new jobs often required different and more advanced skills that were less readily available on the market. Digitalisation has raised demand for technical but also higher-level skills more broadly, and has been linked to greater polarisation on labour markets (EIB, 2019; 2020/21). People with the right skillsets or quick to acquire them were in a better position to benefit from profound structural shifts.

**Having the right skills is crucial for employment opportunities, earnings and more.** Workers with higher levels of education were more likely to be employed or to be successful entrepreneurs. They tended to be more satisfied with their jobs and more likely to participate in (employer-sponsored) training. Increases in employment in the years before the pandemic had been concentrated on jobs typically requiring higher levels of education, such as university degrees. Growth in lower-level occupations — typically not requiring higher levels of formal education — occurred in some parts of the services sector, where interaction was often personal and involved less routine tasks (European Centre for the Development of Vocational Training (Cedefop), 2018). Jobs requiring a lot of routine tasks but lower levels of education were increasingly at risk of being automated (Nedelkoska and Quintini, 2018; Pouliakas, 2018; EIB, 2019/20).

**Education is a key determinant of socioeconomic status, living conditions and opportunities.** Beyond shaping income and career development prospects, education increases the likelihood of a person having a longer, healthier and in many ways more comfortable life. The gap between the life expectancies for a 30-year-old with the highest education and one with the lowest education in the European Union was about seven years for men and three for women (Organisation for Economic Co-operation and Development (OECD), 2020a).<sup>1</sup> Social exclusion risks are much higher for people with lower education levels across all EU members. Households with a lower economic status are more likely to live in buildings with major deficiencies or in overcrowded conditions. They are more likely to be overburdened by housing costs and to find it difficult to keep their homes warm, and are less likely to be homeowners (Figure 1). Education — together with age — is also a key determinant of the ability to make use of digital technologies and of individuals' trust in institutions (Cruz-Jesus et al., 2016; Eurofund, 2018). At the same time, education systems often carried over inequalities of opportunity from one generation to the next (Boone/Goujard, 2019).

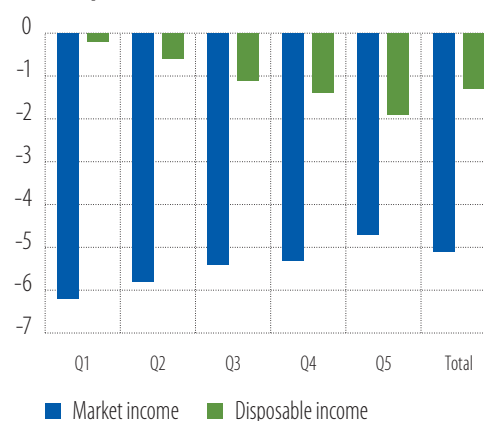
**Figure 1**  
Households overburdened by housing costs in 2019 (in %), by income quintile



Source: EU Statistics on Income and Living Conditions (SILC), authors' calculation.

Note: The housing cost overburden rate measures the share of the population living in households that spend 40% or more of their disposable income on housing. Income quintiles from lowest to highest.

**Figure 2**  
Simulated impact of COVID-19 on market income and disposable income (change in %), by income quintile



Source: European Commission (2021), JRC, authors' calculation.

Note: Figure 2 shows the change in EU household market incomes (labour and capital plus private transfers) and the change in EU disposable incomes (the amount of money that can be spent after personal current taxes) by income brackets. See Christl et al. (2021) for the methods used.

<sup>1</sup> EU average based on 14 countries for which data is available, 2017 or nearest year.



**The COVID crisis hit Europeans unequally depending on their living and working conditions and resulted in some increases in inequality.** Health outcomes varied by social strata (Destatis, 2021). People living in poorer areas were often less able to ensure social distancing and were at higher risk of infection. Job risks were concentrated in sectors that employ higher shares of people on lower incomes and that often required less education (Schnabel, 2020).

**Policy helped to stabilise incomes and employment.** Despite the sharp decline in output, simulations suggest that households' disposable incomes fell, on average, only 1.3%, less than market incomes (5.1%), as tax benefits and policy action protected households from some losses (Figure 2). Automatic stabilisers and dedicated support for poorer EU households reduced the risk of widening income divergences, at least in the short term.<sup>2</sup> Short-time work schemes kept workers on the payroll. Employment support was funded in part by the European Union via its **SURE scheme**, which is estimated to have supported over 31 million jobs (European Council, 2021).<sup>3</sup> SURE also provided a unifying element across national labour markets, with different structures and traditions in deploying furlough or short-time work schemes. Overall, poverty rates did not increase in 2020. In some EU members, the poverty rate even dropped slightly (European Commission, 2021). However, many Southern European countries saw a moderate increase in the risk of poverty. While overall employment effects appear moderate compared to drops in economic activity and to previous crises, the pandemic shock ended a six-year run of consecutive increases in employment rates. In 2020, the employment rate dropped by some 0.7 percentage points (compared to the previous year, for the 20-64 age group) and unemployment rose by 0.3 percentage points, approaching 7%.

**The pandemic hit some groups of workers harder than others.** The pandemic affected workers in different ways. Many were put on furlough schemes, some lost their jobs and the self-employed often faced threats to their businesses and personal incomes. Other people were in occupations that could shift to remote work. Employment was put under pressure, particularly for jobs held by young people and those with lower levels of education. Job losses were most pronounced for the youngest people (Figure 3). The share of young people not in employment, education or training increased by 1.2 percentage points to 17.6% (for people aged 20 to 34). Youth unemployment increased by 1.8 percentage points compared to the previous year and reached 17.1% in 2020 (for the 15-24 age group). Employment rates for recent graduates dropped most for young people with lower levels of education.

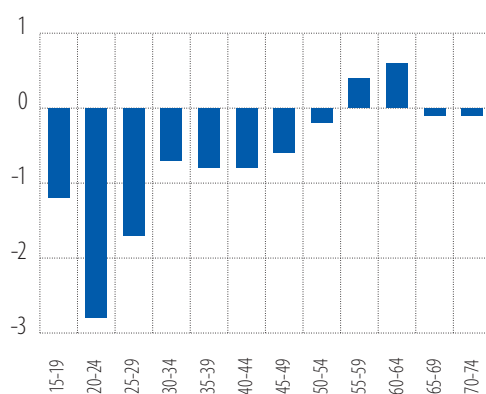
**The labour market difficulties weighed more heavily on people with lower levels of education.** Declines in employment rates are most pronounced for people with lower education (Figure 4). In contrast, more people with higher-level education are in employment compared to 2019. The labour market difficulties faced by young people and those with lower levels of education are linked to the sectors exposed to the crisis, differences in contract conditions compared to the rest of the labour force and the adverse effect the pandemic had on matching people with jobs, particularly for young people.

**The risks posed to social cohesion go beyond the effect of the pandemic on labour markets so far.** In this crisis, cohesion risks are linked to gaps in governments' crisis response and to the unwinding of policy support, while the labour market remains in flux. Past pandemics had led to a widening of income inequalities and lowered employment opportunities for people with only basic levels of education (Furceri et al., 2021). Labour market improvements following Europe's last crisis have not benefited all households at the same speed. The pandemic has accelerated the demand for certain skills (notably linked to digitalisation) and increased the demand for higher-skilled employment overall.

<sup>2</sup> Evidence on the impact of the pandemic on wealth is still scarce. However, given the distribution of asset ownership, notably stocks and real estate, effects are likely to include some shifts and potential widening of some inequalities across regions and socioeconomic groups.

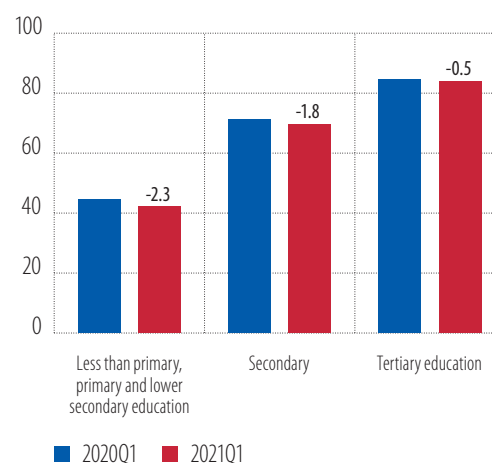
<sup>3</sup> SURE stands for Support to mitigate Unemployment Risks in an Emergency.

**Figure 3**  
Change in employment as share of the labour force (in percentage points), by age group 2019-2020



Source: Eurostat, authors' calculation.

**Figure 4**  
Employment as share of the labour force (in %), by education level



Source: Eurostat, authors' calculation.

Note: The numbers on top of the bars indicate year-over-year changes in percentage points.

## Regional cohesion patterns, trends and COVID-19 effects

**Economic, social and geographical cohesion has been a goal of the European Union since its inception.** This includes reducing regional disparities and improving the development of the least favoured regions.<sup>4</sup> Regional disparities in income reflect differences in human capital and labour productivity as well as labour market performance and demographics (Monfort, 2010). Regional convergence is a long-term process and not without setbacks.

**Since the start of the 20th century, Europe has seen some convergence.** While two world wars interrupted this process, convergence gained pace after 1945 (Rosés and Wolf, 2019). However, it weakened in the 1970s and stalled thereafter, even reversing in some cases (Ibid., Geppert, 2005; Neven and Gouyette, 1995). Structural change drove regional convergence, with regions previously dominated by agriculture industrialising and focusing more on services (Rosés and Wolf, 2019).

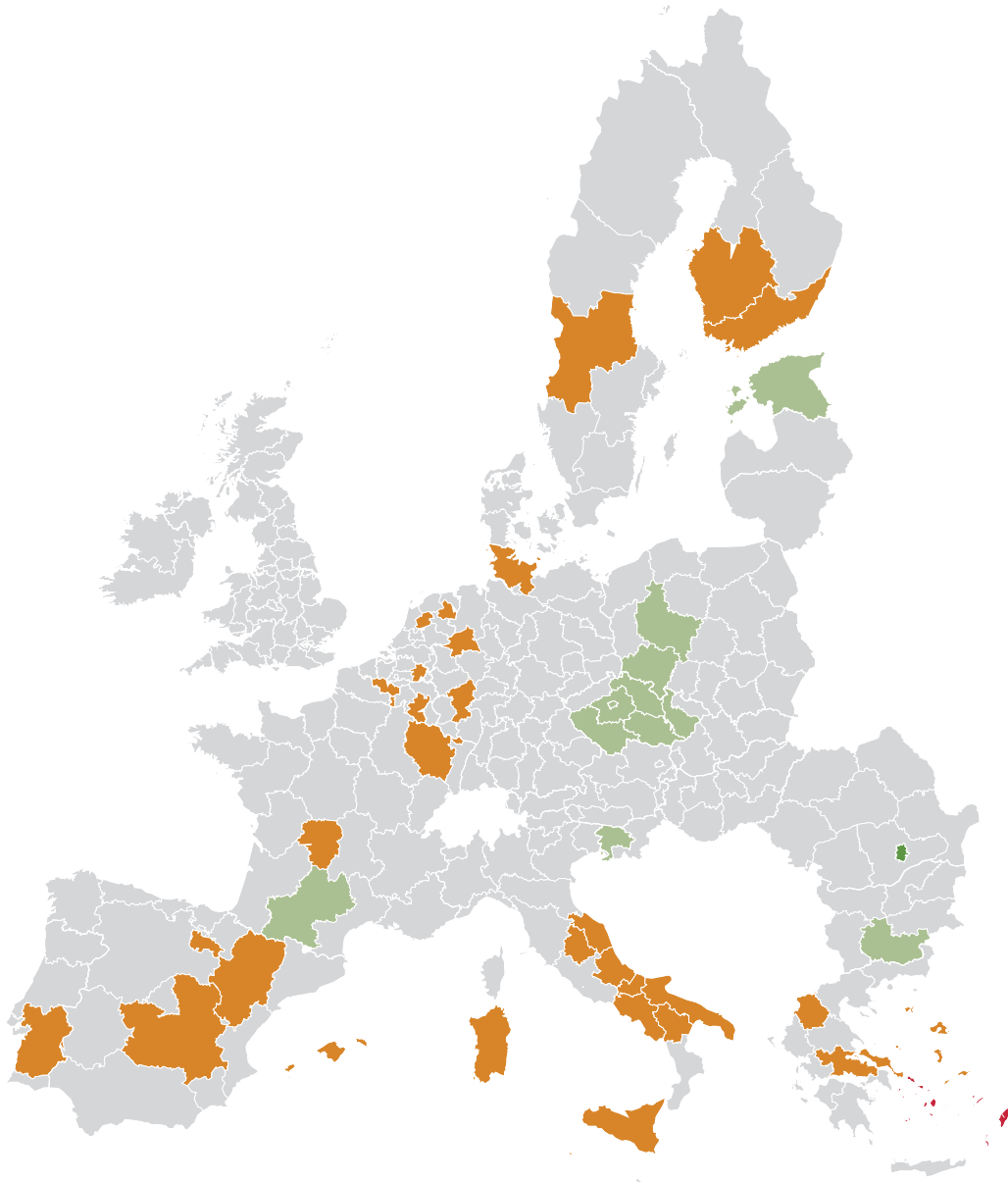
**Overall, cohesion has made some progress over the past 20 years.** At the country level, Central and Eastern European economies have converged significantly with the rest of Europe (Coeuré, 2018). The picture is more nuanced for regional convergence, depending on location and the type of territories considered. Below we refer to NUTS2 regions with incomes above the EU average as “more developed” or “non-cohesion” regions. We refer to regions with gross domestic product (GDP) per capita of 75% to 100% of the EU27 average as “transition” regions, and to those with incomes below 75% as “less developed,” with the last two forming the cohesion priority group.<sup>5</sup> At the regional level, poorer regions have grown faster on average, and the dispersion in regional incomes per capita has decreased (Figures 5 and 6). In 2000, the median GDP per capita in the top percentile of the regional income distribution was more than five times higher than at the bottom. In 2019, this difference had shrunk to three times. Despite this

<sup>4</sup> Article 174 of the Treaty on the Functioning of the European Union.

<sup>5</sup> NUTS2 refers to the Nomenclature of Territorial Units for Statistics. NUTS2 regions are the main targets of EU regional policies. Cohesion policies in principle cover every region in the European Union but most of the funds are targeted where they are most needed. According to regions' income classification, the availability of co-financing from EU funds differs, with poorer regions eligible for more support.

progress, only a few less developed regions have made significant progress. Those that did are mostly located in Central and Eastern Europe. Two regions — Bucharest Ilfov (Romania) and Sostines regionas (Lithuania) — leapt from a GDP per capita of less than 75% of the EU average to more than the EU average (Map 1). Both regions include the respective capital cities.

**Map 1**  
**Regional growth dynamics and transitions**

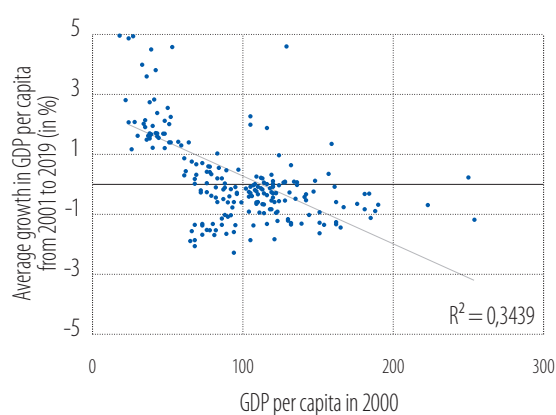


Source: Eurostat, EIB Economics Department.

Note: Grey regions remained within the same broad range of the income distribution, namely above the EU average, between 75-100% of the EU average, or below. Regions in light green positioned one income bracket higher in 2019 compared to 2000. Regions in dark green moved from below 75% to the top category. Regions in orange and dark red regressed one/two brackets respectively. The UK is not part of the sample.

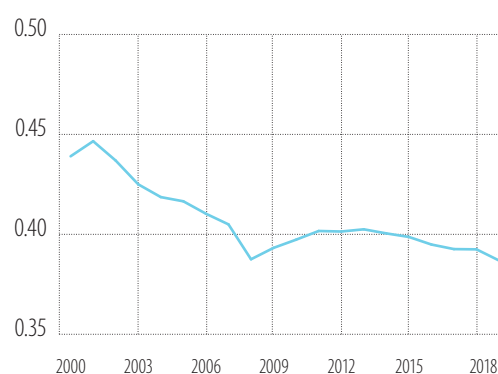
**Regions in Central and Eastern Europe tend to have converged more than those in other parts of the European Union.** Many Eastern European regions converged, as did some Spanish and Portuguese regions, while the opposite holds for regions in Greece and Italy (Alcidi, 2018; Hudecz et al., 2020; Goecke and Hüther, 2016). In contrast, many Southern European regions experienced a “lost decade” after the global financial crisis and the ensuing European sovereign debt crisis. Here, a number of regions experienced substantial and lasting drops in incomes in relative and some even in absolute terms. For example, per capita GDP fell in all regions in Greece from 2007 to 2019. As a result of these different experiences, the regional differences in GDP per capita increased after the financial crisis and only started to fall again several years later (Figure 6).

**Figure 5**  
Per-capita income growth vs. GDP per capita in 2000



Source: Eurostat, authors' calculation.  
Note: Dots denote regions. X-axis shows regional GDP as a percentage of the EU average.

**Figure 6**  
Standard deviation of regional per-capita income relative to EU average, 2001-2019



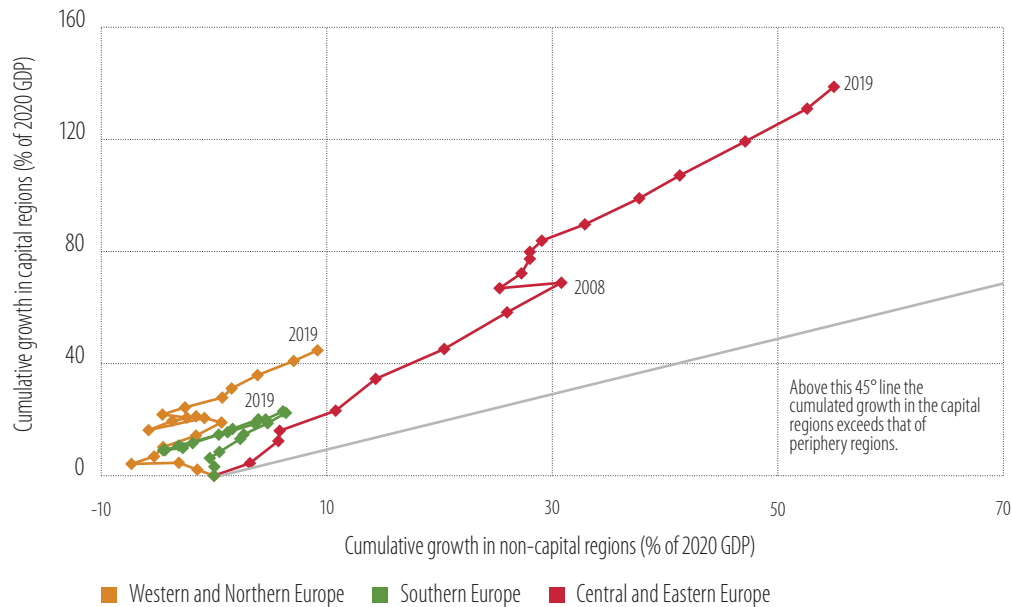
Source: Eurostat, authors' calculation.

**More urban regions tended to grow faster.** The growth of rural regions has lagged that of urban centres. People and businesses have increasingly clustered in a few urban locations to work and innovate (Moretti, 2012; Rodriguez-Pose, 2017), where agglomeration effects enabled them to be more productive. Income differences within countries have increased in the majority of EU members over the last few years (European Commission, 2021). Contrasts between the capitals and other regions are most pronounced in the larger Central and Eastern European Member States, reflecting, in part, a very low level of regional inequality before the transition from communism and historical differences in areas where economic activity was concentrated (Figures 7 and 8).

**Capital regions often outpaced the rest** (Figure 7). Differences within urban centres suggest that development is not only about size and population density.<sup>6</sup> Successful urban areas have managed to replace shrinking industrial production with high-value services, tradeables, finance, technology, culture and, to some extent, high-tech manufacturing. Capital regions across the European Union are in a more advantageous position to generate this mix, given established trade and connectivity links and the presence of cultural and educational institutions (Florida, 2002; Glaeser, 2012). Entrepreneurial dynamism linked to new technologies is concentrated in a small number of cities, in particular capital regions (Figure 9). Here, labour markets are denser, allowing for better matching of job seekers and employers, and typically connecting investors to projects more easily.

<sup>6</sup> See Hudecz et al. (2020), who base their analysis on a more granular spatial distinction.

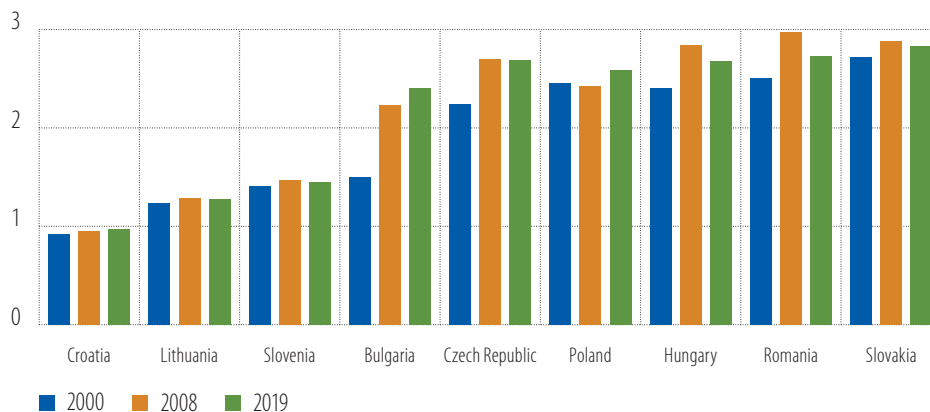
**Figure 7**  
Cumulative growth in regions including the capital and in other regions, 2000-2019



Source: Eurostat, authors' calculation.

Note: Simple average over real GDP growth in NUTS2 regions of selected countries. Southern Europe: Italy, Spain, Portugal, Greece. Central and Eastern Europe: Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic. Western and Northern Europe: Austria, Belgium, Denmark, Finland, France, Germany, Ireland. The red line for Central and Eastern Europe extends farther because of the region's rapid growth.

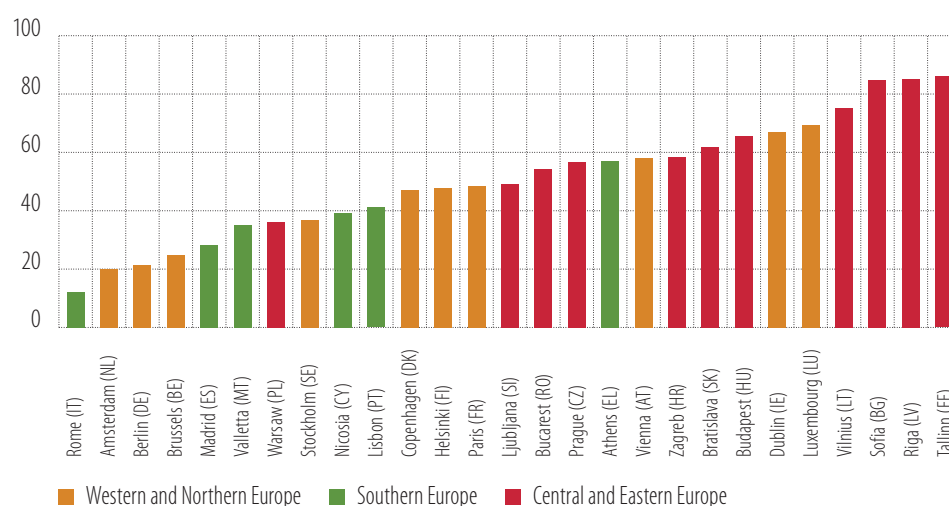
**Figure 8**  
Per-capita GDP in the capital relative to the country's other regions, Central and Eastern Europe



Source: Eurostat, authors' calculation

Note: The chart shows GDP per capita in the capital region relative to other regions in the country and the evolution of the ratio over time. A ratio of 1 indicates no difference between incomes in the capital region compared to the rest (on average). Values greater than one indicate higher incomes in the capital.

**Figure 9**  
Share of country's startups (in %) located in the capital

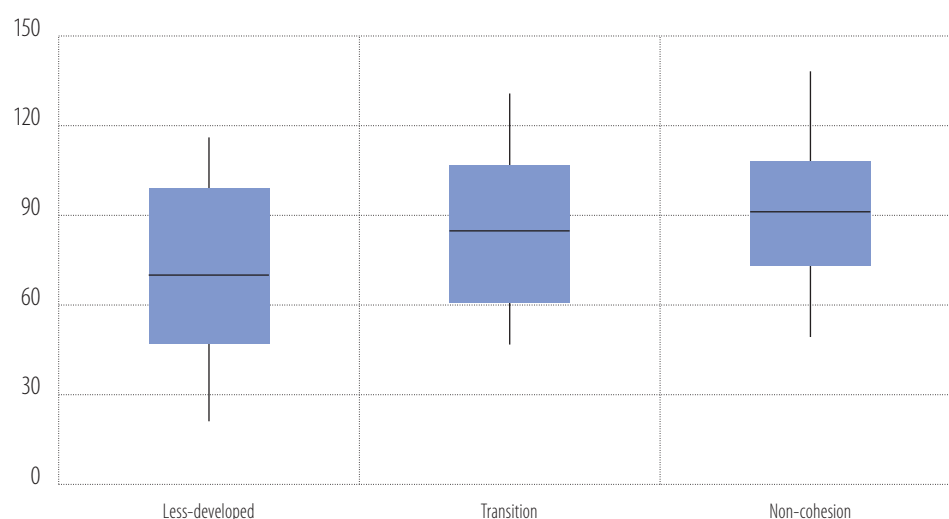


Source: Crunchbase, authors' calculation.

Baseline: Startups founded between 2008-2020 that are still active.

**Despite some successful convergence, differences still exist in living conditions.** Social disparities tend to be more pronounced in urban regions. Poverty and social exclusion have remained high in parts of Europe and particularly in cohesion regions located in Greece and some Central and Eastern European countries. People in poorer regions, notably in rural areas, tend to have worse access to healthcare. Similarly, the quality of transport, infrastructure (including digital infrastructure) and the variety of education on offer are typically more limited (Figure 10).

**Figure 10**  
Distribution of download speed (in Mbps), by region



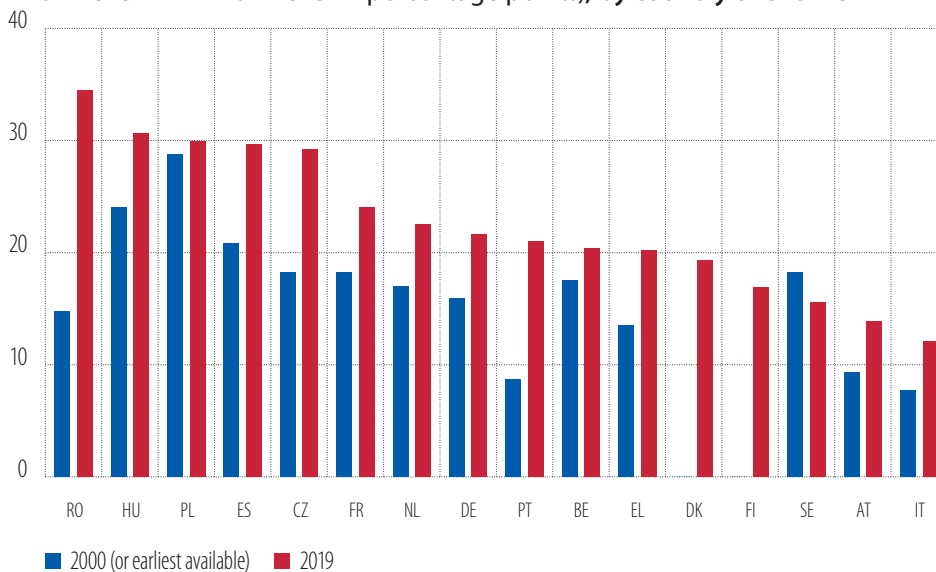
Source: European Data Journalism Network (2021), authors' calculation.

Note: The figure shows the 10th, 25th, 50th, 75th and 90th percentiles of the distribution of the average download speed.

**Differences in skill levels pose persistent challenges for convergence.** Human capital plays a pivotal role in driving regional developments and supporting convergence, for example through facilitating innovation and technology adoption.<sup>7</sup> Educational levels in the workforce have increased over the last 20 years in all EU members (Figure 11). However, within countries regional differences have widened, reflecting factors such as migration within countries that has been driven by differences in economic growth and opportunities for jobs and learning. Similarly, participation in lifelong learning, or training, is lower in cohesion regions and rural locations. These trends reflect the clustering of skilled jobs, the proximity of educational options and the higher share of skilled individuals in urban areas, as individuals with higher skills are more likely to participate in lifelong learning (EIB, 2020/2021).

**Figure 11**

**Difference across regions in the share of people with tertiary education**  
(maximum level - minimum level in percentage points), by country over time



Source: Eurostat, authors' calculation.

Note: Bars show the percentage point differences between the region with the highest and the region with the lowest share of people with tertiary education in the labour force by country. Member States with a small number of regions are not displayed. Excludes outermost regions for France. For Portugal, the chart uses 2004 values for Acores and Madeira. For Hungary and Poland, the comparison is based on 2013 to 2019, as earlier values for the capital region are missing.

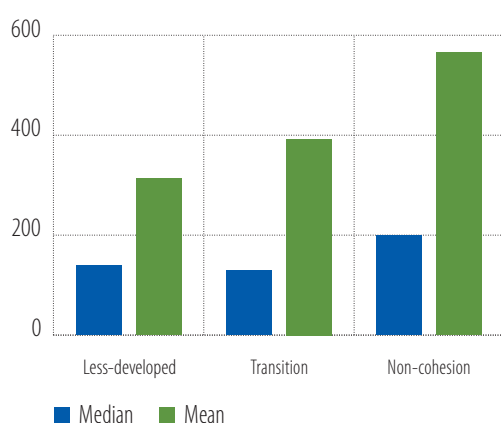
**Many poorer regions face structural labour market challenges.** Non-cohesion regions typically have higher employment rates. Within the cohesion group, heterogeneity is high. Peripheral and sparsely populated regions — where agriculture often plays an important role in the economy and skilled employment opportunities are scarce — have some of the lowest employment rates. Even in countries with high nationwide income per capita, some former industrial heartland regions are struggling to adapt their economies to structural shifts in labour markets and record low employment rates. Long-term unemployment (people without a job for 12 months or more) is comparatively high in many cohesion regions, particularly in Southern Europe. Similarly, youth unemployment has remained high in many cohesion regions, like Southern Europe. The high unemployment rate for youths indicates issues in labour markets and education systems, such as two-tiered labour market structures characterised by differences in types of contracts, wages, skills and access to benefits for groups of workers. Many cohesion regions in Central and Eastern Europe recorded lower levels of unemployment in the years before the pandemic, and many firms are having difficulty finding employees with the right skills. At the same time, higher inactivity rates and the marginal attachment of some vulnerable groups to the labour market remained a challenge (EIB, 2019).

<sup>7</sup> See, for example, Coady and Dizoli, 2017; Worldbank, 2018/2019; OECD, 2018; EIB, 2019/2020.

**Investment gaps are larger in cohesion regions.** The EIB Investment Survey (EIBIS) shows how businesses differ structurally across EU regions. Data from the EIBIS show that firms in cohesion regions tend to be smaller on average (Figure 12). The smaller average size reflects the limited presence of very large firms and corporate headquarters. The share of firms undertaking investment is lower in cohesion regions, even though firms in these regions report that they have invested too little in recent years.

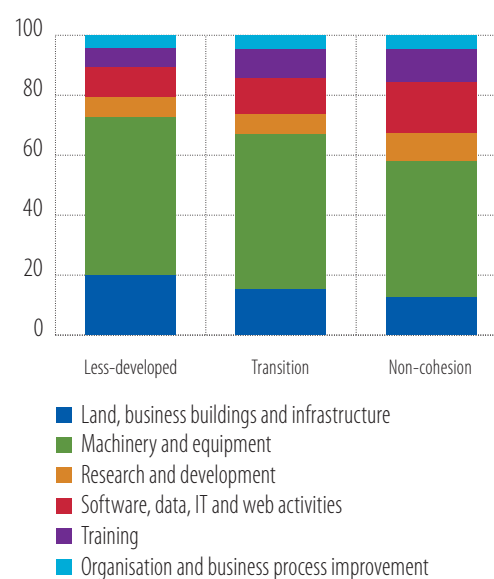
**Firms' investment in cohesion regions is tilted towards tangible assets,** meaning it is focused on machinery and equipment, land, buildings and infrastructure (Figure 13). Conversely, intangibles (research and development, training, organisation and business process improvements, and software and IT) account for some 42% of investment in non-cohesion regions compared with 33% in transition and 27% in less developed regions. The lower share of investment in intangible assets partly reflects the industrial structure but also a more limited presence of some corporate activities, such as large research centres, in some cohesion regions. Large firms in non-cohesion regions dedicate a higher share of their investment to research and development (11% vs. 7% in transition and less developed). Large firms in less developed regions report the lowest shares of investment dedicated to the training of employees compared to those firms in other regions.

**Figure 12**  
Average firm size (number of employees)



Source: EIBIS 2021.  
Question: How many people does your company employ either full or part time at all its locations, including yourself?

**Figure 13**  
Composition of firms' investment (in %)

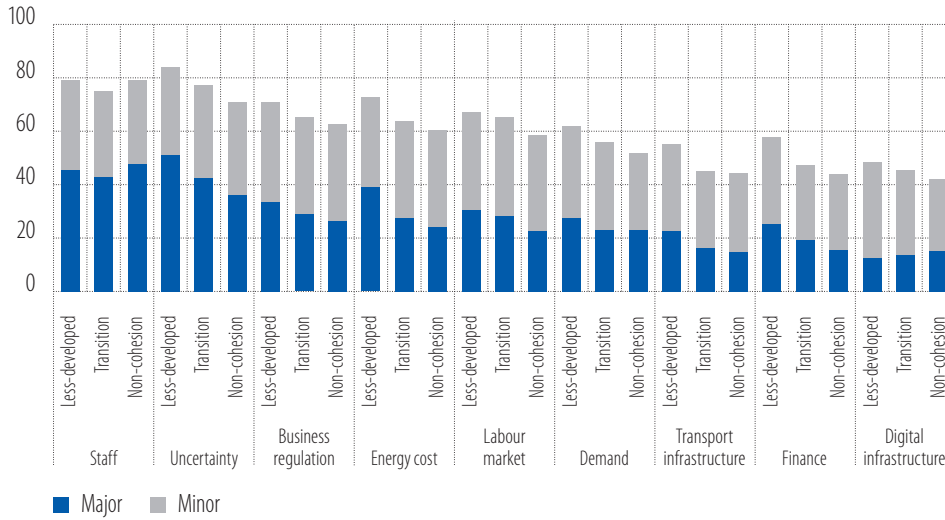


Source: EIBIS 2021.  
Base: All firms who have invested in the last financial year (excluding don't know/refused responses).  
Question: In the last financial year, how much did your business invest in each of the following with the intention of maintaining or increasing your company's future earnings?

**Firms in cohesion regions operate in a more challenging environment and report obstacles to investment more often** (Figure 14). Firms in the poorest regions report considerably more often that their investment is hindered by uncertainty, energy costs, and access to transport infrastructure and finance. In particular, many small and medium sized companies (SMEs) in less developed regions report finance-related issues. However, a lack of access to finance is also an obstacle for many large firms in the poorest regions (52% in less developed regions, 43% in transition regions, and 42% in non-cohesion regions). The limited availability of staff with the right skills is a persistent problem shared by most firms in cohesion and non-cohesion regions and is the most frequently named obstacle across the European Union (see Chapter 2).



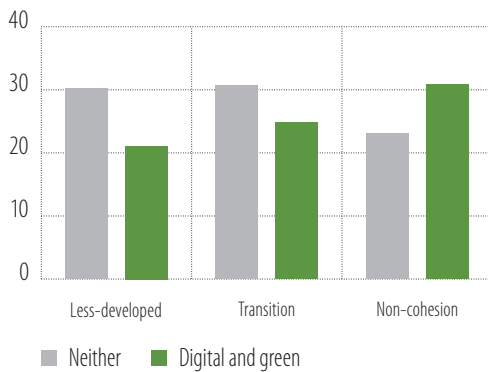
**Figure 14**  
Firms reporting obstacles (in %), by region



Source: EIBIS 2021.  
Question: Thinking about your investment activities, to what extent is each of the following an obstacle? Is it a major obstacle, a minor obstacle or not an obstacle at all?

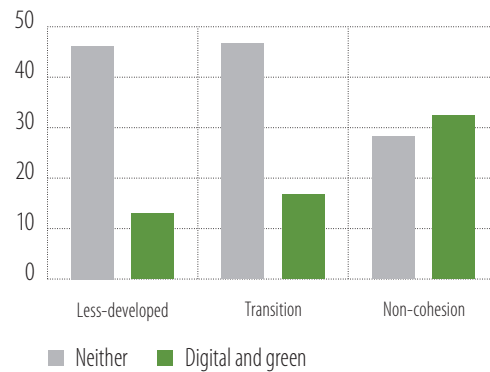
**Fewer firms in cohesion regions are taking steps to transform digitally or to tackle climate change risks.** In non-cohesion regions, more firms have already invested in measures to tackle climate change and in digital technologies. In cohesion regions, many firms have done neither (firms classified as “neither green nor digital” in Figure 15). At the same time, many firms in cohesion regions express even greater concerns about climate-related risks (EIB, 2021c).

**Figure 15**  
Firms investing in climate-related measures and digitalisation (in %), by region



Source: EIBIS 2021.  
Question: Green: Thinking about investments to tackle the impacts of weather events and reduction in carbon emissions, has your company already invested?  
Digital: Can you tell me for each of the following digital technologies if you have heard about them, not heard about them, implemented them in parts of your business, or whether your entire business is organised around them?

**Figure 16**  
Digital and green municipalities (in %), by region

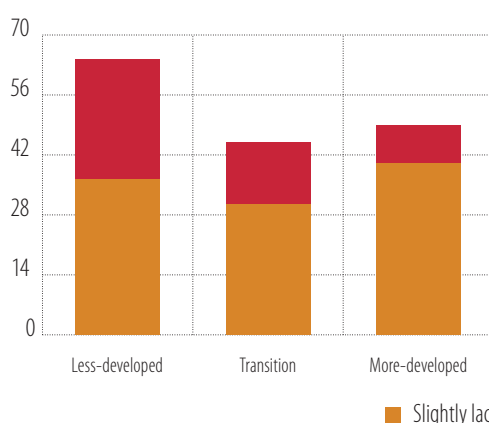


Source: EIB Municipalities Survey 2020.  
Note: For the conceptual introduction of green and digital municipalities see EIB (2020, Chapter 9).

**Many municipalities need to invest more in climate change adaptation and mitigation as well as in digitalisation.** In many regions across the European Union, municipal public investment was slow to recover from the global financial crisis and the European sovereign debt crisis. Results from the EIB municipalities survey show that municipalities in cohesion regions lag on the green and digital transition (Figure 16) (EIB, 2020, 2021b). Many municipalities in cohesion regions report infrastructure investment gaps, including on digital infrastructure and for climate change mitigation and adaptation. Existing investment gaps for public and private projects make public-private investment synergies more difficult to realise, including for digitalisation and climate action.

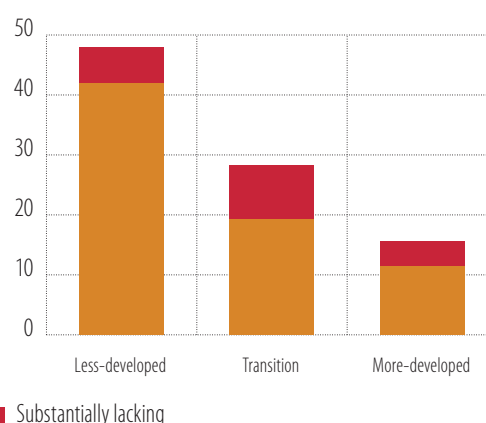
**Investment gaps in cohesion regions limit opportunities for firms and people.** In less developed regions, gaps in basic infrastructure — namely for urban transport, healthcare and social infrastructure (including health, care infrastructure for children and the elderly, education and housing) — are more common and more severe (Figure 17 and 18). For example, 58% of municipalities in less developed regions report gaps for urban public transport compared to some 40% in transition and non-cohesion regions. Almost half report gaps in social infrastructure compared to slightly less than 30% in the two other groups.

**Figure 17**  
Municipalities with investment gaps in social housing (% of respondents)



Source: EIB Municipalities Survey 2020.  
Question: For each of the following would you say that the quality of infrastructure is satisfactory, slightly lacking or substantially lacking?

**Figure 18**  
Municipalities with investment gaps in health (% of respondents)



Source: EIB Municipalities Survey 2020.  
Question: For each of the following would you say that the quality of infrastructure is satisfactory, slightly lacking or substantially lacking?

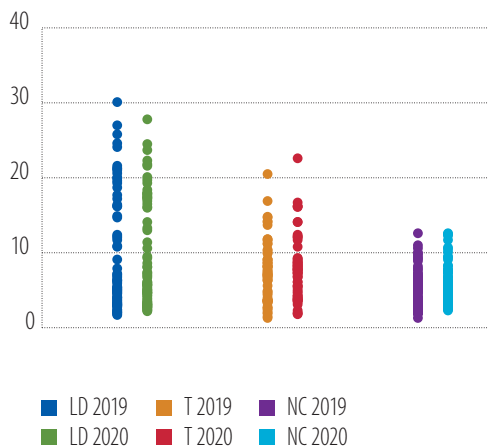
**Infrastructure gaps, notably for health, were felt when the pandemic hit.** Regional characteristics — such as the age distribution of the population, access to healthcare services and local factors (such as air pollution or access to recreational space) — affected health-related risks. Yet, the extent to which these characteristics resulted in adverse health outcomes depended on policy responses, including pandemic-related restrictions on mobility, the speed with which the provision of healthcare was improved, and the evolution of the disease. Overall, however, mortality rates tended to be higher in metropolitan regions because the population density favoured the spread of the virus faster than existing health infrastructure could react, regardless of the sometimes higher quality services (OECD, 2021).

**The economic impact of the pandemic on regions reflects the exposure of certain sectors to the pandemic and the effectiveness of policy responses.** Specifically, the impact depended on economic structures, including specialisation in sectors that required human contact, the degree of integration into global value chains, the possibility of remote work, and firms' characteristics such as size and financial resources (European Commission, 2021). In addition, the duration and design of their COVID-19 restrictions played a role.

**Policy softened the pandemic's immediate impact on labour markets, but some regions were still hit hard.** The highest increases in unemployment were recorded in regions in Greece and Spain that specialise in tourism.<sup>8</sup> These regions similarly show the largest drops in hours worked and increases in temporary layoffs. The majority of regions saw increases in unemployment, albeit from very different levels (Figure 19). The most recent data from the EIB Investment Survey show that for more than half of the firms across the European Union, employment has remained constant since the start of the pandemic. While policy measures helped to preserve jobs across the European Union in the short term, the removal of support, corporate restructuring and accelerated structural change suggest there is a risk employment will take time to fully recover. These factors often coincide with structural challenges in labour markets across EU regions.

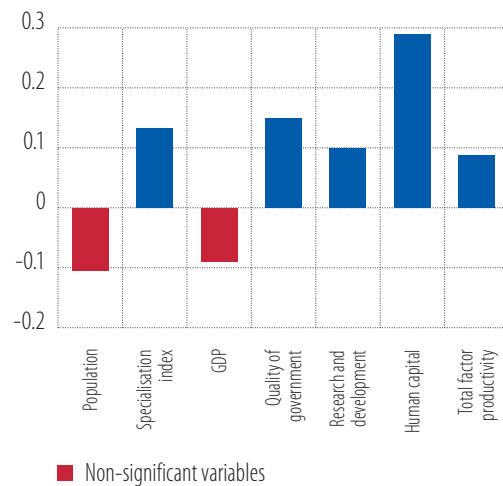
**Human capital and the quality of local institutions were key to how regions weathered the pandemic.** Based on the European Commission's RHOMOLO macroeconomic model, the quality of human capital and the quality of government are the two most important factors supporting regions' ability to resist the COVID-19 shock (Figure 20).<sup>9</sup>

**Figure 19**  
Dispersion of regional unemployment rates (in %)



Source: Eurostat, authors' calculation.  
Note: LD denotes less developed regions. T refers to transition and NC to the non-cohesion/more developed category. Dots denote NUTS2 regions.

**Figure 20**  
Factors supporting regions' resilience against the pandemic



Source: DG EMPL, European Commission (2021).  
Note: Reported are the coefficients of a regression of the pandemic-induced change in regional GDP on the factors shown. See European Commission (2021), section 3.4, for details.

<sup>8</sup> Based on increases from 2019 to 2020. Kriti, Illes Balears, Ionia Nisia and Noto Aigaiio record increases in regional unemployment rates by 3 percentage points or more compared to 2019 levels (for people in the labour force aged 15-74). The regions with the highest shares of absences due to temporary layoffs are Canarias, Notio Aigaiio, Illes Balears and Ionia Nisia.

<sup>9</sup> The RHOMOLO model makes it possible to simulate the effects of the COVID shock taking into account regional economic characteristics. For further information on the model and its calibration to assess the impact of the pandemic, see European Commission (2021).

## The risk of longer-term scars from COVID-19

**The pandemic could reinforce regional and social divergences, making them more permanent.** In particular, differences in companies' adaptive capacities, in challenges to entrepreneurship and to education and training could slow cohesion.

### Companies' adaptive capacities

**Medium to longer-term risks for employment depend on how firms react to the pandemic and adjust to the "new normal."** Corporate restructuring and accelerated structural change can cause some risks for employment. About 14% of EU firms expect the pandemic to lead to permanent losses in employment, according to the EIBIS. Firms' views differ geographically, with more firms in poorer regions expecting to cut jobs (Figure 21).

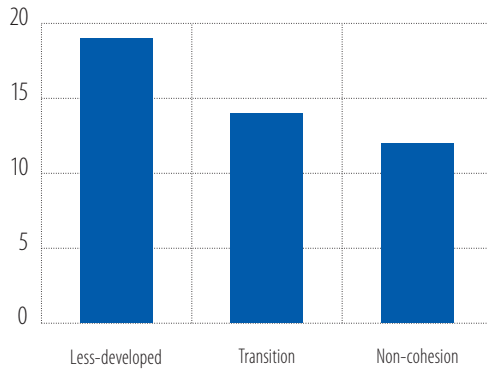
**Structural changes in employment risk adding to existing labour market challenges and exacerbating territorial and social divergences.** Firms that saw the COVID-19 crisis as an existential threat were more likely to cut jobs and see a negative impact on staffing levels looking ahead. Firms in poorer regions tend to see a stronger structural impact on employment. For less developed regions in particular, the expected shifts in employment may reflect concerns about strategic positioning and competitiveness after the crisis, as well as the acceleration of existing economic trends, notably digitalisation and automation. More firms in poorer regions also expect robotics to reduce job numbers more drastically than elsewhere in Europe. These regions often have less developed mechanisms to help people adjust to the changing labour market. Spending on active labour market policies tends to be lower, fewer people participate in lifelong learning and fewer firms invest in the training of their workforce (EIB, 2019, 2020).

**The pandemic provided a further boost to digitalisation, with firms in the richest regions often reacting faster to the crisis.** Cohesion regions continue to have higher shares of firms with no investment planned, and more firms that had to increase their debt in recent months, which limits their ability to borrow in the future. EIBIS data show that fewer firms in cohesion regions have reacted to the pandemic by becoming more digital (Figure 22). Non-cohesion firms — which are already more advanced on digitalisation, more productive, and in a better position to invest — also seem to be more aware of the longer-term shift towards digital technologies that the pandemic accelerated.

**Less capacity to innovate hinders adjustment in cohesion regions.** Fewer firms in cohesion regions reacted to the COVID-19 shock by introducing new products or services (Figure 22). In fact, firms in countries with many cohesion regions often report having innovated less as a result of the pandemic (Figure 23). At the same time, more firms find that the lack of innovation is affecting their competitiveness (Figure 24). A limited ability to innovate also reflects differences that existed before the pandemic, which makes it more difficult for firms to adjust to shocks and also to reposition themselves post-crisis.

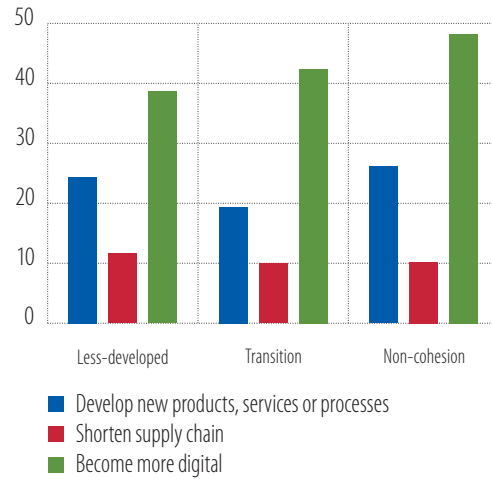
**Tackling challenges in the post-pandemic world — particularly climate-related challenges — will require innovation and transformation at the corporate level.** Firms at the forefront of green innovation have mostly been located in Western and Northern Europe or in non-cohesion regions (Figure 25). At the same time, firms in cohesion regions have showed less inclination to tackle climate-related challenges as part of their business (fewer have a designated person in charge of climate strategies). They also express greater scepticism as to whether they will be able to take advantage of the opportunities linked to emissions reduction. On balance, fewer firms in cohesion regions expect the green transition to positively impact market demand for their products or improve their reputation (EIB, 2021c). At the same time, more firms are worried about transition risks.

**Figure 21**  
Firms expecting a structural reduction in employment linked to COVID-19 (in %)



Source: EIBIS 2021.  
Question: Do you expect the coronavirus outbreak to lead to a decrease in employment in the longer term?

**Figure 22**  
Firms' immediate responses to COVID-19 (in %)



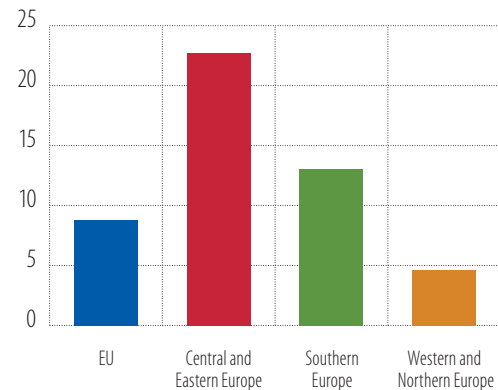
Source: EIBIS 2021.  
Question: As a response to the COVID-19 pandemic, have you taken any action or made investments to...?

**Figure 23**  
COVID-19's impact on firms' innovation (in %), by region



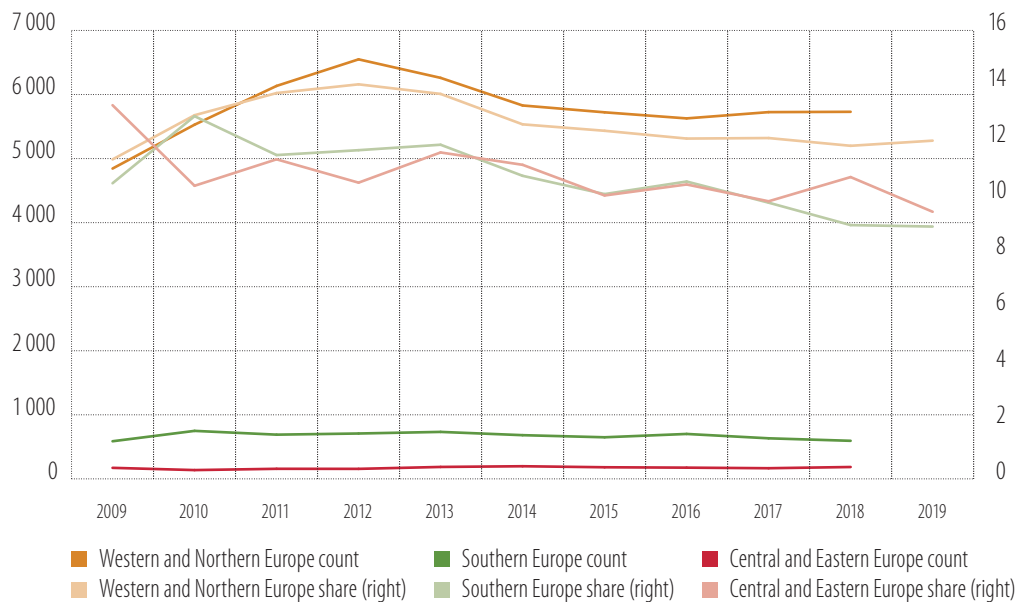
Source: EIBIS 2021 add-on module – sample of EU SMEs in Manufacturing and Services (2021).  
Question: Did you, innovate less, about the same amount, or more in 2020 as you would have done under normal circumstances (prior to COVID-19)?

**Figure 24**  
SMEs saying a lack of innovation is affecting their competitiveness (in %), by region



Source: EIBIS 2021 add-on module – sample of EU SMEs in Manufacturing and Services (2021).  
Base: Firms that innovated less/no innovation.  
Question: Do you expect the fact that your innovated less in 2020 to disadvantage your company's competitive position relative to others in your market?

**Figure 25**  
**Green patents, by region** (left: green patent count; right: % of green patents in total domestic patent portfolio)



Source: PATSTAT (PCT) data prepared in collaboration with the Centre for Research & Development Monitoring (ECOOM).  
Note: The light lines show the count of green patents (left axis) and the dark lines show the share of green patents in the total portfolio of domestic patents (right axis).

**Firms that adapt slowly to the changing economic environment risk stagnation and eventually falling behind competitively, which bodes ill for the regions in which they are based and for future employment.** Creating and growing new firms can help to mitigate these risks. Moreover, new businesses are often drivers of change themselves, doing things differently and bringing new ideas, products and services to the market.

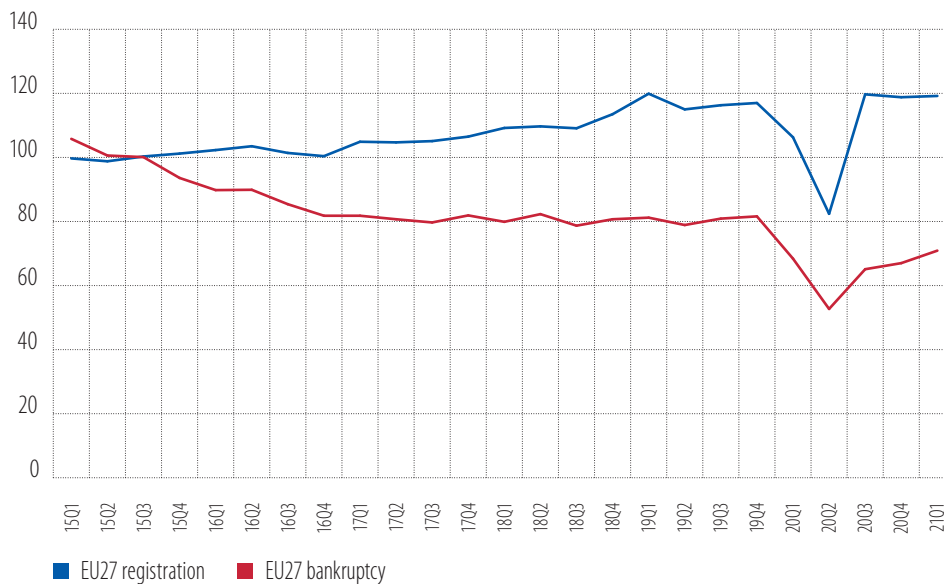
## Challenges to entrepreneurship

**Business registrations dropped significantly when the pandemic hit but bounced back quickly** (Figure 26). In most European countries, policy responses have been aimed at keeping existing businesses alive and have targeted firms' financial fragilities, leading to a reduction in the number of bankruptcies. However, less has been done to support the creation of new businesses since the beginning of the COVID-19 pandemic.

**The remaining uncertainty on the potential impact of new waves of the pandemic adds to the numerous structural issues holding back business creation in the European Union.** The pandemic might have aggravated some of the issues. First, the number of self-employed persons with employees dropped more than total employment over the first year of the pandemic, suggesting that entrepreneurs ended up benefiting less from furlough schemes and other support measures in many European countries. Second, female entrepreneurship seemed to be particularly hard hit. One reason relates to women entrepreneurs often undertaking unpaid care work during the pandemic, and there is some tentative evidence that businesses led by women have benefited less from support (De Paz et. al., 2021). The crisis's impact on female entrepreneurship could exacerbate gender gaps, with potential knock-on effects for (female) employment (see also Stevenson (2020) who reports similar patterns for the United States). Furthermore, not only new firm creation, but also the exit of firms matters for an efficient allocation of economic resources, which can benefit new and dynamic firms. The temporary decline in the founding of new

businesses and the limited number of bankruptcies at the beginning of the pandemic could negatively affect business dynamism and productivity, as some resources could be trapped in less productive firms.

**Figure 26**  
New business formation and bankruptcies (2015=100)



Source: Eurostat, authors' calculation.

**Not only did business formation decline, but the creation of startups also fell when the pandemic hit.** This is worrisome, as seemingly small changes in startup creation can have persistent and strong ripple effects on the overall economy as some of these new firms will mature and grow into larger businesses. These young firms are drivers of investment activities, carriers of innovation and an important source of labour demand. More structurally, a lack of startups also matters for cohesion. Central and Eastern Europe is home to many of the countries where employment is expected to be affected by a lack of startup formation (Sedláček and Sterk, 2020). Many cohesion regions can also be found in Central and Eastern Europe. With a view to social cohesion, startups typically employ younger people, and the lack of startups could exacerbate youth unemployment (Davis and Haltiwanger, 2019; Quimet et al., 2011).

**A lack of entrepreneurial dynamism limits opportunities.** During the crisis, policy support was often geared towards maintaining the status quo and not all EU members introduced measures to support the formation of startups as the crisis has progressed (OECD, 2021).

**Strengthening structural support to encourage entrepreneurial dynamism is key to longer-term growth.** Policy support measures helped to keep people employed during periods of economic shock, limiting hardship. However, moving into the recovery, additional emphasis should be placed on boosting entrepreneurship, reigniting dynamism and creating new employment opportunities. Labour market and training policies can play an important role in supporting these dynamics, for example by facilitating the acquisition of new skills and putting them to best use. However, training and education have both been negatively affected by the pandemic.

## Challenges to education and training

**School closures could pose considerable risks for regional and social cohesion.** During the pandemic, schools tended to be closed for longer in poorer EU members. In addition, less engaged schoolchildren and those who could have expected to earn substantially less over their lifetime even before schools closed seem to have benefited least from distance learning.

**Without remedial measures, school closures could reduce students' lifetime income by about 3.5%, on average.** The length of time spent in education is a key predictor of lifetime earnings. We evaluated a survey of adults' skills run by the OECD to quantify the effect of closures, drawing on work by Hanushek and Woessman (2008, 2020). According to the survey, the Programme for the International Assessment of Adult Competencies (PIAAC), for the average individual who has spent 12 to 13 years in formal education, each additional year of education increases lifetime earnings by about 7%<sup>10</sup>. With schools in the European Union fully closed for an average of 100 days (about half a school year) during the pandemic, students' lifetime income could have fallen by up to 3.5% without measures to address the education gap.<sup>11</sup>

**School closures are likely to have accentuated regional disparities because less wealthy EU members closed schools for longer.** By the end of August 2021, schools had been fully closed during the pandemic for 15% to 40% of instruction days across the European Union. Closures tended to be longer in countries with lower GDP per capita, in particular in Eastern and Southern Europe (Figure 27). Moreover, parental income and the quality of schools' digital infrastructure — two factors helping to mitigate the impact of closures on learning losses — tend to be higher in wealthier Member States (Figure 28). However, notable exceptions exist. Before the pandemic, schools had better digital infrastructure in the Baltics than in Germany and France. For example, in Estonia, all learning materials were already online before the pandemic (OECD, 2020). Unsurprisingly, the initial level of digitalisation also facilitated the shift to remote learning (OECD, 2020). Low levels of digitalisation may also partially explain parents' disappointment with remote schooling in some countries. For example, 64% of parents in Germany thought that their children at primary and secondary school learned much less than usual during lockdowns. Analyses show that even during the second lockdown early 2021, children still spent three hours less on school tasks per day.<sup>12</sup>

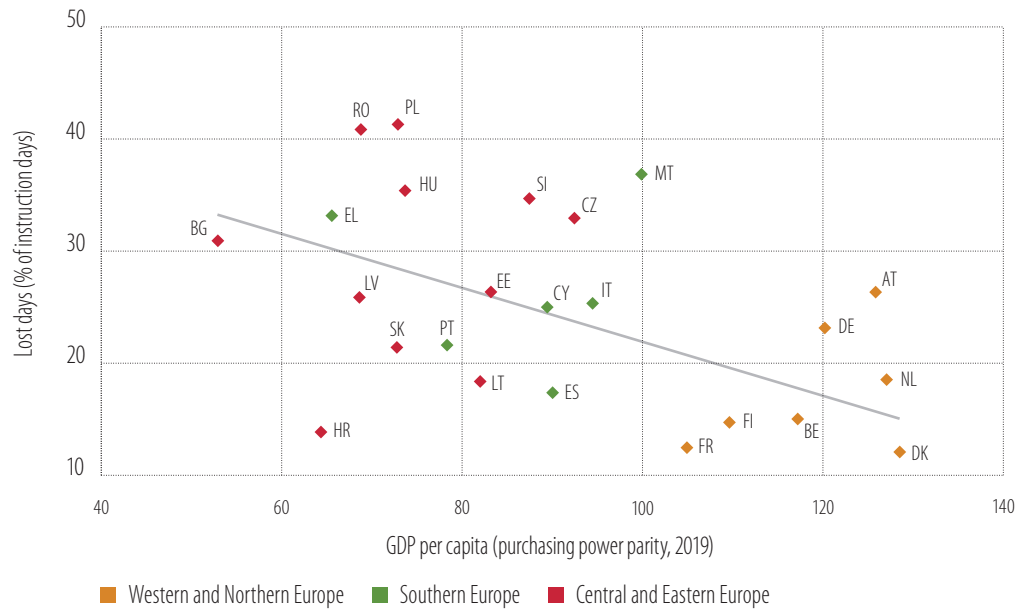
<sup>10</sup> Based on a regression of hourly wages of 30–55 year-old full-time employees on education, its square, and controls for age, gender, immigration status, willingness to trust others, and parents' highest educational qualification, and country of residence. Sample: EU members in PIAAC (BE, CZ, DK, EE, EL, ES, FI, FR, IE, IT, LT, NL, PL, SI, SK, UK; 23 049 observations in total). For the coefficient estimates, see Box A, Table A.1, column 2.

<sup>11</sup> The academic literature debates whether the link between years of schooling and earnings is causal or reflects the common effect of a student's unmeasured ability on both schooling and wages. Estimates yielded from attempts to identify the causal effect of schooling are sometimes higher and sometimes lower than what we obtain here.

<sup>12</sup> Parent satisfaction quoted from Thorn and Vincent-Lancrin (2021) and Woessman et al. (2021).

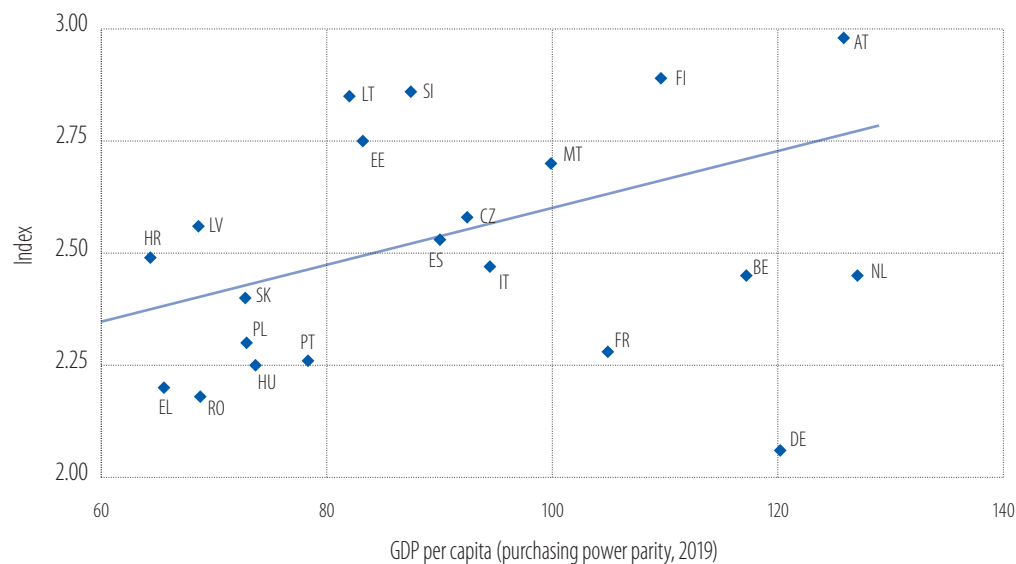


**Figure 27**  
School days lost during the pandemic vs. GDP per capita



Source: Eurostat, UNICEF, authors' calculation. Days of full school closure during 26 February 2020 - 31 August 2021.

**Figure 28**  
Schools' digital capacity and parental wealth vs. GDP per capita



Sources: Eurostat, OECD, authors' calculation. Digital capacity is proxied by school principals' assessments of whether an online learning platform is available.

**The impact of school closures on already disadvantaged children is likely to have accentuated social disparities.** To contain the pandemic, distance learning replaced in-person classes in many places. The success of distance learning arguably depended not only on material factors, such as schools' digital infrastructure and parental income, but also on the support offered by teachers and parents and students' personalities (see, for example, OECD, 2021d). Students who received little material support and those who were less resilient were already likely to spend less time in formal education and to earn considerably less over their lifetime before the pandemic hit. Box A provides evidence for this potentially regressive effect of school closures.

### Box A

#### The potentially regressive effect of school closures

Before the pandemic, disadvantaged students were already expected to spend less time in formal education and to earn considerably less over their lifetime. Unfortunately, those students were also less likely to benefit from remote learning. The success of distance learning depends on many factors including schools' digital capacity and parental income, but also on teachers' digital skills and their ability to engage with students remotely, students' determination, resilience and appreciation of education, and their parents' emotional support. Two OECD surveys measure proxies of these variables and enable us to link them to educational outcomes and wages. PIAAC collected information about the skills, personality traits, education and employment status of adults from 2011 to 2015, while the Programme for International Student Assessment (PISA) combined information about the skills, schools and life of 15 year-olds in 2018.

We show this potentially regressive effect of school closures by combining these two OECD surveys. We combine PIAAC and PISA through information that is present in both surveys and assume that schoolchildren interviewed for PISA have the same education and employment prospects as adults interviewed for PIAAC with comparable characteristics. Relevant characteristics that are available in both surveys include gender, immigration background and parents' educational background. These characteristics help predict family wealth, support from families, and, to some degree, the digital equipment of the interviewee's school (Table A-2). Students' determination, resilience and appreciation of school education are more highly associated with whether a student is bullied at school. This information is available in PISA but not in PIAAC. However, PIAAC includes information about whether the interviewee tends to trust others. We assume that being bullied at school reduces an individual's willingness to trust others later in life (Jantzer et al., 2006).

Students who appear to benefit less from distance learning were already likely to earn about a third less over their life. Students whose parents do not have at least upper secondary education tend to spend over two years less in education (Table A-1, column 1). Similarly, students from immigrant families spend about half a year less in education. Partly as a result, their lifetime earnings are 20% lower if both parents are without upper secondary education, and by 14% if their family has immigrated. These students also have lower family wealth, receive less support from their parents, and tend to go to schools with worse digital equipment (Table A-2, columns 1-4). They are therefore less likely to have benefited from remote learning. Being bullied at school is associated with weaker work discipline, lower resilience and lower appreciation of school education (Table A-2, columns 6-8). In turn, those less willing to trust others tend to spend over a year less in education, and expect to earn about 18% less over their life (Table A-1, column 2). Gender has a clear impact on earnings (20% less for the women in our sample), but not on the ability to take advantage of distance learning opportunities: girls score more highly on discipline and on appreciating education but lower on resilience (Table A-2, columns 6-8). Finally, students whose parents did not have at least an upper secondary education, and those less willing to trust, are also less likely to enjoy learning new things as adults (Table A-1, column 4). This matters because lifelong learning is a prerequisite for adapting to structural economic changes, such as digitalisation.

Initial evidence about the extent of learning losses during the pandemic is mixed. There are not yet any systematic international studies about the impact of the pandemic on learning losses. Initial results from a patchwork of studies do not show a clear trend (see Thorn and Vincent-Lancrin (2021) for an overview).

**Table A.1**

**Impact of schoolchildren's characteristics on expected time spent in formal education, lifetime income and enjoyment of learning**

	(1)	(2)	(3)	(4)
	Time spent in formal education (years)	Hourly wages (log)	Hourly wages (log)	Likes to learn (degree of agreement)
Parents' educational background: at least one parent has upper secondary education	2.3***	0.2***	0.08***	1.7***
Immigration status: interviewee is first or second generation immigrant	-0.4***	-0.14***	-0.13***	1.1***
Trust: interviewee disagrees with at least one of the following statements: "Others take advantage of you," "I trust only few people"	1.3***	0.18***	0.09***	1.2***
Gender: interviewee is female	0.3***	-0.15***	-0.195***	1
Education: years of formal education			-0.03***	
Education: years of formal education, squared			0.004***	
Number of observations	40 736	23 153	23 049	86 720
R-squared	0.24	0.4	0.5	

*Sample:* EU-resident students surveyed in PIAAC (2011-15). (1) – (3) report slope coefficients of ordinary least squares (OLS) regressions; (4) reports odds ratios of an ordered logit. All regressions include country fixed effects. Robust standard errors (\*\*\* = 0.1%, \*\* = 1% significance).

**Table A.2a**

**Impact of schoolchildren's characteristics on their ability to benefit from remote schooling**

	(1)	(2)	(3)	(4)
	Family wealth	Parents' support for learning at home	Parents' emotional support	Schools' digital equipment
Parents' educational background: at least one parent has upper secondary education	0.4***	0.2***	0.17***	0.04*
Immigration status: interviewee is first or second generation immigrant	-0.4***	-0.16***	-0.3***	-0.03*
Bullying: top quartile of summary indicator of being left out, made fun of, subject to rumours, threats, theft or violence	-0.06***	0.05*	-0.08**	-0.01
Gender: interviewee is female	-0.07***	0.08***	0.09***	-0.01
Number of observations	145 253	29 361	29 196	139 591
R-squared	0.15	0.04	0.07	0.09

*Sample:* EU-resident students surveyed in PISA (2018). Dependent variables in (1) – (8) are all derived by the OECD from responses of questions included in PISA. All regressions include country fixed effects. Robust standard errors (\*\*\* = 0.1%, \*\* = 1%, \* = 5% significance).

**Table A.2b****Impact of schoolchildren's characteristics on their ability to benefit from remote schooling**

	(5) Teachers' digital abilities	(6) Student's determination	(7) Student's resilience	(8) Student's valuation of school
Parents' educational background: at least one parent has upper secondary education	0.01	0.05**	0.07***	0.04*
Immigration status: interviewee is first or second generation immigrant	-0.04***	0.05*	0.08***	0.04*
Bullying: top quartile of summary indicator of being left out, made fun of, subject to rumours, threats, theft or violence	-0.02**	-0.13***	-0.24***	-0.14***
Gender: interviewee is female	-0.01*	0.17***	-0.12***	0.19***
Number of observations	139 946	136 038	141 480	143 964
R-squared	0.06	0.08	0.03	0.05

*Sample:* EU-resident students surveyed in PISA (2018). Dependent variables in (1) – (8) are all derived by the OECD from responses of questions included in PISA. All regressions include country fixed effects. Robust standard errors (\*\*\* = 0.1%, \*\* = 1%, \* = 5% significance).

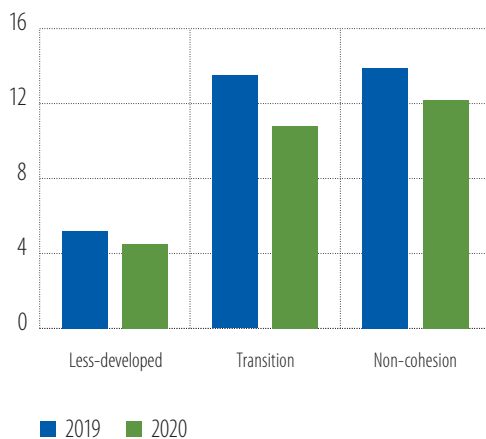
**The pandemic is likely to have also slowed learning by groups other than school-age children.** Early childhood education, which can help bridge the learning gaps of pre-school children from disadvantaged backgrounds, closed as well. As closures were more prevalent in Southern and Eastern Europe, regional cohesion might suffer in the long term (OECD, 2021). Policy support measures were mostly geared towards preserving existing employment, but many young people faced the daunting challenge of having to find new jobs during the pandemic, when many firms were more reluctant to hire, particularly for entry-level positions. Young people with lower levels of education tend to have more difficulty entering the labour market. They are also more often unemployed and are unlikely to participate in further education or training. Evidence from previous crises suggests less advantaged students experience the negative effects of entering the labour market in a downturn for longer (Oreopolous, 2012). Workers with lower levels of education may find it more difficult to change careers in a shifting labour market.

**Adults participated less in education and training** (Figure 29). Not only did on-the-job training suffer as workplaces closed, but it also seems that fewer firms invested in the formal training of their workforce. The share of firms investing in the training of their workforce dropped by some 10 percentage points on average (Figure 30). The consequences of less training will be felt throughout the European Union. A shortage of skilled staff is the most frequently cited investment barrier across the European Union (see Chapter 2). Like school closures, the shortage of skilled staff also has regional and a social dimensions. Training declined from an already low level in less developed regions, suggesting that only a very small share of adults were able to enhance their skills through dedicated education and training. In addition, disruptions to training appear to have had a particularly strong impact on vulnerable groups in the labour market, such as migrant workers (Institute for Employment Research (IAB), 2020).

**Firms undertaking transformative investment continued to invest in their workforce.** In recent months, employment in most firms remained constant. However, those better-positioned to see the crisis and the related changes as an opportunity to undertake transformative investments were more likely to invest in their workforce. Firms that see opportunities linked to the climate transition and that invested in advanced digital technologies also appear more inclined to invest in their workforce (61% vs. 40%). The firms leading the green and digital transformation invest in training more often across all regions,

which contrasts sharply with firms not investing in green and digital (Figure 31). Training investment and activities for small firms<sup>13</sup> also appear to have been more heavily disrupted as many small firms were facing existential threats and levels of digitalisation tend to be lower, posing challenges for maintaining training efforts.

**Figure 29**  
**Participation in education and training**  
(in %, share of adults, 24-64, in the last four weeks)



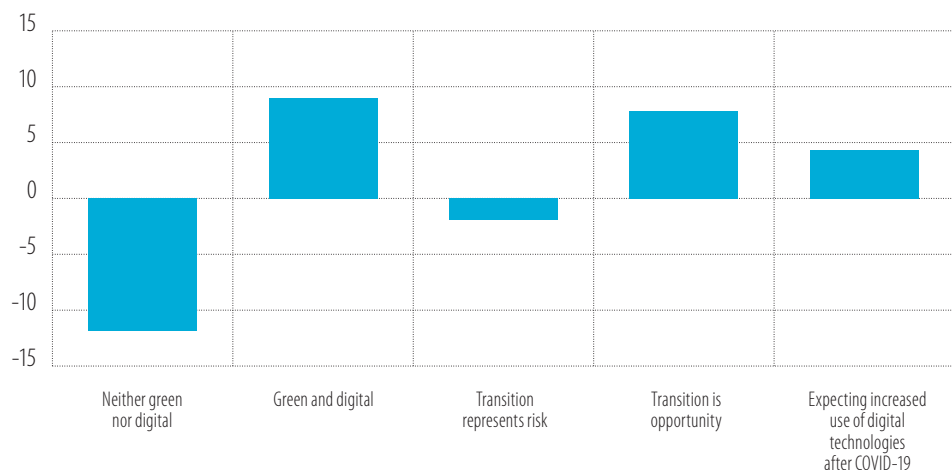
Source: Eurostat, authors' calculation.  
Note: Adults participating in education and training in the four weeks preceding their interview.

**Figure 30**  
**Firms investing in training (in %)**



Source: EIBIS 2020, 2021.  
Note: The percentage of firms that invest more than EUR 50 per employee in training. Numbers above bars indicate year-on-year differences in percentage points.

**Figure 31**  
**Differences in the share of firms' investing in training (in percentage points), by firm type compared to the EU average**



Source: EIBIS 2021.  
Note: The percentage of firms that invest more than EUR 50 per employee in training.

<sup>13</sup> We distinguish between firms with fewer than 50 employees and those with over 50 employees.

## Creating opportunities for people and places

**The recovery presents opportunities for regional and social cohesion.** The joint EU policy response to the crisis — such as **NextGenerationEU** and the European Union's long-term budget, the Multiannual Financial Framework — provides plenty of support for rebooting economies and facilitating profound structural transformation (See "Fiscal policy in the recovery phase" in Chapter 1). These funds must be used diligently to address structural divergences, reduce the risk of long-term scars from the pandemic and ensure that the benefits of the green and smart transition are broadly shared.

**For the financial support to be used most effectively, governments need to address capacity gaps and barriers to investment.** The urgency in addressing these gaps is most acute for cohesion regions, where a lack of funds is a bigger problem. However, investment barriers do not stem solely from a lack of access to finance. Barriers also include complicated regulatory processes and general uncertainty. According to municipalities in cohesion regions, these barriers are the key obstacles to infrastructure investment, green or otherwise (Figure 32 and EIB, 2021b).

**Tackling investment and capacity barriers might also help municipalities in cohesion regions to halt or even reverse population declines.** Strengthening capacity is key to implementing investment plans, helping to address infrastructure gaps, making lagging regions more attractive and benefiting people and firms in their respective locations. The population in some urban centres appears to have stopped growing during the pandemic (Destatis, 2021). However, if urban areas recover faster, migration away from rural areas might soon pick up again, just as migration followed job opportunities in the aftermath of the global financial crisis. To halt or reverse population declines, regions must create attractive living and investment conditions. Investment in digital connectivity and social infrastructure appears crucial in this respect and, in combination with shifts in work practices, could provide positive stimulus for some lagging regions. In this way, digital investments have the potential to help regions converse and improve overall social inclusion, particularly if they are combined with coherent policies to strengthen competitiveness, broaden access to digital infrastructure and foster digital skills.

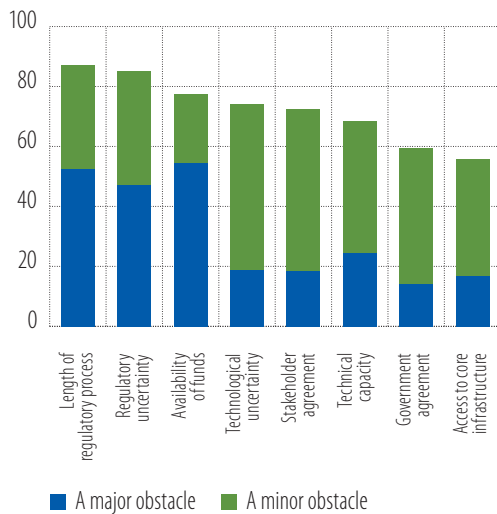
**Firms — particularly those driving the green and digital transformation — stand to benefit from lower barriers to investment.** While firms in cohesion regions generally report more barriers, firms investing in climate change-related measures and digitalisation feel an even greater effect. The limited availability of skills stands out as an obstacle to firms driving the green and digital transition, and most often in less developed regions (Figure 33). At the same time, the firms leading the green and digital transition are, on average, more productive, pay higher wages and invest more often in the training of their workforce (EIB, 2021). Reducing key barriers to their operations can thereby help them to grow, generate wider benefits for their regions and advance the digital and green transformation across the European Union. Moreover, addressing barriers could also help attract new investors.

**Firms' climate change and digitalisation activities influenced employment and training during the pandemic and will continue to do so afterwards.** Firms forging ahead with digital and green investments are more likely to have increased employment during the crisis than firms that did not invest in digital technologies and climate change-related measures (Figure 34). Similarly, significant differences exist in investment in employee training across firms. While the pandemic took a toll on training, firms that have invested in digital technologies and climate change measures were more likely to continue investing in their workforce, which indicates resilience and the capacity to drive changes in the future.

**Firms driving the digital and green transformation are helping to update skills and offer employment even in the current environment.** Green and digital firms were more than twice as likely to continue investing in 2021. However, fewer firms have invested in climate measures and digital technologies in cohesion regions. The variation across regions may also be related to the prevalence of teleworking and the ability to deliver training online, which often proved difficult, particularly for smaller firms (OECD, forthcoming). Before the pandemic, smaller firms were already less likely to offer online training than

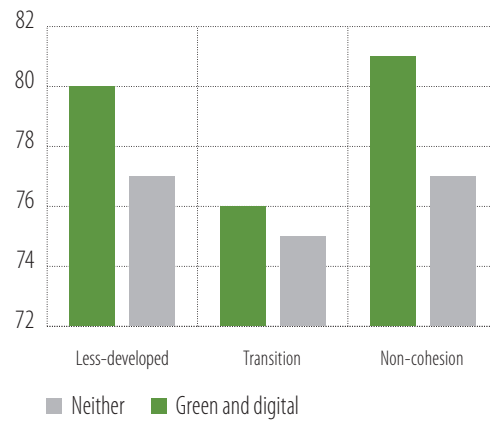
large companies, or those that were part of a multinational corporation. This implies that smaller firms were less prepared to transition to online training when COVID-19 struck. The disparities underscore the need to improve the business environment to support the growth of successful firms.

**Figure 32**  
Lack of funds remains an important barrier for municipalities in cohesion regions (in %)



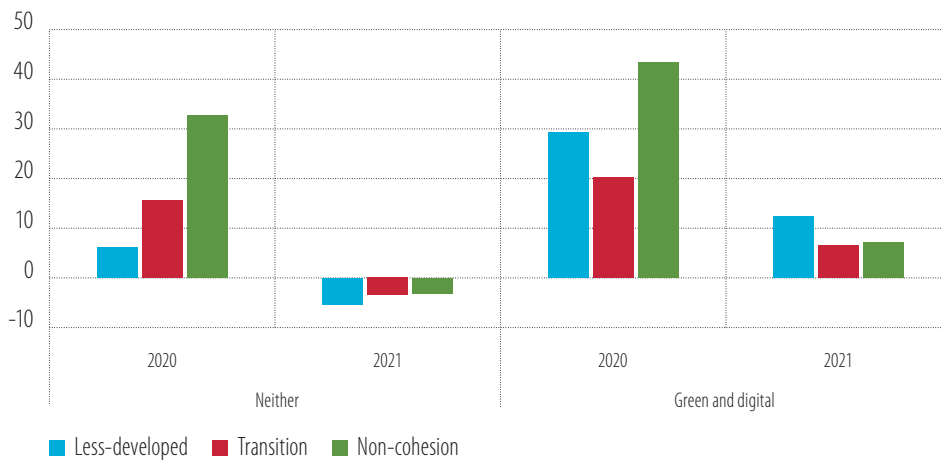
Source: EIB Municipalities Survey 2020.  
Question: To what extent is each of the following an obstacle to the implementation of your infrastructure investment activities? Is it a major obstacle, a minor obstacle or not an obstacle at all?

**Figure 33**  
Skills as an obstacle to investment for “green and digital” firms vs. “neither” firms (% of firms reporting skills as an obstacle), by region



Source: EIBIS 2021.  
Question: Thinking about your investment activities, to what extent is the availability of skills an obstacle? Is it a major obstacle, a minor obstacle or not an obstacle at all?

**Figure 34**  
Share of firms increasing vs. those decreasing employment (net balance in percentage points), for firms that are “green and digital” and for firms that are “neither”



Source: EIBIS 2021.  
Question: How many people did your company employ either full or part time at all its locations at the beginning of 2020, before the COVID-19 pandemic?  
Note: The graph shows the share of firms increasing employment minus the share of firms decreasing employment for the respective EIBIS waves. Differences in percentage points.

**A high quality business environment is conducive to the creation and growth of new firms.** Such an environment is vital for economic dynamism, generating employment opportunities and driving structural change in Europe. Entrepreneurial activity in recent years showed some sectoral shifts towards ICT in Europe, and these businesses are generating jobs.<sup>14</sup> While these are positive developments, maintaining and accelerating momentum is important. Similar shifts in the kind of startups being created are seen in the United States, where entrepreneurs face a better-developed ecosystem for starting up and scaling up a business. This means that the drop in startups at the beginning of the pandemic might negatively affect competitiveness. While overall business creation followed a similar trend (a sharp drop in the second quarter of 2020 but with a quick rebound), the pace of applications for new businesses in the United States has surged to a record high since the middle of 2020 and that surge has continued into 2021 (Haltiwanger, 2021). Similarly, the number of unicorns (young firms with a market valuation of USD 1 billion or more) based in the United States more than doubled, exceeding those based in the European Union by a factor of five.

**The resilience of parts of the EU funding landscape during this crisis is a remarkable achievement** (EIF, 2021). Policy measures help keep credit markets functioning, and this presents an opportunity for the founding of new businesses as the economy moves into recovery. To seize the opportunity of the recovery, however, Europe must improve the environment for startups and address structural barriers (other than access to funds) that prevent them from thriving. Making sure that people have the right skills will also be important for the growth of new firms. Analysis based on the EIBIS special survey on digitalisation and skills illustrates that skills are real barrier for firms trying to scale up (EIB, 2018).

**Investment in human capital is key to an inclusive recovery and economic transition.** Dedicated measures would help people particularly affected by school closures and would ideally improve investment in the modernisation of educational systems. Investment in education is an opportunity to reap multiple dividends for growth, inclusiveness and resilience of the EU workforce.

**The pandemic has boosted the digitalisation of schools, creating new opportunities for future education.** In addition to investing in digital infrastructure, almost all EU members provided some support to teachers with IT training and professional development activities on teaching and the effective use of technologies. Continuing in this direction could create new educational opportunities. Digital resources can provide teachers with feedback on their teaching and their students' progress, and make it easier to adjust the speed of learning to individual students' skills. Digital platforms can also facilitate collaboration between teachers and the curation of learning materials.

**Taking advantage of these opportunities requires continued investment in IT infrastructure and in teaching skills.** Grants from the **Recovery and Resilience Facility** play an important role in funding these investments. Many EU members (such as Austria and France) intend to use some of the €723.8 billion in grants and loans to purchase IT equipment for schools, support the acquisition of digital devices for low-income families (such as Greece and Slovakia) and to fund teacher training (such as the Czech Republic and Portugal).

**Many EU members have taken action to address the impact of school closures.**<sup>15</sup> Almost all attempted to reduce learning gaps. Disadvantaged students, in particular those at risk of dropping out, were the focus of these measures in two-thirds of EU members. Just under half of EU members implemented programmes with a special focus on immigrant or minority students. This included additional financial support in the form of cash transfers or subsidies for acquiring digital devices, provided in particular to low-income families in more than half of EU members, and to help with accessing learning platforms and/or setting up self-paced learning platforms, in particular for children with disabilities in half of EU members.

<sup>14</sup> Based on Eurostat sectoral LFS data and Crunchbase analysis.

<sup>15</sup> The following figures report summary statistics for EU Member States computed from the OECD survey *The state of education during the Covid pandemic* (2021) as far as they pertain to primary and secondary education.



**Nevertheless, a broader range of policies must be adjusted to ensure that education systems promote social mobility.** Parental background — both wealth and educational achievements — appears to be a deeply engrained determinant of students' educational achievements. This hinders social mobility. A wide range of policies have been identified to improve social mobility, such as offering early childhood education independently of parental income, insuring parents against income losses (for example by facilitating the re-integration of parents into the labour market) and addressing geographical segregation of poor families (see, for example, OECD, 2018).

**High quality education systems are the basis for building the skills people need to thrive in a changing labour market.** People's ability to adjust to unforeseen circumstances has been necessary across the European Union and in occupations requiring different levels of skills (Box B). Firms are also increasingly seeking digital skills. The changing labour market underscores the need to invest in quality education from early ages on to foster the skills that will help people adapt and thrive.

### Box B

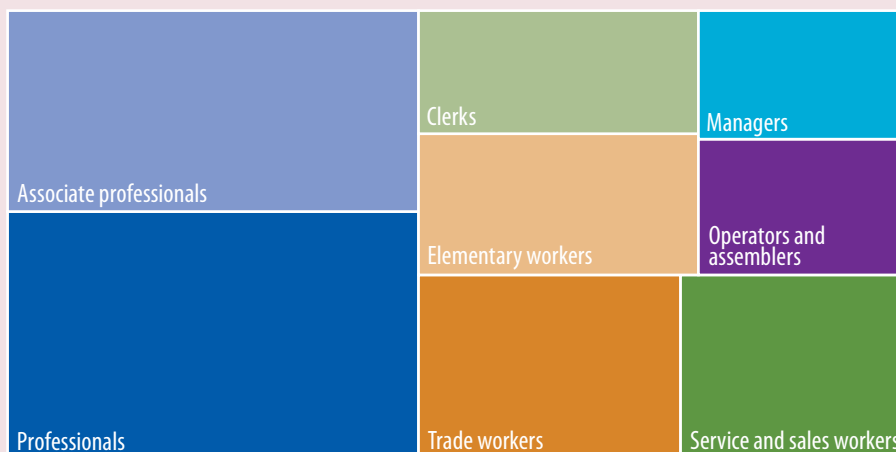
#### What skills are firms seeking in a fast-changing labour market?

We analyse data based on Skills-OVATE, an online vacancy analysis tool for Europe, powered by the European Centre for the Development of Vocational Training (Cedefop) and Eurostat. Skills-OVATE provides detailed information on the jobs and skills employers seek based on online job advertisements.

When looking at occupations searched in 2020/2021, we can see that most online job advertisements targeted professionals (25%), associate professionals (20%) and trade workers (12%).

#### Figure B1

##### Structure of online job advertisements, by occupation, (in %)



Source: Skills Online Vacancy Analysis Tool for Europe (Skills-OVATE).

Note: This figure provides information on the occupations (on ISCO 1 level) sought in online job advertisements from the second quarter of 2020 to the first quarter of 2021, for the European Union. Size of rectangles indicate shares.

The COVID-19 pandemic had a strong effect on job openings. Only the number of job advertisements for managers and professionals increased from the first quarter of 2020 to the first quarter of 2021 — all other occupations were less sought-after.

The database shows us not only what jobs employers were looking for, but also the skills in demand. In 2020, 44% of job ads sought employees that adapt well to change. This share is even higher when focusing on managers (65% of job ads for managers mention that “adapt to change” is a required skill for the job). Focusing on digitalisation, “accessing and analysing digital data” and “using digital tools for collaboration and productivity” were the most sought-after digital skills in the EU27. Job ads for managers mentioned digital skills more often than those for the average worker.

**Figure B.2**

**Change in online job advertisements (in %), by occupation**

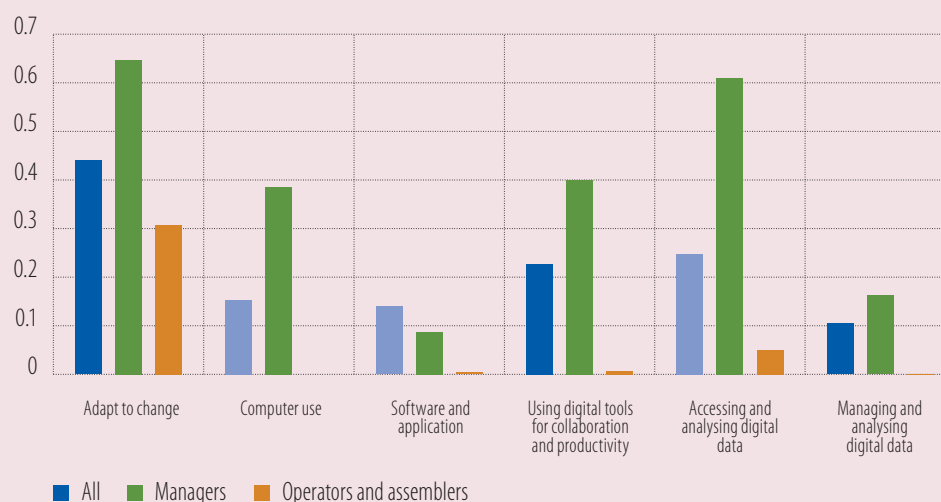


Source: Skills Online Vacancy Analysis Tool for Europe (Skills-OVATE).

Note: This figure provides information on how the demand for occupations changes over time (on ISCO 1 level). It displays the percentage change in the number of online job advertisement by occupation from the first quarter of 2021 compared to the first quarter of 2020, for the European Union.

**Figure B.3**

**Skills most sought-after by employers (in %)**

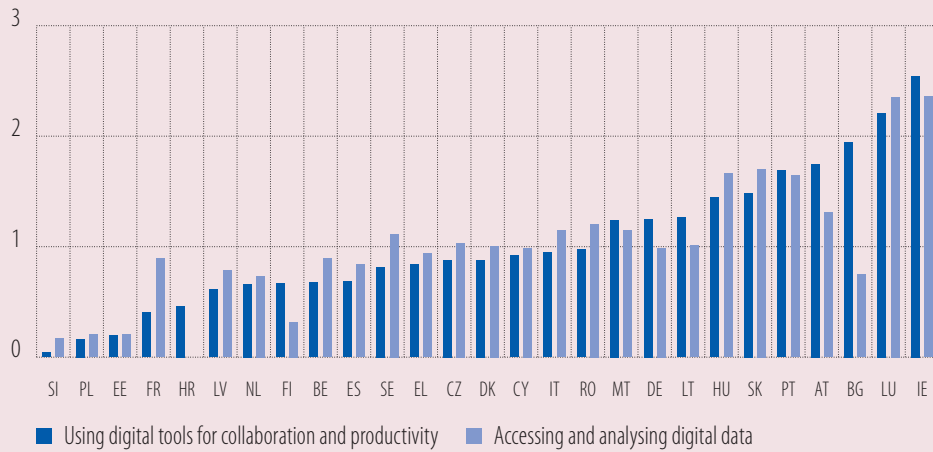


Source: Skills Online Vacancy Analysis Tool for Europe (Skills-OVATE).

Note: This figure provides information on the importance of a skill group in different occupations from the second quarter of 2020 to the first quarter of 2021, for the European Union

A huge variation among EU countries can be observed when comparing the digital skills sought. Irish and Luxembourg companies were more than twice as likely to search for “using digital tools for collaboration and productivity” and “accessing and analysing digital data.”

**Figure B.4**  
Digital skills employers are seeking (1 = EU average)

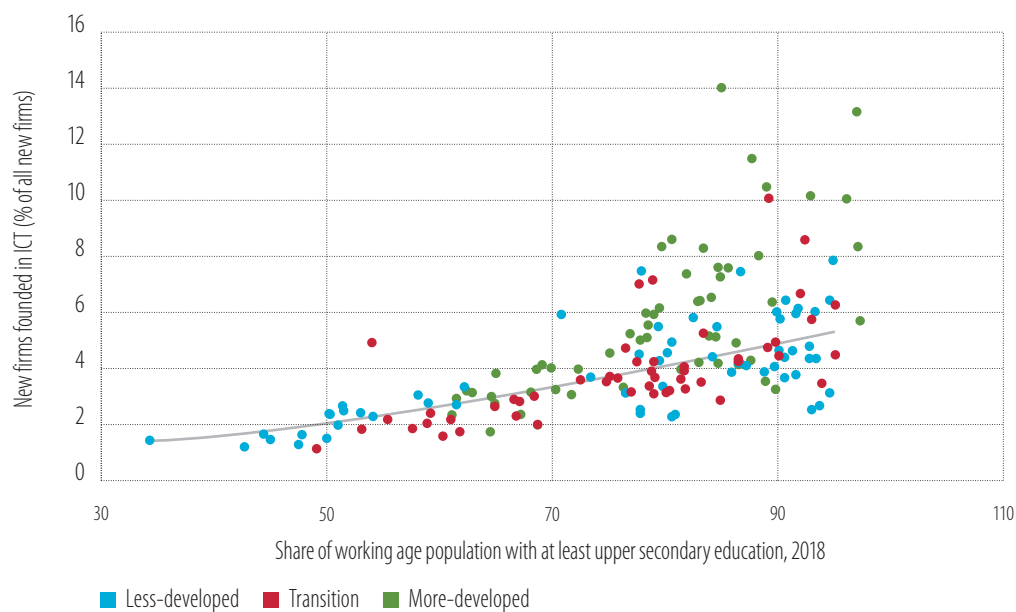


Source: Skills Online Vacancy Analysis Tool for Europe (Skills-OVATE).

Note: This chart provides information on the importance of skills in different occupations in the second quarter of 2020 compared to the first quarter of 2021.

**A highly skilled workforce can help economies to adjust to shocks and facilitate structural change.** An important way to adjust to structural shocks is to create new firms. The numbers of newly created firms are not generally higher in richer economies, nor are they generally higher in regions with a more highly skilled workforce. For example, some regions in Southern Europe have seen many new firms created for personal services. Firm creation in sectors that drive growth (such as ICT) occur more frequently when the workforce is highly qualified (Figure 35). Another way to adjust to structural shocks is to support the adoption of new digital technologies, which also tends to be higher in countries with a relatively well-developed skill base (see Chapter 5 for further discussion).

**Figure 35**  
Higher education is associated with larger rates of newly created ICT firms



Source: Eurostat, authors' calculation.

## Conclusion and policy implications

**The pandemic provoked a severe health and economic crisis that affected all Europeans, but the shock was felt differently by various socioeconomic groups and geographical regions.** The impact of the pandemic exacerbated existing gaps. Regional and social disparities posed considerable challenges even before the COVID-19 pandemic. The global financial crisis slowed regional convergence and exacerbated divergences among different social groups. Divergences that widened during the pandemic risk persisting during and after the recovery.

**The pandemic shock may have a negative effect on cohesion well into the future through its impact on business dynamism, human capital and firms' capacity to adapt to a changing environment.** Businesses' ability to spot and to take advantage of the opportunities of structural changes in the economy is crucial for regional prosperity and local employment. Structural gaps and challenges in the business environment weaken firms' resilience and their capacity to adapt. Focusing on the quality of the business environment and productivity-enhancing reforms across Europe, particularly in lagging regions, is therefore necessary for growth and cohesion.

**Investment is key to mitigating the negative effects of the pandemic on human capital formation and long-term prosperity.** Policymakers must prioritise improving skills for people hardest hit by the crisis. Skills can be improved through dedicated training and employment incentives that target young people, displaced workers and the most vulnerable groups in the labour market. To limit the negative effects of school closures, support programmes and additional resources are needed for schools to address the learning gaps. Dedicating more resources to education, such as ensuring that schools are well equipped and staffed, is crucial. It will ensure that schools provide opportunities for young people and equip them with the skills they need to thrive in a changing labour market. Education is essential for personal and economic resilience.

**Leaving social and regional disparities unaddressed would likely exacerbate Europe's cyclical and structural challenges, particularly those linked to the green and digital transition.** Failing to address the risk of rising inequality and social exclusion would deepen social divisions. These risks could slow the economic recovery, productivity growth and the transition towards a greener and smarter economy in Europe. Europe urgently needs to renew its support for social and geographical cohesion.

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