

Employment and labour markets

Regional employment change and the geography of telework in Europe



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Country codes

AT	Austria	ES	Spain	LV	Latvia
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DK	Denmark	IT	Italy	SE	Sweden
EE	Estonia	LU	Luxembourg	SI	Slovenia
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Executive summary

Introduction

The EU has seen an increase in the importance of capital city regions (capital regions) as drivers of innovation and growth and as centres of economic and human development. In January 2021, 16.3% of EU residents – 72.7 million people – were living in the EU's 27 capital city metropolitan regions. This is notwithstanding well-known disadvantages, such as a higher cost of living and congestion issues.

Meanwhile, sparsely populated areas continue to face long-term economic decline and depopulation, with an exodus of people to cities in search of economic prosperity. Fewer job opportunities, restricted access to public services and weaker infrastructure are among the challenges encountered by people living in rural areas. At the same time, they enjoy more affordable and spacious housing, less pollution and more natural amenities.

This report provides evidence on recent employment dynamics across EU regions, focusing on how patterns of sectoral specialisation and potential for remote work may have contributed to the resilience of capital regions and mainly urban regions to the COVID-19 crisis. The report investigates the key role of telework in providing a buffer against the employment shock caused by the pandemic, and telework's continued importance in the post-pandemic recovery from a regional perspective. It also investigates the factors that contribute to remaining urban–rural differences. Finally, the report looks at how public policy could leverage opportunities to telework in rural and peripheral areas to foster more balanced regional development.

Policy context

Strengthening economic, social and territorial cohesion is a key objective of the EU. Cohesion policy is the main instrument used to promote balanced and sustainable regional development, for example by supporting less developed regions. To date, the EU has been successful in reducing economic disparities between Member States. However, many rural areas face economic and social challenges, such as population decline, lack of adequate employment opportunities, underdeveloped infrastructure and more limited internet connectivity.

At the same time, large urban centres – especially capital cities – continue to play a crucial role in economic development. They have reaped the benefits of the teleworking revolution, but they also face

significant sustainability challenges: overpopulation (which can translate into pressure on essential services including healthcare and housing), pollution and social inequalities. In this context, the expansion of teleworking might be seen as an opportunity for the economic and social renewal of rural areas.

The issues of regional disparities and geographical diversity within the EU are therefore as relevant as ever. There is mounting evidence that regional differences in prosperity and economic dynamism translate into disparities in living standards and access to resources, which in turn have social and political ramifications, as they can foster a sense of discontent, resentment and anxiety in regions that are perceived as being 'left behind'.

Key findings

- In 2022, almost 90% of EU NUTS 2 regions had employment rates that were above their pre-COVID-19 levels. More than two-fifths of all regions had an employment rate equal to or above 78%, the EU's employment rate target for 2030. However, marked differences persist.
- Of the 10 regions with the highest employment rates in 2022, 6 were capital regions. They experienced the strongest employment growth between 2019 and 2022, notably in high-paid jobs; they were also more exposed to job losses in low-paid contact-intensive jobs.
- In capital cities, 1 in 4 workers are employed in knowledge-intensive services in the private sector, compared with 1 in 10 in mainly rural regions. The resilience of employment in capital regions and mainly urban regions to the COVID-19 crisis was in part due to the high proportion of work that could be performed remotely.
- Among the 20 regions with the largest shares of people working from home in 2022, the majority encompass national capitals or surround them. Across the EU, teleworking rates have diverged between urban areas and the rest.
- Across Europe, some noteworthy initiatives have been launched since the onset of the COVID-19 pandemic to support remote work in rural, peripheral or marginalised areas through the creation and expansion of coworking spaces. These have the potential to contribute to the social and economic regeneration of the communities in which they are located.

Policy pointers

- The persistence of significant regional differences in rates of employment and incidence of telework may pose a risk of territorial divergence, with urban and capital areas disproportionately reaping the benefits of the digital revolution.
- The factors attracting employers, workers and infrastructure investment to cities – including economic dynamism, with deep labour markets, abundant business opportunities and good access to amenities and public services – are self-reinforcing and remain relatively constant over the short term. However, long-term regional industrial and innovation policies have the potential to change demographic and economic disparities between rural and urban areas by enabling regions to leverage their unique features and by deepening the understanding of place-specific opportunities.
- Telework can make it possible to uncouple economic specialisation from place of work, as it relaxes constraints on relocation, thus creating new opportunities for regional development. Public policies can support remote work in rural, peripheral or marginalised areas through targeted initiatives, for instance aimed at the creation of coworking spaces. These can promote dynamism and diversity in rural economies by attracting knowledge-based workers and entrepreneurs.
- Fast internet connectivity is the essential enabling technology for telework. Efforts to achieve policy targets on internet connectivity in both urban and rural areas have taken on a new urgency and impetus since the COVID-19 pandemic.
- By 2022, rural areas on average were enjoying faster internet speeds than cities had done only three years previously. Nevertheless, internet speeds in cities have improved even faster, slightly widening the urban–rural gap. The Digital Decade policy programme 2030 provides for further investments in internet connectivity, with particular attention paid to rural areas.
- Rural areas face multiple and complex challenges in terms of economic and demographic decline, which internet connectivity alone cannot solve. Investments in transport infrastructure and in (essential) public services are also needed to prevent them becoming ‘lonely places’ (places that are vulnerable in terms of accessibility or connectivity, for example).
- While remote work can offer opportunities for relocation outside cities, urban areas continue to be very attractive to a large share of the population, especially among younger people. Public policy can do more to shape the transition to a more sustainable future for cities, to make them more liveable.

Introduction

Growing importance of the regional dimension

Over the past 30 years, gross domestic product (GDP) per capita in the EU has more than doubled¹ and economic disparities between Member States have been decreasing. However, prosperity is not evenly distributed among the EU's regions. Disparities in labour productivity persist, with regions at the top end of the distribution being more than twice as productive as the EU average and those at the other end of the range having labour productivity indices below one-third of the EU average (Eurostat, 2023a). The 2022 EU Regional Competitiveness Index also shows large differences between regions, with regions that host large urban areas performing well (European Commission, undated).

Disparities in productivity and competitiveness are reflected in large regional variations in labour market opportunities and, in turn, in employment and population growth. According to World Bank data, three-quarters of the EU27 population (75%) lived in urban or built-up areas in 2021, compared with 59% in 1960 and 71% in 2000 (World Bank, 2023a, 2023b). The structural shift in economic activity towards the services sector has meant an accelerated process of agglomeration of populations in cities. The share of the EU population living in urban areas is forecast to increase to 90% by the end of the century (Clarke et al, 2018).

In particular, the EU has witnessed an increase in the importance of capital regions as drivers of innovation and growth and as centres of economic and human development. In January 2021, 16.3% of EU residents – 72.7 million people – were living in the EU's 27 capital city metropolitan regions (Eurostat, 2022a). This is notwithstanding well-known disadvantages in terms of a higher cost of living, a higher cost of labour and congestion issues, which are counterbalanced by a variety of advantages. In addition to the crucial role that capital cities play in the economic development of the EU, they remain important centres for culture and entertainment, education and learning, ethnic diversity, and political power and decision-making.

Before the COVID-19 crisis, capital regions appear to have been a significant vector of employment polarisation, as they tended to generate a

disproportionate share of new employment in well-paid, high-skilled jobs in the services sector, alongside growth in low-paid employment (Eurofound and European Commission Joint Research Centre, 2019). More generally, socioeconomic inequalities have been on the rise in European capital cities, with increasing separation between poor and rich (Musterd et al, 2017). The contribution of global cities to inequality is notably driven by the concentration of financial activities there (Godechot et al, 2023).

Meanwhile, in 2021 only 25% of the EU population lived in rural areas, although they account for more than three-quarters of the EU's territory (Eurostat, 2022b). Sparsely populated areas continue to face long-term economic decline and depopulation, with an exodus of people to cities in search of economic prosperity. Only 1 in 10 predominantly rural regions in the EU reported a positive crude rate of natural population change between 2015 and 2020 (Eurostat, 2023b). Pre-pandemic, it was young people in particular who were leaving, as rural areas were characterised by fewer job opportunities, restricted access to public services and weaker infrastructure. At the same time, people living in predominantly rural regions enjoy many advantages compared with city dwellers, including, for instance, more space, lower living costs, less pollution and more natural amenities.

Taking a long-term perspective on regional disparities, economic and social indicators suggest that the trend towards upward convergence observed at national level across the EU over the past 20 years conceals a growing divergence within many Member States. The issue of regional disparities is therefore as relevant as ever. The Great Recession slowed down the convergence process considerably, leading to north-south and east-west divides at both national and regional levels, with most rural and peripheral regions not recovering from the crisis (Eurofound, 2021a). Overall, disparities are increasing within many Member States (Monfort, 2020), with a growing number of EU regions in a 'development trap' (which occurs when the prosperity of the inhabitants of a region does not improve relative to the region's own past performance and when economic growth in the region falls behind national and EU averages) or at risk of falling into one (European Commission, 2023a).

1 Eurostat [nama_10_pc]; data for the EU27 are available from 1995 onwards.

Interregional differences in prosperity and economic dynamism translate into disparities in living standards and access to resources, which in turn have social and political ramifications, as they can foster a sense of discontent, resentment and anxiety in regions that are perceived as being ‘left behind’. Rural inhabitants are more likely to perceive unfair treatment and lack of consideration from the government and to believe that the government cares less about or ignores people in their area (Eurofound, 2023a). In turn, these feelings can give rise to sentiments of intolerance towards other groups, potentially undermining the social bonds on which our democracies are grounded. The gap in social tolerance between urban and rural areas has grown over time (Eurofound, 2023a).

Multiple shocks and structural challenges

The crises triggered by the COVID-19 pandemic and the Russian war against Ukraine have made it even more challenging for peripheral regions to catch up with the rest of the EU (European Committee of the Regions, 2023). Consequently, the issue of regional inequalities has risen up the public and policy agendas. These divergences, if not tackled, could undermine social and territorial cohesion.

Like the COVID-19 epidemic itself, the impact of the crisis that it created has been unevenly spread, both across groups in society and in geographical terms, with marked differences across regions within countries. This was true of the public health crisis, due, for instance, to the diversity of regional population structures, the health status of regional populations and the ability of regional healthcare facilities to cope with sudden surges in cases (Eurostat, 2021). It was also true of the economic crisis that resulted from the pandemic, notably in relation to the sectoral distribution of employment and more specifically to regions with large shares of employment in sectors that were forced to close. Sectoral exposure (the share of jobs in a sector severely affected by the crisis), and its interaction with the share of employment in small businesses, was identified by Doerr and Gambacorta (2020) as a key factor in predicting the share of jobs under immediate threat from COVID-19 at regional level.

Differences in regional economic structures resulted in variations in the share of people able to work from home during the pandemic, a characteristic positively associated with higher resilience to the labour market shock. Urban areas were richer in the knowledge-based, white-collar services jobs that lend themselves to remote working, while in other areas jobs that could not be performed remotely were more common (e.g. agricultural labour in rural areas) (Sostero et al, 2020). Between 2019 and 2021, the share of employed

people working from home grew more quickly in capital regions and other urban regions than elsewhere (Eurostat, 2021).

The pandemic resulted in an unprecedented shift in the location from which work is carried out, with many workers moving away from the employer’s premises and into their homes. This change entailed an expansion in ‘remote work’, defined by the International Labour Organization as ‘situations where the work is fully or partly carried out on an alternative worksite other than the default place of work’ (ILO, 2020, p. 5). More specifically, work carried out remotely using information and communications technology is called ‘telework’. Previous research by Sostero et al (2020, 2023) has shown that, at the time of the COVID-19 crisis, over one-third of EU employment was ‘technically teleworkable’: thanks to digital technology, workers in these occupations did not face technical constraints on remote work. The widespread adoption of teleworking arrangements during the pandemic raised the prospect of increased employment outside city centres (and notably capitals). One of the reasons for this was that it lifted some of the constraints on relocation to areas with a lower cost of living, allowing for adequate space to work from home. In this context, there has also been increased interest in coworking spaces close to the place of residence in more peripheral and rural areas, and in the role that smaller cities can play in the evolving geography of work and workplaces. The sudden expansion of remote work has also contributed to growing interest in the phenomenon of ‘digital nomads’, defined as professionals who perform work over the internet to enable a lifestyle of constant travelling and living abroad (Schlagwein, 2018).

Previous Eurofound research has extensively documented the impact of the rise in telework on working conditions at the individual level (Eurofound, 2022a). It has also examined the potential implications of future telework and hybrid work scenarios on job quality, organisational practices, and health and well-being (Eurofound, 2023b). However, beyond the individual perspective, at a more aggregate level, the shift towards widespread working from home has interesting implications of a different nature for local urban economies, although long-lasting effects are challenging to assess, as employees’ and employers’ preferences are still evolving. These possible consequences include a decline (or change) in demand for office space in central locations (Savills, 2023); a shift in housing demand away from city centres to the peripheries of urban areas (Ahrend et al, 2022); increasing demand for home space (Mondragon and Wieland, 2022), housing amenities and quiet surroundings (Eurofound, 2023c); changes in consumption patterns and a subsequent decline in demand for locally consumed services (e.g. cafés, restaurants, retail shops) (De Fraja et al, 2021); and a

reduction in commuting trips by public transport accompanied by an increase in less predictable local trips (ITF, 2023).

As European regions adjusted to and bounced back from the COVID-19 crisis, another shock hit in 2022, as a result of Russia's large-scale aggression against Ukraine. In this case, too, the economic and social impacts varied by location. The unprecedented flow of refugees, rising energy prices, and disruptions in trade and global supply chains had significant regional and local implications (OECD, 2022; European Committee of the Regions, 2023). In addition, the growing prevalence of telework has underscored the importance of a stable and resilient internet infrastructure, with cybersecurity threats from cybercriminals and hostile foreign powers being just one of the potential threats. Some of the effects that regions are facing are particularly strongly felt in the wake of challenges already caused by the COVID-19 pandemic in certain regions.

Besides managing crises, regions are also adapting to global trends, which brings both challenges and opportunities. In the EU, regions relying on carbon-intensive energy, or regions in which most employment depends on fossil fuels, are more affected by the transition to climate neutrality (Eurofound, 2023d). Territorial plans for a just green transition have been designed to address the related socioeconomic and environmental challenges (Eurofound, 2023e). The effects of climate change and environmental degradation are also unevenly felt across territories, some of which face, for example, potential implications for local tourism, damage to critical infrastructure, and loss of viability or productivity of local economic activities. These uneven impacts risk deepening existing regional inequalities (European Committee of the Regions, 2023). In addition, most of the EU's urban population is exposed to levels of key air pollutants that are damaging to health (EEA, 2023).

Persistent geographical divides in digital skills and digital infrastructure may hamper the EU's efforts to seize the opportunities presented by digitalisation and technological innovation, both of which will be fundamental in improving the productivity levels and the competitiveness of the EU's regions (Eurofound, 2023a; European Committee of the Regions, 2023).

In this context, the territorial dimension of EU policy is increasingly recognised as vital to ensuring more sustainable and balanced development, by helping regions to manage structural challenges, including the depopulation of rural areas, and make the most of the opportunities emerging from the green and digital transition.

Role of cohesion policy in reducing regional disparities

Cohesion policy is central to the structural and long-term transformation of the EU. It is a fundamental pillar of the EU integration process, enabling convergence between and within Member States. Cohesion policy aims to promote harmonious development within the EU by strengthening economic, social and territorial cohesion and reducing regional disparities. It is the EU's main investment policy, intended to help regions secure a better future by unlocking their potential and providing them with social resources and infrastructure.

The Treaty of Lisbon, signed in 2007, established territorial cohesion as the third dimension of European cohesion. Article 174 stipulates that 'the Union shall develop and pursue its actions leading to the strengthening of its economic, social and territorial cohesion' and 'aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions'.

The implementation of cohesion policy is intended to bridge the development gap between regions, with a particular focus on helping rural areas, areas affected by industrial transition and regions that suffer from severe demographic or natural challenges. While cohesion policy applies to all EU regions, the EU recognises the importance of addressing the needs of the outermost regions and those that are caught in a development trap (Council of the European Union, 2023a).

Cohesion policy is delivered through a number of specific funds: the European Regional Development Fund, to strengthen economic, territorial and social cohesion in the EU by correcting development imbalances between its regions; the Cohesion Fund, specifically for infrastructure projects, including transport, energy and digital infrastructure; the European Social Fund Plus, to support jobs and create fair and socially inclusive societies in EU countries; and the Just Transition Fund, which provides additional support to the regions most affected by the transition towards climate neutrality and facilitates the implementation of the European Green Deal.

Over time, EU cohesion policy has seen a substantial increase in its budget and has become one of the most prominent Union policies, with €378 billion allocated to it in the multiannual financial framework for 2021–2027. Additional resources were exceptionally granted under NextGenerationEU – the EU's massive stimulus package designed to boost recovery following the COVID-19 crisis – to finance the Just Transition Fund. The initial allocation of funds is largely based on regional GDP per capita, but other social, economic and environmental indicators are also used to reflect challenges addressed by cohesion policy. In February 2024, of the €225 billion disbursed through the Recovery and Resilience Facility,

a centrepiece of NextGenerationEU, around €30 billion had been allocated to the goal of social and territorial cohesion. For more information on the Recovery and Resilience Facility, see European Parliament and Council of the European Union (2021) and European Commission (2024a).

While cohesion policy is a long-term policy, it has had a crucial role in addressing recent crises. Additional instruments that could be used to quickly meet short-term needs were set up under cohesion policy to mitigate the social and economic impacts of the COVID-19 pandemic and Russia's military aggression against Ukraine (Eurostat, 2023a). It should be possible to adapt cohesion policy to new developments and unexpected events while preserving its long-term transformational nature and structural objectives (Council of the European Union, 2023a). Addressing policy fragmentation and complexity across several funds will also be key to the future of cohesion policy, as will designing inclusive strategies that engage all people and stakeholders at all levels, and further developing a strong place-based approach (European Committee of the Regions, 2023).

In addition to being at the centre of broader cohesion policy, the common challenges and opportunities faced by rural territories across Europe are central to the European Commission's communication on the long-term vision for the EU's rural areas to 2040 (European Commission, 2021). The accompanying EU rural action plan is designed to help rural areas meet a wide range of economic, social and environmental challenges. The plan is based on four blocks of actions (stronger, connected, resilient and prosperous rural areas) and incorporates 9 flagship initiatives and 15 accompanying actions. As part of the long-term vision, the European Commission also launched the Rural Pact, which provides a framework for cooperation among stakeholders and public authorities at European, national, regional and local levels. In November 2023, the Council approved conclusions on the long-term vision for the EU's rural areas, providing political guidance to the Commission and Member States aimed at further fostering the prosperity, resilience and social fabric of rural areas and rural communities (Council of the European Union, 2023b).

The urban dimension of cohesion policy has been strengthened for the period 2021–2027 with the introduction of an enhanced commitment to integrated territorial development and to fostering sustainable urban development. In addition, a minimum of 8% of funding from the European Regional Development Fund is dedicated in each Member State to sustainable urban development strategies. Moreover, with the adoption of the Ljubljana Agreement and its multiannual working programme by EU ministers responsible for urban

matters, a new phase of the Urban Agenda for the EU started in 2021. The agenda now includes four new themes for multilevel governance cooperation, namely cities of equality, food, greening cities, and sustainable tourism. Furthermore, the new European Urban Initiative was launched in 2022. Its aims are to support innovation in cities, strengthen cities' capacities for sustainable urban policy development and facilitate access to relevant knowledge. Between 2021 and 2027, the European Urban Initiative will help to support the Urban Agenda for the EU.

Structure and scope of the report

This report aims to provide evidence on recent employment developments in Europe from a regional perspective, with a specific focus on telework. The analysis, which covers both the pandemic period and the subsequent recovery, combines quantitative and qualitative evidence. The study builds and expands on previous work on shifts in employment structure at regional level (Eurofound and European Commission Joint Research Centre, 2019) and research on the prevalence of telework in the EU (Eurofound, 2022a) and its potential (Sostero et al, 2020).

The report is structured as follows.

Chapter 1 provides a descriptive analysis of how regional employment was affected by and recovered from the COVID-19 pandemic, primarily covering the period from 2019 to 2022 and making use of employment data representative of the European population. Given the large number of EU regions at level 2 of the Nomenclature of Territorial Units for Statistics (NUTS 2), the regions were categorised into four main types (capital regions, mainly urban regions, intermediate regions and mainly rural regions) for most of the analysis. This makes it possible to observe how employment outcomes evolved before, during and after the COVID-19 pandemic in each of these four territorial categories. Next, a sectoral analysis investigates regional differences in economic specialisation and how these differences might explain why some regions were more resilient than others. In particular, there is a focus on the gap between urban and rural regions and on the idiosyncratic performance of capital regions. The analysis also looks at employment developments from a qualitative perspective. It assesses where employment expansion and contraction were recorded across the job-wage distribution – that is, the spectrum from low-paid to high-paid jobs – in different region types. Telework proved to be one important source of labour market resilience as the European economy responded to COVID-19, but its prevalence varied significantly across EU countries, regions and degrees of urbanisation (cities, towns and suburbs, rural areas), as explored in Chapter 2.

Chapter 2 investigates the evolution of telework across EU regions between 2019 and 2022, thus comparing trends before, during and after the COVID-19 crisis. The analysis, conducted with the European Commission Joint Research Centre in Seville, is based on European Union Labour Force Survey (EU-LFS) microdata. It first presents descriptive evidence on the incidence of telework across NUTS 2 regions and by degree of urbanisation (cities, towns and suburbs, rural areas). Second, it looks at two determinants of the extent of telework, notably from a regional perspective: the feasibility of telework by occupation (which depends on regional occupational structure) and internet connectivity (using real-world data). Not all types of jobs can be done remotely, as some require direct physical manipulation of things or face-to-face interaction with people. And, when telework is possible, sufficient internet connectivity is needed to handle it. This chapter measures the relative importance of these drivers of telework. Telework provides greater choice in the place of work. For many people, this meant working from home, either by necessity during the COVID-19 pandemic or, increasingly, by choice since then. A growing number of initiatives aim to create a ‘third place’ for work, besides the office and home, as discussed in Chapter 3.

Chapter 3 examines how the spread of opportunities to work remotely highlighted the potential for workers to move from traditional urban settings to other locations, and the subsequent growing interest in workspaces offering alternatives to (central) city offices. In particular, the chapter focuses on the spread of coworking spaces in more peripheral and rural areas; these are a potential tool to enable more balanced regional development and support those regions that face ongoing economic and social challenges. After discussing the characteristics, advantages and challenges of rural coworking, the chapter presents an overview of recent policy initiatives aimed at supporting the expansion of coworking spaces outside large urban centres. An in-depth overview of five initiatives from EU Member States (Estonia, France, Ireland, Italy and Portugal), based on information collected from the Network of Eurofound Correspondents, is presented.

Chapter 4 closes the report, discussing the findings and their policy implications.

1 Regional employment: From pandemic to recovery

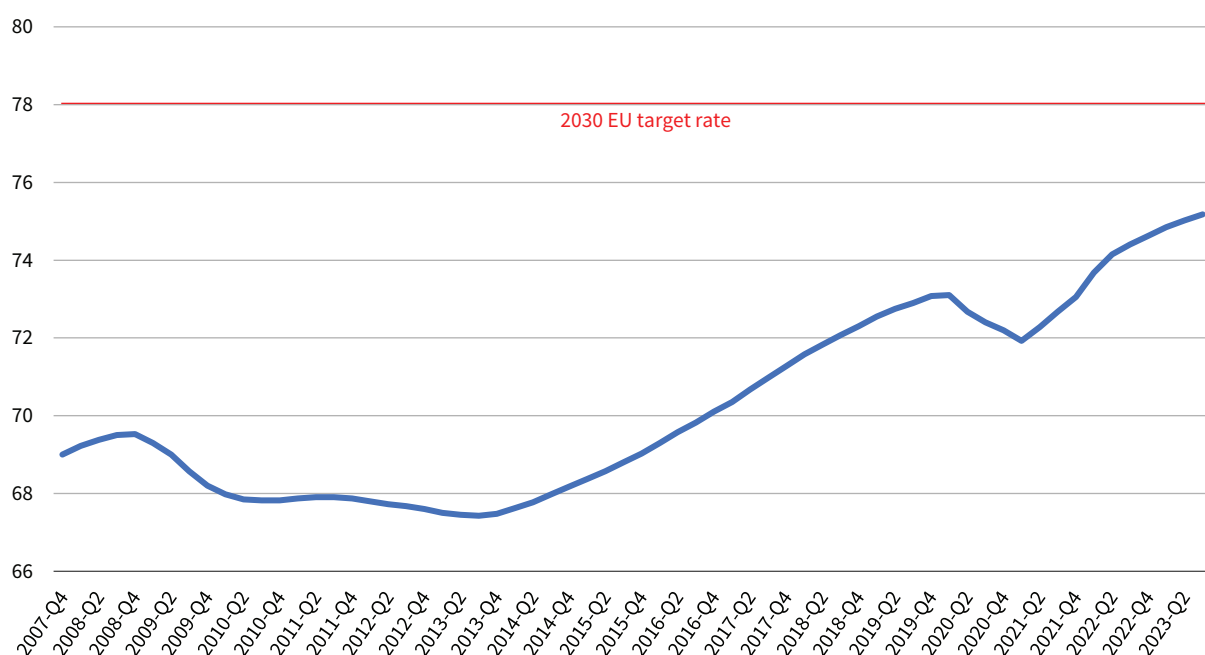
General employment conditions in the EU

European labour markets suffered a large and unanticipated shock at the end of the first quarter of 2020 with the onset of the COVID-19 pandemic. The forced closure of many sectors and activities as a result of public health measures to restrict the circulation of the virus precipitated a sharp and immediate decline in employment. The net decline in the number of people employed in the EU in the 12-month period from the second quarter of 2019 to the second quarter of 2020 (5.2 million) was nearly as great as that recorded during the peak of the global financial crisis (the second quarter of 2008 to the second quarter of 2010, 6 million). Since the pandemic, there has been a remarkable recovery in labour market performance across most of the EU. The limited duration and severity of the employment downturn were in part a result of the quality and extent of the policy response to the crisis, including the widespread implementation of subsidised short-time work or temporary lay-off schemes, which preserved many jobs that would otherwise have been lost. Working from home also proved to be one of the

more important sources of labour market resilience in all advanced economies as they responded to the COVID-19 crisis (Eurofound, 2022b).

The recovery from the crisis has been largely 'V-shaped' and is evident in the main labour market indicators, although it has been uneven across sectors, occupations and labour market groups (Eurofound, 2022b). Labour force participation has also recovered strongly, with the activity rate in the EU27 reaching 79.4% in 2022, up from 77.1% in 2020. Unemployment – the rise in which during the pandemic was limited by widely applied short-time work measures – was at the time of writing at its lowest level in a generation (5.8% in the second quarter of 2023), while labour shortages were (and continue to be) a more pressing policy concern. Employment headcount took only two years to recover to its pre-pandemic level, compared with eight years following the global financial crisis. Employment rates recovered even faster: at the time of writing, they were back on a trajectory to meet the main EU employment policy target of a 78% employment rate among 20- to 64-year-olds by 2030 (see Figure 1). After the large drop registered in the number of hours worked per person during the pandemic, this indicator picked

Figure 1: Employment rate (percentage of people aged 20–64), four-quarter moving average, EU27, 2007–2023



Note: Technical aspects of EU-LFS data collection changed in 2021, and breaks in the raw data provided by Eurostat are indicated for many variables in the figures presented in this chapter, although this is unlikely to have had much if any impact on the aggregate statistics presented.
Source: Authors' calculations based on Eurostat, Employment rates by sex, age and citizenship (%) [lfsq_ergan]

up strongly in 2022, but did not fully recover and subsequently reverted to the long-term downward trend that it was following before the pandemic (European Commission, 2023b).

The job-rich recovery from the COVID-19 pandemic contributed to the resilience of European labour markets, which at the aggregate level have been performing well, notwithstanding other challenges related to the energy crisis and Russia's war of aggression against Ukraine (European Commission, 2023b). Thanks to the emergency support measures that EU Member States introduced to help businesses cope with the surge in energy prices, and the adjustment mechanisms that enabled firms to maintain production in the very short term (ECB, 2023), the labour market impact of the energy crisis across the EU has been limited at the aggregate level.

The EU27 average does, however, conceal significant variation in labour market performance at national level. National unemployment rates persist at over 11% in some countries (Greece, Spain); in others, record-low levels are testing old assumptions about the unemployment rate that corresponds to full employment, which has often been estimated at around 5% to take account of inevitable temporary, frictional or structural unemployment. In Czechia, Germany, Malta and Poland, the unemployment rate was 3% or below in the second quarter of 2023. Similar variation is observed in employment rates, with higher rates in central and northern Europe and lower rates in eastern and southern European Member States, with the notable exceptions of Portugal and Malta.

In addition to these evident differences in employment developments across Member States, there was also considerable variation at the regional level in the initial impact of the COVID-19 pandemic and the subsequent recovery. The following sections provide detailed descriptive evidence on the variations in employment performance across EU regions and examine how differences in the structure of the regional economies might explain them. The analysis also looks at employment developments from a qualitative perspective, assessing where employment expansion

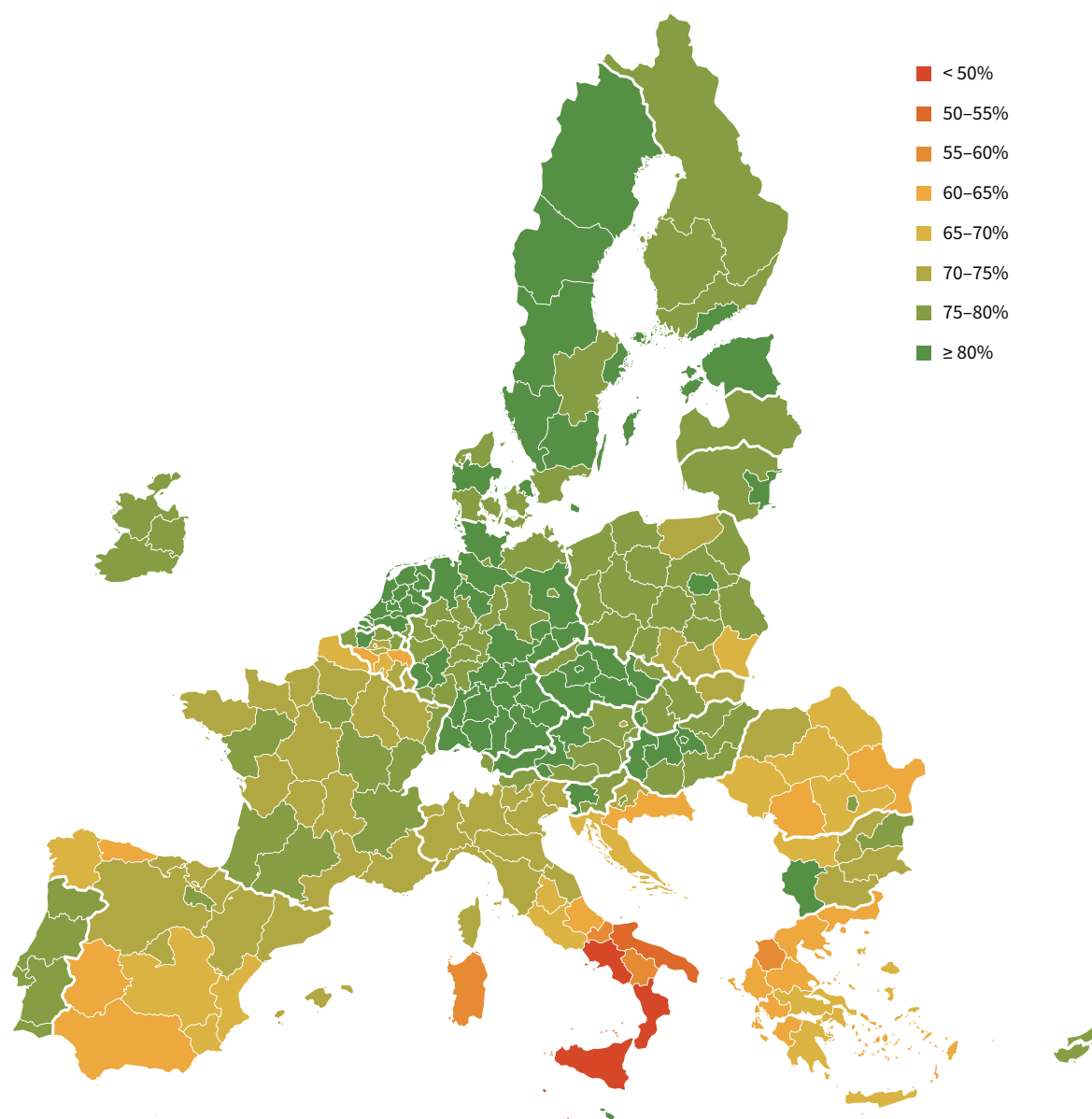
and contraction were recorded across the job-wage distribution in different region types. While assessments of the aggregate situation are approximate and reductive, they make it possible to identify patterns that might otherwise have remained hidden.

Change in employment rate by region

This section uses the employment rate and changes in it as a proxy for regional labour market performance. The employment rate takes into account the decline in the EU's working age population since 2010 and is the most appropriate measure of labour market performance, whether comparing over time or across territories. It has been used as an important indicator in the European employment strategy (EES) since it was introduced in 1997, and an increased employment rate was subsequently incorporated as a target in the Lisbon and Europe 2020 growth and employment strategies. The employment rate (expressed as the percentage of the population aged 20–64 in employment) is also one of the headline indicators in the Social Scoreboard, used to monitor the implementation of the European Pillar of Social Rights.

While the employment rate in the EU27 reached a historic high at 74.6% in 2022, significant differences emerge when examining regional data, as shown in Figure 2. More than 40% of NUTS 2 regions had an employment rate among 20- to 64-year-olds equal to or above 78% – the EU employment rate target for 2030. This was the case for all regions in Czechia, Denmark, Estonia, Malta, the Netherlands and Sweden (note that, for Estonia and Malta, the entire country constitutes the only NUTS 2 region); in Germany, this was the case for all regions except Bremen and Düsseldorf. Among the 10 regions with the highest employment rates, 6 were capital regions (in Poland, Sweden, Hungary, Slovakia, Czechia and Lithuania). The lowest employment rates (below 50%) were recorded in southern Italy. Italy is also the country exhibiting the largest variation in regional employment rates: from 79% in South Tyrol to 46% in Sicily.

Figure 2: Employment rate (percentage of people aged 20–64) by NUTS 2 region, EU27, 2022

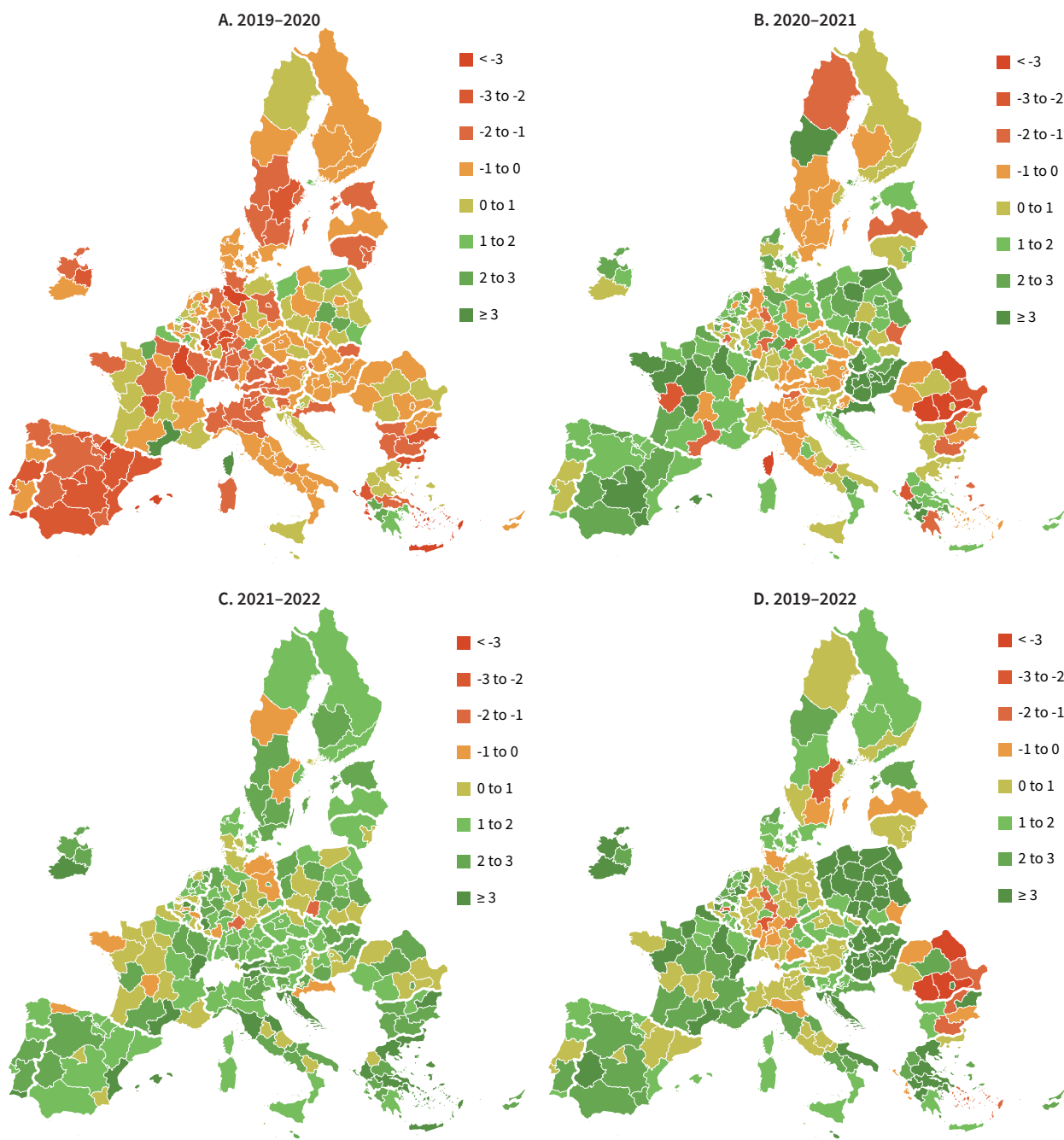


Source: Eurostat, *Employment rates by sex, age and NUTS 2 regions (%)* [lfst_r_lfe2emprr]

In 2022, almost 9 in 10 EU regions had employment rates that were above their pre-COVID-19 levels. The immediate and asymmetrical impacts of the COVID-19 crisis that began in March 2020 are evident in panel A in Figure 3. Around three-quarters of EU regions at the NUTS 2 level recorded a decline in the employment rate year on year. The employment rate declined rapidly in several regions in southern Europe that are highly dependent on tourism and have large shares of employment in accommodation and food/beverages, all contact-intensive sectors in which public health restrictions were particularly likely to impinge on work activity (see Eurofound, 2021b, p. 10). This was the case in the South Aegean, Crete and the Ionian Islands in Greece, in the Balearic Islands and the Canary Islands

in Spain, and in Algarve in Portugal. Each suffered a fall in the employment rate in the range of 3.5–7.3 percentage points between 2019 and 2020. Besides these principal EU holiday destinations, there were also pockets of sharp decline (> 3 percentage points) in Germany and France, but in these Member States the overall picture was more mixed with many regions also recording stable, and in some cases increasing, employment rates. Poland, Malta and Croatia were the only Member States where national employment rates for those aged 20–64 rose during 2019–2020. In a few Polish regions, the employment rate declined marginally, but it expanded by more than 2 percentage points in others (the Łódzkie and Świętokrzyskie regions).

Figure 3: Employment rate change (percentage points, people aged 20–64) by NUTS 2 region, EU27, 2019–2020, 2020–2021, 2021–2022 and 2019–2022



Source: Eurostat, *Employment rates by sex, age and NUTS 2 regions (%)* [lfst_r_lfe2emprrt]

In 2020–2021, employment rates rebounded in most EU27 countries and regions, including those most negatively affected in the previous year (see panel B in Figure 3). The national employment rate grew the most in Hungary, and there were positive employment rate changes of more than 3.5 percentage points in 7 out of its 8 regions. Employment rates continued to

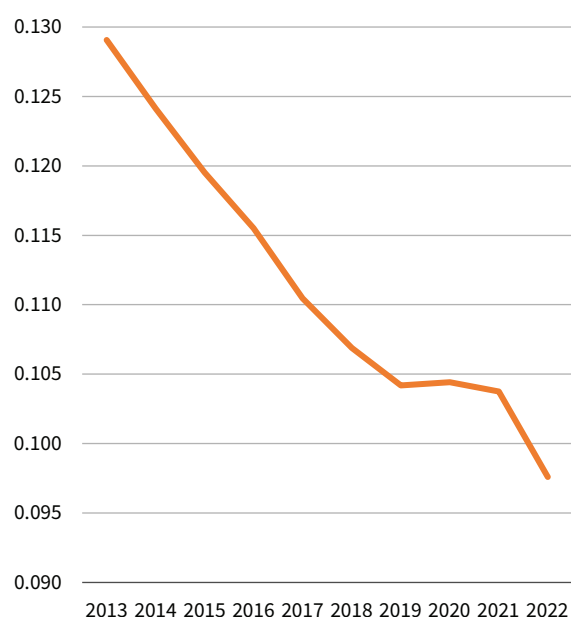
increase strongly in several regions in Poland (a notable exception was the Podkarpackie province in the south-eastern corner of the country). The one obvious exception to this recovery in employment rates was Romania, where sharp declines were recorded in 2020–2021; however, these may relate to breaks in the data time series specific to the country.²

² Recorded employment levels in agriculture declined sharply in Romania between 2020 and 2021 (by over 40%), and the regions with larger shares of agricultural employment (e.g. the North-East region) were those that recorded the greatest reductions in employment rates (see note 6).

The performance of regions in Sweden was much more diverse than that of the regions in the other Nordic countries. In Latvia, the employment rate fell by 1.7 percentage points.

While the COVID-19 crisis temporarily halted the long-term reduction in disparities in employment rates among European regions, as measured by the coefficient of variation, between 2021 and 2022 this indicator continued to decrease at an even faster pace than during the pre-COVID-19 period (Figure 4).

Figure 4: Coefficient of variation in the employment rate (20–64), by NUTS 2 region, EU27, 2013–2022



Source: Authors' calculations based on Eurostat, *Employment rates by sex, age and NUTS 2 regions (%)* [lfst_r_lfe2emppt]

Between 2021 and 2022, employment expanded in all Member States and in more than 90% of regions across the EU (see panel C in Figure 3). Of those few regions experiencing a decline in the employment rate, the majority had recorded a growth in employment

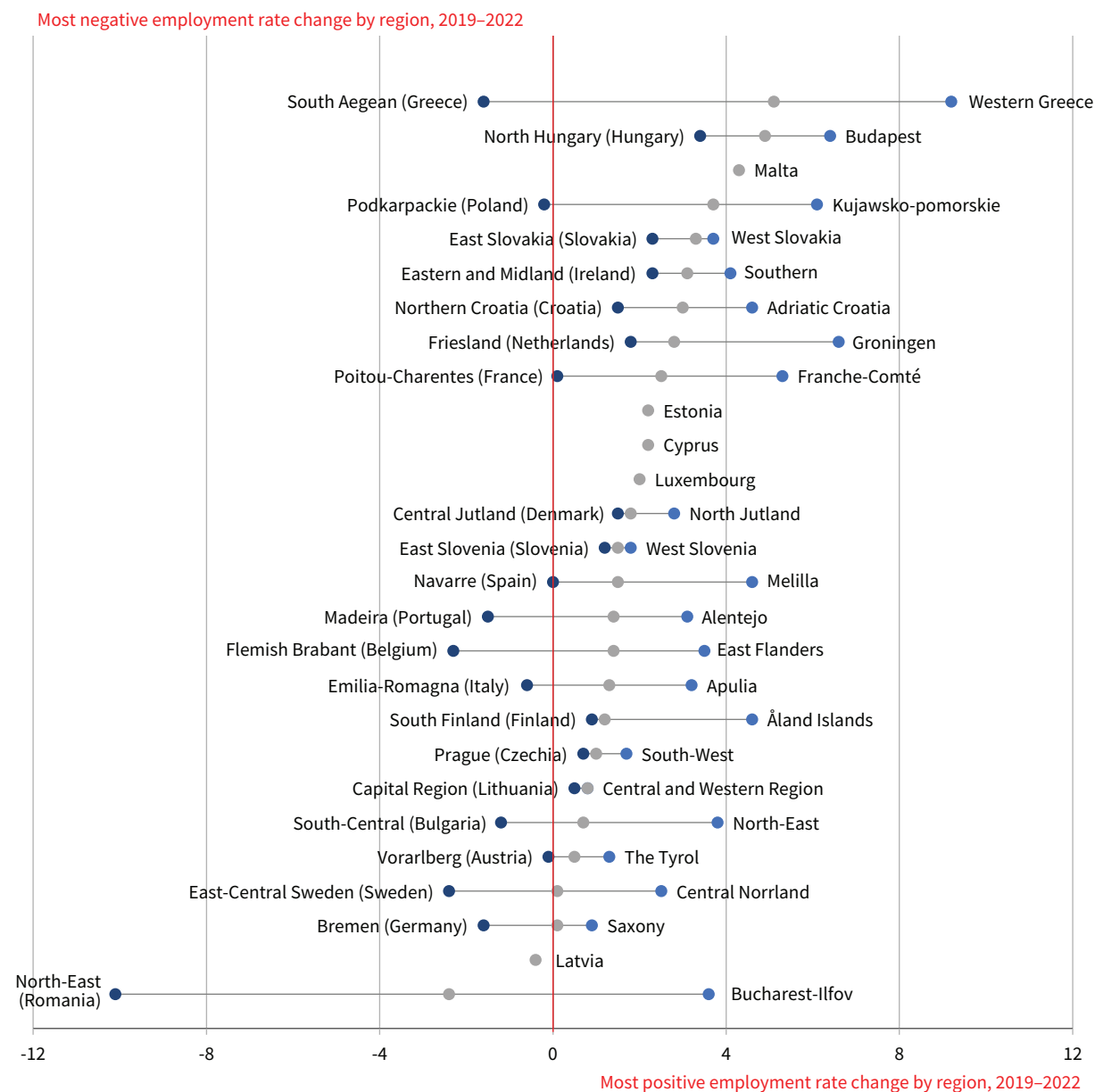
between 2020 and 2021. The five regions with the largest positive change in employment rates (more than 5 percentage points) were in Greece and Spain. Significant growth in employment (more than 4 percentage points) was also recorded in western Germany and the south of Ireland.

Over the entire period 2019–2022, the national employment rate increased in all Member States, except for Latvia and Romania, and most EU regions recorded employment growth (see panel D in Figure 3). Among the 10 regions with the highest overall positive employment change (at least 5.4 percentage points), 3 are in Greece, 1 in the Netherlands, 2 in Hungary (including Budapest, the capital region) and 4 in Poland. Despite the prevalence in the country of tourism-oriented regions hard hit by the pandemic, Greece is the Member State in which the employment rate increased the most on average between 2019 and 2022, albeit from comparatively low levels. Among the 10 regions with the biggest declines in the employment rate, 4 are Romanian³ and 3 are German (Darmstadt and the two northern city regions of Bremen and Hamburg).

The largest variation in regional labour market change between 2019 and 2022 was observed in Romania and Greece, with differences of over 10 percentage points between the best- and worst-performing regions (Figure 5). In the case of Greece, the worst-performing region was the South Aegean, where the employment rate remained below pre-COVID-19 levels despite the 2021–2022 recovery in this largely tourism-dependent region. By contrast, the region of Western Greece saw the employment rate increase by 9.2 percentage points, the largest increase recorded in any EU NUTS 2 region. In Romania, the region encompassing the capital city, Bucharest, was the one with the most resilient labour market between 2019 and 2022, with a 3.6-percentage-point increase boosting already comparatively high employment rates to 79.9% in 2022. The sharp declines in the employment rate in more rural regions, including the North-East region, may in part be attributable to breaks in the time series affecting in particular estimates of employment in the agricultural sector.

³ Mainly rural regions, in which there appears to have been a significant downward turn in 2020–2021 in employment in the agriculture sector; see notes 2 and 6.

Figure 5: Variation in change in the employment rate (percentage points) by EU Member State, showing best- and worst-performing NUTS 2 regions, 2019–2022



Notes: Ranked by national change in the employment rate (percentage points), 2019–2022 (grey dot). In Romania, for example, North-East had the biggest decline in the employment rate (dark-blue dot) and Bucharest-Ilfov had the biggest increase (light-blue dot). Cyprus, Estonia, Latvia, Luxembourg and Malta each constitute a single NUTS 2 region. Saxony is a NUTS 1 region.

Source: Eurostat, Employment rates by sex, age, educational attainment level, country of birth and NUTS 2 regions [lfst_r_lfe2emprc]

Employment developments by region type

In 2021, there were a total of 242 individual NUTS 2 regions in the EU27. Providing an overview of regional employment developments is challenging, given the number and variety of regions to cover. This section extends Eurostat's existing urban–rural regional typology and applies it to EU-LFS employment data. The categorisation used in this analysis distinguishes between four main types of regions: capital regions, mainly urban regions, intermediate regions and mainly rural regions. This simple four-category descriptor, summarised in Table 1, makes it possible to analyse variation in labour market performance at an aggregate level, across region types differentiated principally by their population density (see Box 1 for more details).

Table 1: Distribution of EU NUTS 2 regions and population by region type, 2021

Region type	Number of NUTS 2 regions	Share of EU population (%)
Capital region	22	14.4
Mainly urban	52	32.2
Intermediate	104	33.4
Mainly rural	59	18.9
Entire country	5	1.2
Total	242	100.0

Notes: There is no regional differentiation at NUTS 2 level in the following five Member States: Cyprus, Estonia, Latvia, Luxembourg and Malta. In these cases, the entire country constitutes a single NUTS 2 region.

Source: Authors' adaptation of the Eurostat urban–rural categorisation, based on the approach of de Beer et al, 2014; Eurostat, Population change – demographic balance and crude rates at regional level (NUTS 3) [demo_r_gind3], 2021, for population estimates; and NUTS classification 2021

Box 1: A simple four-category classification of NUTS 2 regions

The urban–rural typology used by Eurostat was originally applied at the granular NUTS 3 level (Eurostat, 2022c). Regions are characterised by the shares of the population living in rural and urban areas. The Eurostat typology comprises three categories: mainly urban, intermediate and mainly rural. A region is mainly urban if less than 20% of the population lives in rural areas, intermediate if between 20% and 50% of the population lives in rural areas and mainly rural if more than 50% of the population lives in rural areas. Rural areas are areas outside urban clusters, which in turn are defined as contiguous grid cells of 1 km² with a density of at least 300 inhabitants per square kilometre and a minimum population of 5,000 per cluster. Adjustments are made based on the presence of urban centres within regions; a rural area in the same region as an urban centre with more than 200,000 inhabitants becomes intermediate, while an intermediate area in the same region as an urban centre with more than 500,000 inhabitants becomes mainly urban.

Unfortunately, there is no equivalent urban–rural classification at NUTS 2 or NUTS 1 level, which are the levels of detail at which EU-LFS data are made available to researchers. And simply applying at a less granular regional level the approach taken by Eurostat, based on the share of the population living in rural areas, tends to inflate the proportions of urban and intermediate regions. There are not many NUTS 2 regions with a majority of inhabitants living in rural areas.

Given that regional policies in the EU are often based on data available at NUTS 2 level, there is an obvious demand for a version of the Eurostat or Organisation for Economic Co-operation and Development (OECD) regional typology adapted to this level of coverage. A useful existing example of such an adaption (de Beer et al, 2014) amended the Eurostat typology to take account of the fact that EU-LFS data are available in a combination of NUTS 1 (Austria and Germany) and NUTS 2 levels. This is an approach that was also followed in earlier regional employment analysis by Eurofound and the European Commission Joint Research Centre (2019). Regions are categorised based on the shares of the population living in urban, rural and intermediate NUTS 3 regions that are part of the larger NUTS 1 or NUTS 2 region. The higher-level regions are categorised based on which of the three categories has the largest share of the population. Thus, if a NUTS 1 or NUTS 2 region comprises NUTS 3 regions among which the urban regions account for 40% of the population, the intermediate regions 35% and the rural regions 25%, the region is considered mainly urban. One additional adjustment – useful for the analysis presented here, given the central importance of capital cities, for example in explaining regional inequalities – involves treating capital regions as a separate category.

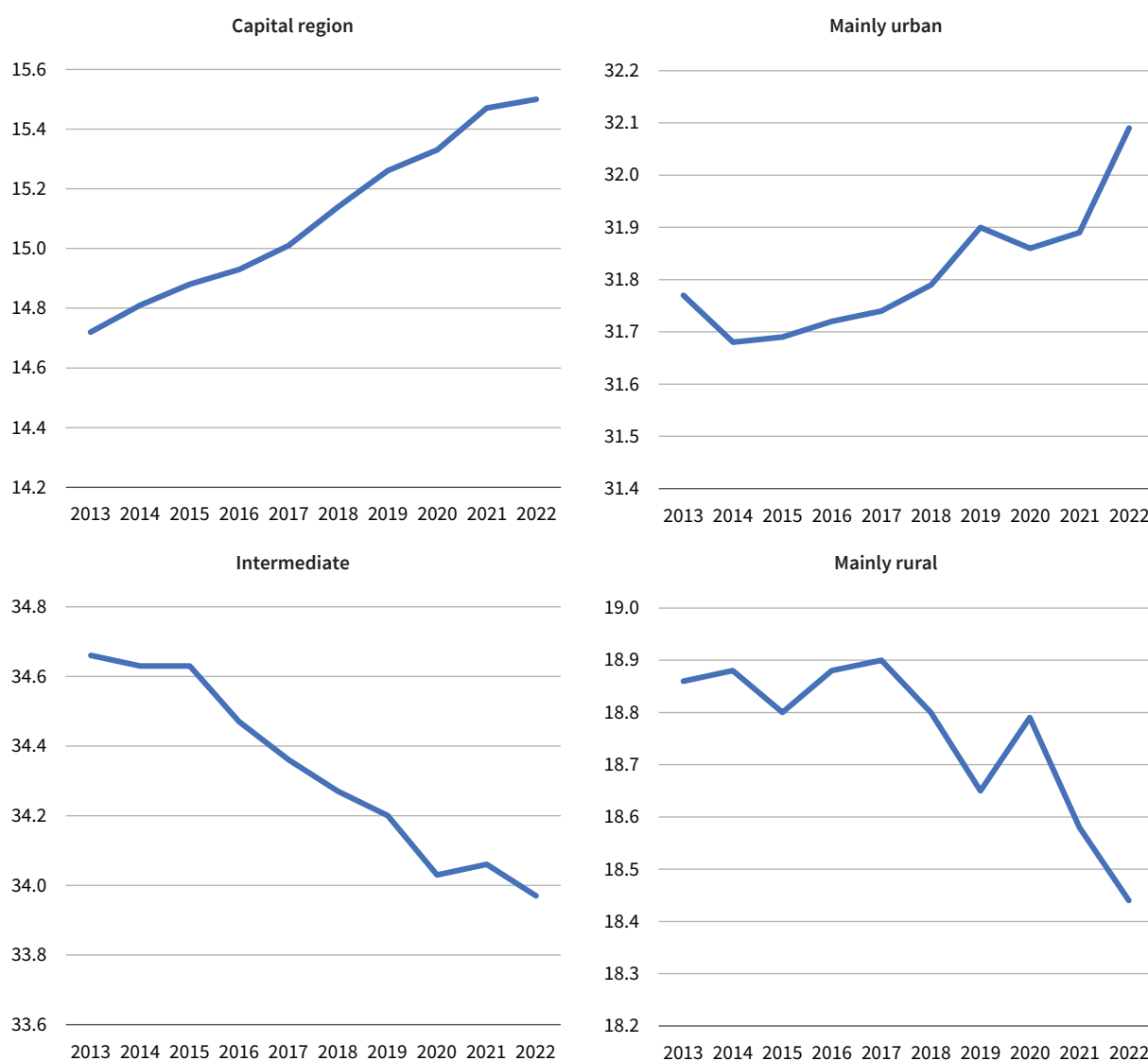
According to World Bank data (World Bank, 2023a), three-quarters of the EU27 population (75%) lived in urban or built-up areas in 2021, up from 71% in 2000 and 59% in 1960. The share of the EU population living in urban areas is forecast to increase to 90% by the end of the century (Clarke et al, 2018).

It is important, however, to contextualise this growing share of the population living in urban areas. According to de Beer et al (2014), the rate of urbanisation in Europe was at its highest in the 1950s and 1960s and has subsequently decreased. It is currently at less than a quarter of those recent peak growth rates of half a century ago (World Bank, 2023b). This is due in part to an ageing population in Europe (lower birth rates) but also to declining rates of transfer from rural to urban areas, as the secular process of de-agrarianisation,

initiated over two centuries ago, has run its course in most Member States. It is worth noting that the rate of urbanisation slowed sharply in particular following the two most recent large-scale recessionary shocks: in 2011 after the economic crisis and in 2021 after the COVID-19 crisis. The share of the population living in urban areas is growing but at a slower rate than in the previous two generations (World Bank, 2023b).

As Figure 6 illustrates, the trend in employment share by region type mirrors these patterns of ongoing urbanisation. Employment levels have grown steadily since 2013 in capital regions, and their share of total employment increased by 0.8 percentage points up to 2022. The share of employment has also increased, albeit more modestly, in mainly urban regions and has decreased in intermediate and mainly rural regions.

Figure 6: Share of people aged 15–64 in employment in the EU (%) by region type, 2013–2022



Notes: Based on data from 22 EU Member States that EU-LFS microdata identify as consisting of at least two regions at national level. Using national accounts data on employment at NUTS 3 regional level (Eurostat [nama_10r_3empers]) and the original NUTS 3-based urban–rural classification, very similar patterns of change in employment share by region type were observed. Unfortunately, these data were complete only to 2021 at the time of writing.

Source: Authors' calculations based on Eurostat, Employment by sex, age and NUTS 2 regions (1 000) [lfst_r_lfe2emp]

The regional distribution of employment thus reflects to some extent the distribution of the population, with both increasingly concentrated in built-up urban areas. An additional factor in the growing share of employment in densely populated urban regions is that it is these regions that rely most in terms of jobs on the services sector that is driving employment growth more generally. The ‘services shift’ has seen services grow to account for nearly three-quarters of EU employment (Wren, 2013). In some larger metropolitan regions, the share of employment in services is over 90%, with only a residual share of jobs in manufacturing or agriculture (Eurofound and European Commission Joint Research Centre, 2019). Figure 6 appears to confirm what the World Bank population data suggest about the impact of the COVID-19 pandemic on employment shares in 2020 in mainly urban and mainly rural areas. There were blips upward in the mainly rural regions and downward in the mainly urban regions between 2019 and 2020, but the secular trends – of an increasing share of employment in urban and especially capital regions and a decreasing share in less densely populated regions – continued throughout 2013–2022.

Employment developments by region and sector types

Sectoral classifications

Building on the findings presented so far, this section analyses regional differences in economic structures across region types. It does so using two different but complementary sectoral classifications. The descriptive analysis relies on an ad hoc extraction of EU-LFS data provided by the Eurostat EU-LFS team, which allows for a more detailed sectoral breakdown (by Nomenclature of Economic Activities (NACE) Rev. 2 two-digit sector code) than would be possible using the microdata made available to researchers. Due to data being partially masked in Denmark, Ireland and Portugal (values flagged ‘x’ are deleted from the ad hoc extraction), these countries have therefore been omitted from the subsequent analysis. Cyprus, Estonia, Latvia, Luxembourg and Malta are also excluded as countries consisting of a single NUTS 2 region. All EU aggregate figures therefore refer to the remaining 19 countries.

The first classification of sectors, developed by Eurostat, separates the services sector into knowledge-intensive services (KIS), such as public administration and financial services, and less knowledge-intensive services (LKIS), such as retail and food/beverages (Eurostat, 2020). As there is no specific question in the EU-LFS on whether the respondent’s employer is in the public or private sector, it is not possible to estimate accurately the shares of employment in public and private sector services. For the purposes of this report, however, the KIS category has been further broken down into public and private sector services. Public sector KIS comprise the following NACE categories: public administration, social security and defence; education; and human health activities. Private sector KIS comprise all remaining KIS including, for example, financial services and computer programming/consultancy (for a full list, see Eurofound, 2017). It should be noted that, as a significant minority of workers in the health and education sectors are in fact private sector employees, the public sector KIS category is an imprecise proxy for public sector employment. In addition to these classes of services, the remaining sectors in the economy are classified as primary (agriculture and extractive industries), manufacturing/utilities and construction. This first classification is thus inclusive and covers all the NACE two-digit sectors in six categories, broadly consistent with traditional structural distinctions between primary (extractive), secondary (manufacturing) and tertiary (services) activities (Fourastié, 1949).

The second classification was developed by Fana et al (2020) and distinguishes between five broad sector types based on their activities and the extent to which COVID-19-related legislation impacted them. It is based on COVID-19 lockdown measures and the extent to which specific economic activities were considered essential or non-essential, and restricted or not, as part of the broader public health imperative of ensuring physical distancing.⁴ The five sector types are essential and fully active; active but via remote work/‘remote possible’;⁵ mostly essential and partly active; mostly non-essential and partly active; and closed. For more details on the mapping of NACE two-digit sectors onto these broad categories, see Fana et al (2020). This is a classification that is useful for gaining a better understanding of the labour market implications of the COVID-19 lockdown measures.

⁴ The point of departure for the sectoral classification was a detailed comparative analysis of lockdown legislation in three European countries (Germany, Italy and Spain) in which government decrees explicitly classified specific economic activities as essential or not essential (see Fana et al, 2020).

⁵ The sectoral category called ‘active via telework’/‘teleworkable’ in Fana et al (2020) has been renamed ‘remote possible’ here to avoid any confusion in relation to the occupation-based teleworkability analysis presented in Chapter 2 of this report.

Table 2: Cross-tabulation of two sectoral classifications (percentage of EU employment), 2019–2022

Sector type	Essential	Remote possible	Mostly essential	Mostly non-essential	Closed	All
Primary	3.8			0.5		4.3
Manufacturing/utilities	4.7		1.0	12.3		17.9
Construction				6.7		6.7
Private sector KIS	1.4	11.0	0.4	0.4	1.6	14.7
LKIS	5.0	0.9	15.5	1.5	7.6	30.5
Public sector KIS	10.9	14.4				25.2
All	25.7	26.2	16.8	21.3	9.2	100.0

Notes: (L)KIS, (less) knowledge-intensive services. The table covers employment in 19 Member States (Denmark, Ireland and Portugal have been omitted due to data being partially masked, and Cyprus, Estonia, Latvia, Luxembourg and Malta have been omitted as countries consisting of a single NUTS 2 region). The two classifications are that developed by Fana et al (2020) and a modified version of one developed by Eurostat (2020). Discrepancies in the totals are due to rounding.

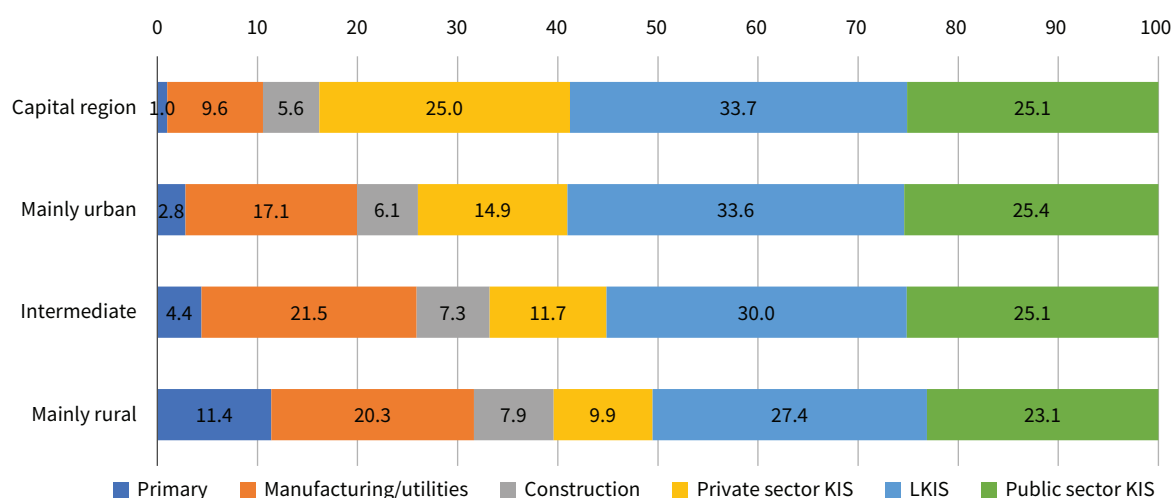
Source: Ad hoc extraction of EU-LFS data

Table 2 shows how the two sectoral classifications relate to each other. The intention was to go beyond a classification that was exclusively based on COVID-19 legislation, as the analysis also covers the recovery period. The two classifications tell a similar story, but using both adds robustness to the analysis. As Table 2 highlights, from a sectoral perspective, the jobs that are (or were during the pandemic) ‘remote possible’ are exclusively to be found in the services sector and in particular in highly knowledge-intensive services (private sector KIS and public sector KIS). Most primary sector employment was considered essential, as it contributed basic raw materials such as food and energy; it accounted for only a marginal share of overall employment (4.3%). Sectors that were closed due to pandemic-related restrictions were mainly LKIS (e.g. food/beverages, accommodation).

Sectoral composition of employment by region type

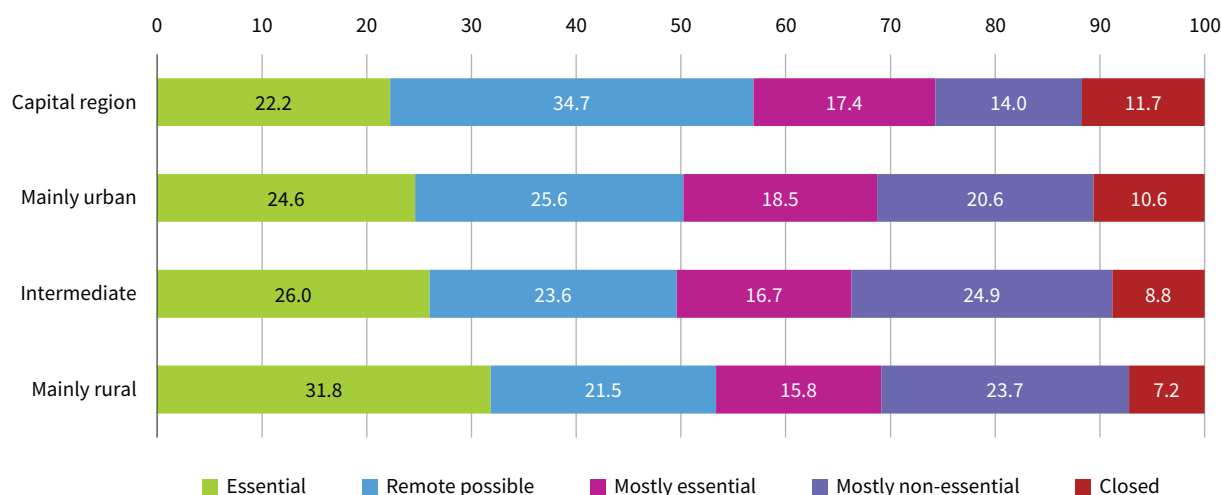
The pre-COVID-19 sectoral composition of employment varied significantly by region type with different population densities and different production specialisations. This is evident when using both sectoral classifications, as shown in Figure 7, for the six broad sector types, and Figure 8, for the COVID-19 era sector types.

Capital regions had a larger share of services employment, particularly private sector KIS (1 in 4 workers, compared with 1 in 10 workers in mainly rural regions). The share of workers in LKIS employment was also somewhat greater in capital and mainly urban regions, while public sector KIS workers were evenly dispersed across the region types (Figure 7).

Figure 7: Composition of EU employment by broad sector type and region type (%), 2019

Note: (L)KIS, (less) knowledge-intensive services. Data cover employment in 19 Member States (Denmark, Ireland and Portugal have been omitted due to data being partially masked, and Cyprus, Estonia, Latvia, Luxembourg and Malta have been omitted as countries consisting of a single NUTS 2 region).

Source: Ad hoc extraction of EU-LFS data

Figure 8: Composition of EU employment by COVID-19 era sector type and region type (%), 2019

Note: Data cover employment in 19 Member States (Denmark, Ireland and Portugal have been omitted due to data being partially masked, and Cyprus, Estonia, Latvia, Luxembourg and Malta have been omitted as countries consisting of a single NUTS 2 region).

Source: Ad hoc extraction of EU-LFS data

Crucially for the results of the COVID-19 era categorisation, office-based, computer-facing KIS could be provided remotely from home. Over a third of capital region employment (34.7%) was in remote-possible sectors in 2019, compared with around a quarter or less in the other region types (Figure 8).

Mainly rural regions accounted for most primary sector employment in Europe. The employment share in these regions in 2019 was 11.4%, while all other region types recorded much lower figures (Figure 7). Essential sectors accounted for a larger share of employment in mainly rural areas, primarily because agriculture and other food-producing sectors were included in that category in the Fana et al (2020) classification, along with sectors such as health and utilities, in which employment tends to be more evenly dispersed across region types (Figure 8).

Employment in the manufacturing/utilities sector was also more concentrated in mainly rural regions (20.3%) and intermediate regions (21.5%) (Figure 7). Deindustrialisation, which has been an ongoing process since the 1970s, has occurred mainly in urban and capital regions. It is here that the share of manufacturing employment has fallen most sharply (Eurofound and European Commission Joint Research Centre, 2019). This is reflected in the different shares of employment in mostly non-essential sectors (mainly comprising manufacturing activities not considered essential). Capital regions had the smallest share, followed by

mainly urban regions, while much larger shares – around a quarter of employment – are observed in intermediate and mainly rural regions (Figure 8).

The closed sectors, those most severely impacted by COVID-19-related restrictions (including accommodation and food services activities, estate agencies, travel agencies, and leisure and recreation services), accounted for just under 10% of employment overall in 2019, with larger-than-average shares observed in capital regions and smaller shares in mainly rural and intermediate regions (see Figure 8).

Employment changes by region type and sector type

Between 2019 and 2022, aggregate EU employment increased by 1.7% as the post-pandemic recovery replaced jobs lost in 2020 with increasing intensity in the most recent year (2022) for which data were available at the time of writing. Employment growth was strongest in capital and mainly urban regions and more modest or negative in the less densely populated region types (Table 3).⁶ The sector types in which employment declined overall in all regions are those that are affected by a structurally contracting share of employment over many decades (manufacturing/utilities and the primary sector). Energy-intensive manufacturing sectors were, in addition, impacted by increasing energy costs following the Russian invasion of Ukraine in 2022 (see Box 2).

⁶ However, the sharp decline observed in the primary sector in the mainly rural region type and 'All regions' cell in Table 3 is largely an artefact of changes in 2021 in how agricultural employment is estimated in Romania (see the section 'Change in employment rate by region'). Romania accounted for 21% of EU agricultural employment in 2019; between 2020 and 2021, agricultural employment fell from 1.5 million to 0.8 million, probably due to changes in the treatment of workers in the sector producing for their own consumption rather than for the market. This followed the implementation of new EU-LFS data collection protocols under the integrated European social statistics framework and implementation directives, which entered into force in 2021. Their impact has been most notable with regard to Romania. When Romania is excluded, the values in the two cells in darker red are, respectively, -3.6% and -2.4% (instead of -24.6% and -13.0%).

Table 3: Change in EU employment by broad sector type and region type (%), 2019–2022

	Capital region	Mainly urban	Intermediate	Mainly rural	All regions
Primary	-0.9	-3.0	-4.8	-24.6	-13.0
Manufacturing/utilities	0.5	-0.5	-0.5	-3.6	-1.0
Construction	-0.7	4.5	-0.3	2.0	1.5
Private sector KIS	10.3	9.2	6.6	9.2	8.7
LKIS	-1.8	0.2	-0.4	3.3	0.2
Public sector KIS	5.7	5.4	2.6	3.9	4.2
All sectors	3.4	2.9	1.0	-0.7	1.7

Note: (L)KIS, (less) knowledge-intensive services". Data cover employment in 19 Member States (Denmark, Ireland and Portugal have been omitted due to data being partially masked, and Cyprus, Estonia, Latvia, Luxembourg and Malta have been omitted as countries consisting of a single NUTS 2 region).

Source: Ad hoc extraction of EU-LFS data

As Table 3 shows, these losses have, however, been strongly compensated for by rapid growth in KIS employment both in the private sector and in the public sector (i.e. in health, public administration and education), with capital regions benefiting most from these gains. Employment growth in LKIS has been much

weaker. Sectors such as food/beverages, accommodation and retail were among those in which employment levels were most negatively affected by pandemic-related restrictions and in these – generally low-paid – sectors employment has been slower to recover, especially in capital regions.

Box 2: The asymmetrical impact of the energy shock on regional employment: A case of major restructuring in the chemical industry

Energy prices have been volatile in the EU since the second half of 2021, and an increase was to be expected in the context of the post-COVID-19 economic recovery and the relaxation of travel restrictions. However, the increase was greater than anticipated because the military aggression by Russia against Ukraine, and Russia's related decision to stop supplying gas to several EU countries, increased disruption to energy prices.

While the labour market impact of the energy crisis has been limited at EU aggregate level, sectors with higher energy consumption have experienced worse employment outcomes than those with lower energy consumption. At the beginning of 2023, employment in the most energy-intensive sectors was still about 3.5% below the pre-pandemic level, whereas it was 7% above it in the sectors with the lowest energy intensity. However, the sharpest employment decline in the worst-affected sectors was recorded before the surge in energy prices, suggesting that disruptions to global supply chains and logistics had already reduced the level of economic activity (European Commission, 2023b).

Differences between Member States in the structure of their economies and the importance of energy-intensive sectors – notably manufacturing – translated into an asymmetrical effect of the energy shock (European Commission, 2023b). Besides the size of energy-intensive manufacturing as a proportion of the economy, other key determinants of vulnerability included reliance on Russian energy imports and dependence on critical raw materials and intermediate goods from Russia and Ukraine, such as iron, cereals and fertilisers (Celi et al, 2022). The extent of initial reliance on Russian gas and oil imports and the subsequent escalation in energy prices following bans on Russian energy imports played a pivotal role in shaping regional economic and industrial performance (Di Bella et al, 2022).

Within the industrial sector, which alone accounted for 25.6% of final energy consumption in 2021, the chemical and petrochemical industry is by far the largest energy consumer (accounting for 21.5% of the total final energy consumption in industry in 2021 in the EU).⁷ It is followed by the non-metallic minerals industry (14.1%) and the paper, pulp and printing industry (13.6%). Among EU countries, Germany has the highest final energy

⁷ According to Eurostat, Simplified energy balances [nrg_bal_s]; see 'The highest industrial energy consumers in the EU', at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Final_energy_consumption_in_industry_-_detailed_statistics#The_largest_industrial_energy_consumers_in_the_EU

consumption in the industry sector, with its chemical and petrochemical industry accounting for more than 20% of the total.

The south-west German region Rhineland-Palatinate, bordering Belgium, France and Luxembourg, specialises in the manufacturing of chemicals, employing around 13.5% of all people working in the sector in the country.⁸ Around 80% of all employees in the chemical industry in the region are employed in the Badische Anilin- und Sodafabrik (BASF), the world's biggest chemical company by revenue, whose headquarters are in the city of Ludwigshafen. It is the largest employer in the region. Around half of its international workforce is in Germany, with 75% employed at the Ludwigshafen site (BASF, 2023a).

As a result of its significant dependence on natural gas imports from Russia, BASF has faced a challenging situation in the past two years. In 2021, the BASF facility in Ludwigshafen was responsible for 4% of all natural gas usage in Germany (SWR, 2023). The company depends heavily on natural gas both to power its operations and as a crucial raw component in manufacturing chemical products such as ammonia. The Russian invasion of Ukraine and the subsequent sharp rise in energy prices significantly affected the company. In 2022, BASF's energy costs increased by €3.2 billion compared with 2021, with €2.2 billion of this attributable to increased natural gas costs alone (Stuttgarter Zeitung, 2023). According to company management, these increased expenses, along with the challenges of bureaucratic permitting processes in Europe and the slowing economy, eroded the competitiveness of the company in the region, encouraging the company to invest overseas (New York Times, 2023). Data from 2022 show that the company net income registered a loss of €627 million in 2022 compared with 2021 (BASF, 2023b).

Therefore, in February 2023 the company announced a large restructuring plan aimed at saving €500 million annually in non-production costs starting from 2024. In addition, it announced its intention to save an extra €200 million in annual fixed production costs by the end of 2026. These announcements were recorded in the European Restructuring Monitor's restructuring events database.⁹ This database collects information on large-scale restructuring, whether involving job loss or business expansion, as reported in major national media outlets and on company websites in the Member States. For an event to be included, it must either involve the reduction or creation of at least 100 jobs or affect at least 10% of the workforce in an establishment employing at least 250 people.¹⁰

The restructuring plan announced by BASF involved the loss of approximately 2,600 jobs worldwide, mostly from the Ludwigshafen site. Around 1,800 of the job losses concerned positions in the service, administration and research sectors of the company, while 700 were linked to the shutdown of specific production facilities, such as the toluene di-isocyanate plant and one ammonia plant, and associated facilities (ICIS, 2023).

The scale of the restructuring, the manufacturing sector it pertains to and the geographical location make the BASF restructuring case a valuable illustration of how highly energy-intensive industries in Europe have been affected by the energy crisis. That crisis, exacerbated by geopolitical tensions, has underscored the need for diversified and resilient energy strategies. This is particularly crucial for energy-intensive industries and regions that depend on them, since they are especially vulnerable to the effects of energy price fluctuations.

Looking at employment changes between 2019 and 2022 using the alternative sectoral classification developed by Fana et al (2020) highlights that the resilience of employment in capital city and mainly urban regions was in part due to the high proportion of work that could be performed remotely. In both region types, there was very significant growth (of more than 10% in capital regions) in employment of this type between 2019 and 2022, adding 2.2 million net new jobs (Table 4). Remote-possible employment was both

protected by the ability of employees to telework during the pandemic and boosted by demand in sectors that benefited from COVID-19-related digitalisation efforts. For example, there was a 37% increase in the number of workers in computer programming, consultancy and related activities between 2019 and 2022 (Eurostat [lfsa_egan22d]). The broader remote-possible category increased its share of employment across all region types.

8 See relevant tables from the German Federal Statistical Office's Genesis online database, available at https://www.destatis.de/EN/Themes/Economic-Sectors-Enterprises/Industry-Manufacturing/Tables/_tables.html#265850

9 The database is available at <https://apps.eurofound.europa.eu/restructuring-events/detail/108584>

10 For more information on the methodology, including data collection, see the dedicated Eurofound web page at <https://apps.eurofound.europa.eu/restructuring-events/methodology>

Table 4: Change in EU employment by COVID-19 era sector type and region type (%), 2019–2022

	Capital region	Mainly urban	Intermediate	Mainly rural	All regions
Essential	3.1	2.6	0.5	-7.1	-0.2
Remote possible	10.3	8.1	4.7	6.4	7.1
Mostly essential	-3.1	-0.7	-0.6	2.2	-0.5
Mostly non-essential	-2.6	0.3	-1.0	-2.3	-1.0
Closed	0.4	2.8	1.3	5.7	2.3
All sectors	3.4	2.9	1.0	-0.7	1.7

Note: Data cover employment in 19 Member States (Denmark, Ireland and Portugal have been omitted due to data being partially masked, and Cyprus, Estonia, Latvia, Luxembourg and Malta have been omitted as countries consisting of a single NUTS 2 region).

Source: Ad hoc extraction of EU-LFS data

A feature of more recent growth in employment, during 2021–2022, was that it occurred disproportionately in sectors that had been closed during the pandemic, as might be expected following the relaxation of COVID-19-related restrictions. These were the sectors in which employment had contracted most sharply between 2019 and 2021. However, the strong recovery in employment meant that by 2022 these sectors had fully recovered from the pandemic-era losses. Employment in all sector types other than ‘remote possible’ and ‘closed’ declined.

The overall decline in employment in essential sectors was attributable almost entirely to the ongoing secular decline in agricultural employment.¹¹ Outside mainly rural areas, in capital city and mainly urban regions in particular, the proportions of employment in essential sectors grew.

In summary, the most important determinant of aggregate employment shifts during the early part of the pandemic (2019–2021) was less where employees worked than what type of sector they worked in. There was in particular a divergence between two types of services: KIS, which could be performed remotely, and in which employment grew sharply, and contact-intensive LKIS (e.g. accommodation, food services), which saw sharp declines in headcount and in which employment has been slower to recover. Employment levels have held up somewhat better than average in more urbanised regions due to their greater share of remote-possible KIS employment.

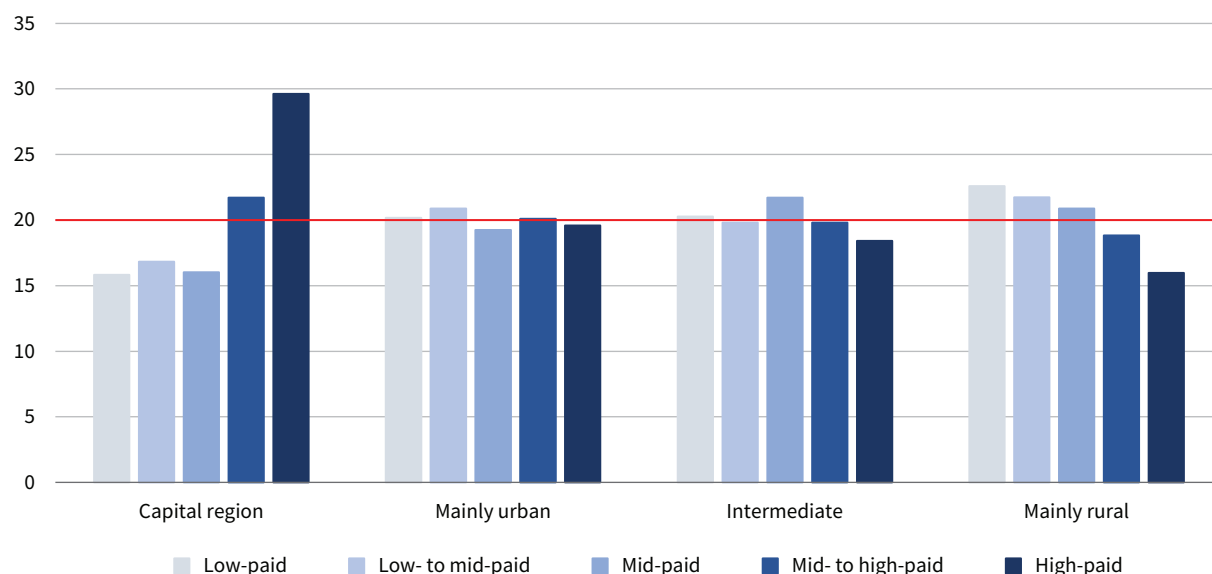
Job-wage quintile analysis by region type

This section analyses the shifts in employment by region across the job-wage distribution between 2019 and 2022, using the ‘jobs-based approach’ methodology developed for the European Jobs Monitor (Eurofound and European Commission Joint Research Centre, 2019). This approach breaks down net employment shifts over time by job, where a job is defined as a given occupation in a given sector using the relevant international classifications (International Standard Classification of Occupations (ISCO-08) and NACE Rev. 2).¹² Ranking jobs defined in this way by mean or median hourly wage makes it possible to assign them to quintiles in the job-wage distribution and thus to examine where in the wage distribution employment is being created and destroyed in a given period.

Before looking at how employment changed between 2019 and 2022, it is useful to consider how region types differ structurally and are characterised by different job-wage distributions. As noted earlier, KIS employment, which tends to require a higher level of qualifications, is concentrated in capital regions. This translates into a large share of well-paid employment (Eurofound and European Commission Joint Research Centre, 2019). Figure 9 shows that before the pandemic, in 2019, employment in capital regions skewed strongly towards the top quintile. This is a common feature across Member States, and it explains, among other things, why wage inequality within EU countries between cities and rural areas remains high, although wage inequality between EU countries continues to fall as average national standards of living converge (European Commission, 2023b).

¹¹ This effect is exaggerated by apparent breaks in the Romanian data time series, as discussed earlier. If the Romanian data are excluded, the category of essential sectors in mainly rural areas, as shown in Table 4, records marginally positive employment growth between 2019 and 2022 (+0.5% rather than -7.1%).

¹² To give an illustration, the two jobs in which the largest numbers of people are employed in the EU are sales assistant in the retail sector and teaching professional in the education sector, accounting for, respectively, around 6% and 5% of total employment in the EU, or over 20 million jobs in total.

Figure 9: Percentage of employment by job-wage quintile and region type, EU, 2019

Notes: Covers employment in 21 Member States; the following countries have been excluded: Cyprus, Estonia, Latvia, Luxembourg and Malta (countries consisting of a single NUTS 2 region) and the Netherlands (regional data not reported in EU-LFS). Red line represents the even distribution of the quintiles. For more methodological detail on the jobs-based approach, see Eurofound and European Commission Joint Research Centre, 2021.

Source: Authors' calculations based on EU-LFS microdata and Structure of Earnings Survey (SES) data

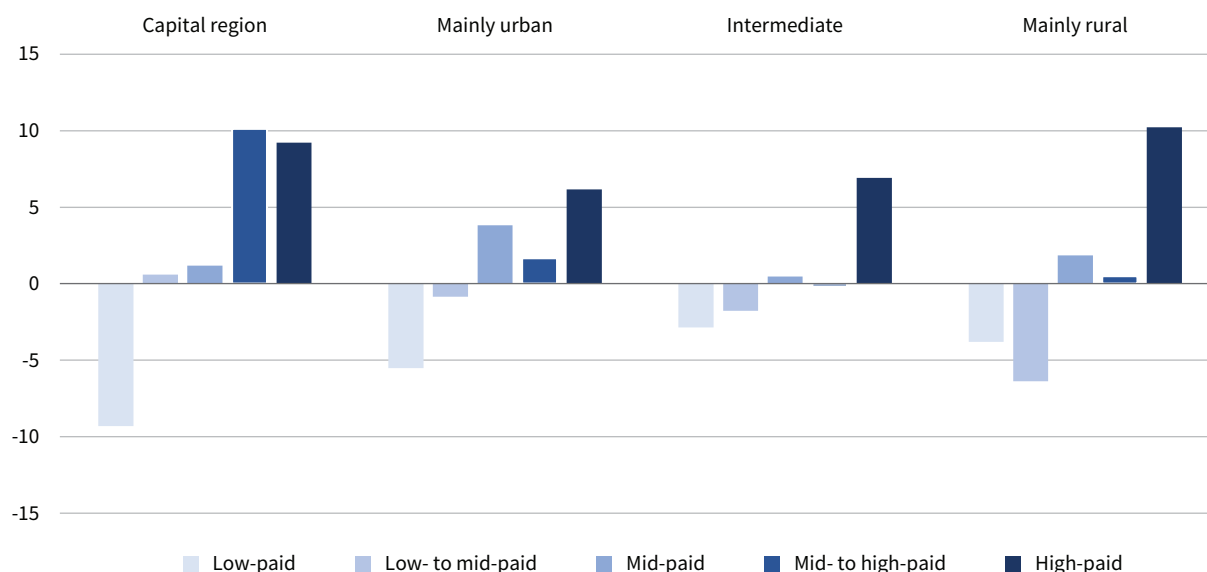
By definition, each quintile accounts for 20% of the total EU working population. However, the jobs in each quintile are not uniformly distributed across different types of regions: almost 30% of capital region jobs were in the top quintile. For the other region types, the shares of jobs in the top quintile were below 20%. The upward skew of well-paid jobs towards capital regions was also evident in a 22% share of mid- to high-paid jobs (those accounting for employment in the 60–80 percentile range of average wages) and much smaller shares of low- to mid-paid jobs (16–17% in each of the three lower quintiles). By contrast, employment in mainly rural regions was skewed towards lower-paid work more or less monotonically (i.e. the gradient of the skew was even across the categories), with low-paid jobs overrepresented and high-paid jobs underrepresented, notably in the top quintile (16%). Mainly urban and intermediate employment was more evenly distributed by wage, with only a modest downward skew. The relatively high proportion of manufacturing employment in intermediate regions contributed to their larger share of mid-paid jobs.

As previous analysis using the jobs-based approach and EU-LFS data has shown (Eurofound 2021b; Eurofound and European Commission Joint Research Centre, 2021), the COVID-19 crisis impacted most heavily on low-paid employment, mainly affecting jobs held by women and disproportionately affecting temporary employment. It was in this type of work that the sharpest employment declines were recorded. Mid-paid employment remained comparatively unaffected, while employment in well-paid jobs continued to grow. In

structural terms, employment shifts showed monotonic upgrading during the COVID-19 pandemic, in contrast to the previous major economic shock, following the global financial crisis, during which job losses were heavily concentrated in mid-paid jobs (mainly in construction and manufacturing), leading to polarising changes. As Eurofound has indicated, the rapid recovery that began in 2021 boosted employment in the top four job-wage quintiles at EU aggregate level, but employment in low-paid jobs did not recover (Eurofound, 2022b). In each of the region types, employment in the low-paid quintile was lower in 2021 than in 2020.

Figure 10 shows developments at EU aggregate level by region type, covering 2019 to 2022, from the pre-COVID-19 period to the first years of the recovery. Again, except for the capital regions, which were somewhat idiosyncratic, there was a significant degree of similarity in the patterns of employment shift by job-wage quintile across region types. In each, there were significant declines in low-paid jobs, varying patterns of slightly negative or positive shifts in mid and mid- to high-paid jobs and significant increases in high-paid jobs.

Capital regions were distinctive for the sharpness of the decline in low-paid employment during the period (-9%) but also the sharpness of their gains in well-paid jobs in the top two quintiles (+9–10%). One possible explanation for the former aspect is that social distancing restrictions impacted lower-paid contact-intensive services employment most in densely populated cities. This may also have contributed to the sharp decline in similar jobs in mainly urban regions. It is also worth noting that

Figure 10: Employment shifts by job-wage quintile and region type (percentage change), EU, 2019–2022

Notes: Covers employment in 21 Member States; the following countries have been excluded: Cyprus, Estonia, Latvia, Luxembourg and Malta (countries consisting of a single NUTS 2 region) and the Netherlands (regional data not reported in EU-LFS). For more methodological detail on the jobs-based approach, see Eurofound and European Commission Joint Research Centre, 2021.

Source: Authors' calculations based on EU-LFS microdata and SES data

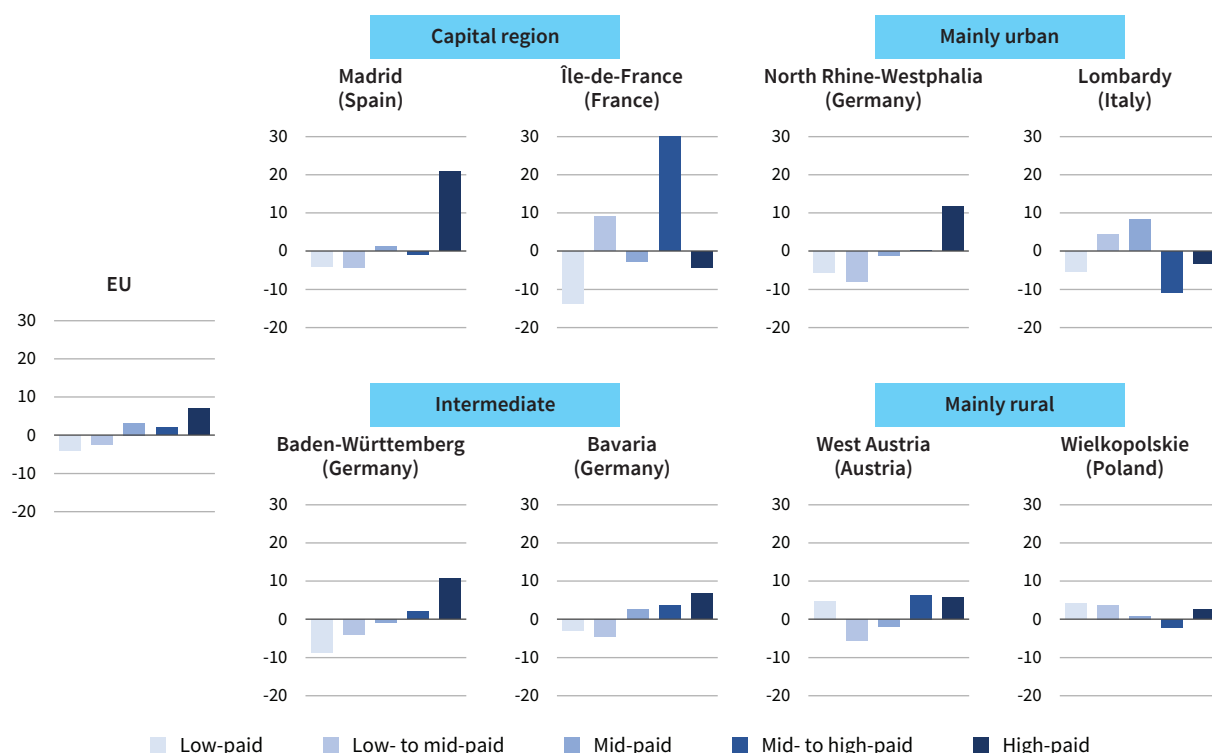
in the most recent year for which data were available (2021–2022) the strong pattern of upgrading noted above had reversed, and employment increases were much stronger in low-paid employment, becoming weaker as we move up the job-wage distribution. With minor variations, this pattern is again repeated across the region types. This would appear to be a compensatory corrective both to the severe cuts in low-paid employment and to the exuberance of well-paid employment growth during the pandemic.

Between 2019 and 2022, the remote working buffer served to protect top-quintile employment in capital regions, given their disproportionate share of well-paid remote-possible jobs. The COVID-19 pandemic also accelerated ongoing processes of digital transformation in many sectors, in part to facilitate increased remote working, and capital regions benefited from the associated hiring. Over half a million net new jobs were created in capital regions in the two most relevant sectors – professional, scientific and technical activities and information/communication (+13% overall for both sectors) – and among business/administrative and information technology (IT) professionals. There were also more dispersed, less concentrated gains across most professional and associate professional occupational categories in capital regions, resulting in more mid-to high-paid jobs.

The losses in employment in the agricultural sector were spread across different occupations in the bottom two quintiles, largely in mainly rural regions. And the relatively muted employment losses in low-paid jobs in mainly rural regions were in part attributable to headcount in the accommodation/food services sector, which did not suffer the same degree of decline experienced in more urbanised regions. Similarly, well-paid (top-quintile) employment in mainly rural regions was resilient, with professional employment growing in sectors such as transport/storage, construction and retail – in contrast to what occurred in more densely populated regions.

Figure 11 presents data on employment shifts by job-wage quintile for the two regions in each region type employing the largest numbers of people. The overall EU picture – included for comparison – shows monotonic upgrading, with gains in the top three job-wage quintiles and losses in low-paid jobs. The capital regions had a broadly similar skew towards well-paid employment, but the shifts were significantly more dramatic in scale than in the EU as a whole. In the Madrid region, employment in well-paid jobs in the top quintile grew by 21% during 2019–2022.

Figure 11: Employment shifts by job-wage quintile for specific regions (percentage change), 2019–2022



Notes: The three regions shown for Germany and the region shown for Austria are all NUTS 1 regions (the EU-LFS only provides regional data at NUTS 1 level). The remaining regions are at NUTS 2 level. For more methodological detail on the jobs-based approach, see Eurofound and European Commission Joint Research Centre, 2021.

Source: Authors' calculations based on EU-LFS microdata and SES data

The German regions (NUTS 1) in the mainly urban and intermediate groupings display similar upgrading patterns, but with North Rhine-Westphalia and Baden-Württemberg recording sharper gains at the top and losses at the bottom than Bavaria. The Italian region of Lombardy, one of the regions affected earliest and most severely by the COVID-19 pandemic, suffered a decline in employment – as did Italy as a whole – with only low- to mid-paid jobs and mid-paid jobs recording any increase. The two mainly rural regions, West Austria and Wielkopolskie in Poland, show quite different growth patterns from each other, but with relatively muted employment shifts in each quintile.

In summary, the EU as a whole experienced a sharp contraction in employment in 2019–2020 but recovered equally sharply in 2020–2022. Employment had surpassed its pre-COVID-19 levels by 2022, with over 2 million additional people in employment. Net shifts in employment clearly involved upgrading, with losses in low-paid employment more than compensated for by growth in well-paid jobs, although this pattern reversed in 2022, with lower-paid jobs recovering faster. Employment upgrading was most apparent in some capital regions.

Summary of findings

EU employment declined quickly in 2019–2020 but recovered equally quickly in 2020–2022. Labour markets have recovered more quickly from the COVID-19 crisis than they did from the global financial crisis: at the time of writing, employment rates were back on a trajectory to meet the main EU employment policy target of a 78% employment rate among 20- to 64-year-olds by 2030.

However, the overall positive performance of the EU labour market conceals significant geographical differences. In addition to variations in employment rates at Member State level, marked disparities in employment rates continue to exist among regions, with the difference between the highest and lowest rates within the same country as large as 33 percentage points in the case of Italy.

Capital regions are overrepresented among the top performers, and the secular trend towards urbanisation was largely undisturbed by the crisis, with these regions increasing their shares of population and employment at the

expense of intermediate and mainly rural regions. While capital regions benefited from gains in high-paid knowledge-intensive jobs, they were also more exposed to losses in low-paid contact-intensive jobs, resulting in strong patterns of employment upgrading between 2019 and 2022. In the two capital regions that employ the largest numbers of people in Europe, the job gains in the top quintiles were significantly more dramatic than in the EU as a whole.

A sectoral perspective on employment developments makes it possible to appreciate the heterogenous impact of the COVID-19 shock and the subsequent recovery. Because sectors in which work involves a high degree of interpersonal contact suffered the greatest restrictions on activities, tourism-dependent regions were those in which employment rates declined most markedly at the onset of the crisis in 2020, although they quickly bounced back the following year. At the other end of the COVID-19 impact spectrum, the resilience of employment in capital city and mainly urban regions was in part due to the larger share of work that could be performed remotely.

Building on these findings, the next chapter looks at the incidence of telework at regional level and its determinants, comparing trends before, during and after the COVID-19 crisis.

2 The geography of telework in Europe

Introduction

The COVID-19 crisis led to a sudden and generalised increase in the incidence of working from home across the EU27 (by 10 percentage points over the period 2019–2021), mainly accounted for by an increase in regular telework.¹³ At the peak of the COVID-19 pandemic, around a quarter of the workforce in the EU27 was working from home at least some of the time. After the crisis ended, the prevalence of telework remained at high levels, despite a drop at the intensive margin (in the share of people who reported working from home usually, as opposed to sometimes). This indicates that for many types of jobs – especially knowledge-intensive occupations, which tend to cluster in urban areas – telework had always been feasible. However, it appears to have remained at a level below its potential, as measured by a technical teleworkability index. This index is based on European data sources on the task requirements of occupations; estimates from Sostero et al (2020) based on pre-COVID-19 EU-LFS data indicate that around one-third of dependent employment in the EU is teleworkable.

Dependent employees, rather than the self-employed, are the group that experienced the largest increase in teleworking because of the COVID-19 pandemic, during which working from home was officially mandated or encouraged for all workers who were able to do so. Over a third (35%) of self-employed people were working from home before the COVID-19 crisis, many of them doing so on a regular basis (Sostero et al, 2020). A much smaller share of dependent employees worked from home in 2019 (11%). This figure doubled to around 22% in just over two years, remaining at 20% in 2022, well above pre-COVID-19 levels. The increase in the share of self-employed people working from home was much more modest (2 percentage points between 2019 and 2021) (Eurofound, 2022c), and the figure stood at around 38% in 2022.

Early evidence on the impact of the pandemic shows significant differences across EU Member States. While the share of employees working from home rose in all countries between 2019 and 2021, significant variations emerge both in terms of pre-COVID-19 incidence and subsequent expansion (Eurofound, 2022c). In the Benelux and Nordic Member States and in Ireland,

between around 30% and 50% of dependent employees reported working from home at least some of the time in 2021. This compared with 6% and 7% in Bulgaria and Romania, respectively, which still represents a five-fold expansion on pre-COVID-19 incidence in those countries (Eurofound, 2022c).

Within countries, significant differences were recorded across different NUTS regions and degrees of urbanisation. Between 2019 and 2021, the share of employed people working from home grew at its fastest pace in capital regions and other urban regions (Eurostat, 2022d). This is consistent with findings on the geography of remote work potential indicating that teleworkable employment tends to be more common in cities (44%) than in towns and suburbs (35%) or rural areas (29%) (Sostero et al, 2020). Intuitively, this reflects differences in the employment structure, as more densely populated metropolitan areas are richer in the knowledge-based, white-collar services jobs that lend themselves to remote working. Rural areas, by contrast, tend to have larger shares of jobs that cannot be performed remotely, as they involve more physical task content, such as those in agriculture. Moreover, internet connectivity tends to be better in cities than in rural areas.

A continuing expansion of telework may become a factor in further differentiation between the most economically developed regions (capital and urban) and the least economically developed regions (rural) in Europe. However, the broad adoption of teleworking arrangements opened up additional opportunities outside urban labour markets to many more people, as it relaxed constraints on relocation among potential movers from large city centres to areas with a lower cost of living, or potentially allowed rural residents to work remotely for employers based in cities. For these reasons, there is growing interest among European policymakers in levels of telework across different European regions, the factors behind the differences observed and the possibility of expanding them where they are at their lowest.

The analysis in this chapter aims to document regional differences in rates of working from home and how these have changed in recent years. It also looks at the regional distribution of teleworkable jobs and internet connectivity, which are drivers of telework, commenting

¹³ Telework is a subcategory of the broader concept of remote work that involves the use of personal electronic devices. Although telework and remote work can be carried out in various locations, including coworking spaces, satellite offices and cafés, the most commonly chosen option seems to be from the worker's home.

on the relative importance of these factors in explaining regional differences in rates of telework.

Evidence on the incidence of telework across territories in Europe

Data and methodology

This chapter documents how rates of working from home have changed across Europe on a geographical basis by NUTS region and degree of urbanisation. The analysis covers both the height of the pandemic and post-COVID-19 developments, using the latest available microdata from the EU-LFS, for 2019 to 2022. The main variable of interest is how often the respondent reports working from home, with the possible answers being ‘never’, ‘sometimes’ or ‘usually’. All respondents aged 15 and over who are either employees or self-employed are taken into account in the analysis reported in this chapter.

To measure regional aggregates, the analysis relies on the NUTS region of the respondent’s residence. In the EU-LFS microdata, this is reported at NUTS 2 level for all countries that have such subdivisions, except Austria and Germany (which report the place of residence at the higher NUTS 1 level) and the Netherlands (which reports all observations at national level). Region types, as defined in Box 1 in Chapter 1 and based on NUTS 2 classification, are also used in some instances, notably to identify specific trends in capital regions. However, a NUTS 2 region may cover various types of areas, with a single region including, for example, both cities and rural areas that differ in terms of employment structure and telework potential. For example, a given NUTS 2 region may be designated as ‘mainly urban’ overall, but some of its residents may nevertheless live in rural areas. Therefore, this chapter also reports territorial aggregates based on the degree of urbanisation of the respondent’s residence: city, town or suburb, or rural area. This territorial classification combines population size and population density thresholds to establish three mutually exclusive classes. It is based on a fine-grained geographical grid, with the category assigned according to the respondent’s residential address,¹⁴ which is otherwise not reported in EU-LFS microdata. This additional classification makes it possible to compare similar territories within and across different NUTS regions and countries.

Telework across EU NUTS 2 regions

Across the EU, the reduction in the overall share of people teleworking between 2021 and 2022 was mostly due to a reduction in the share of those usually working

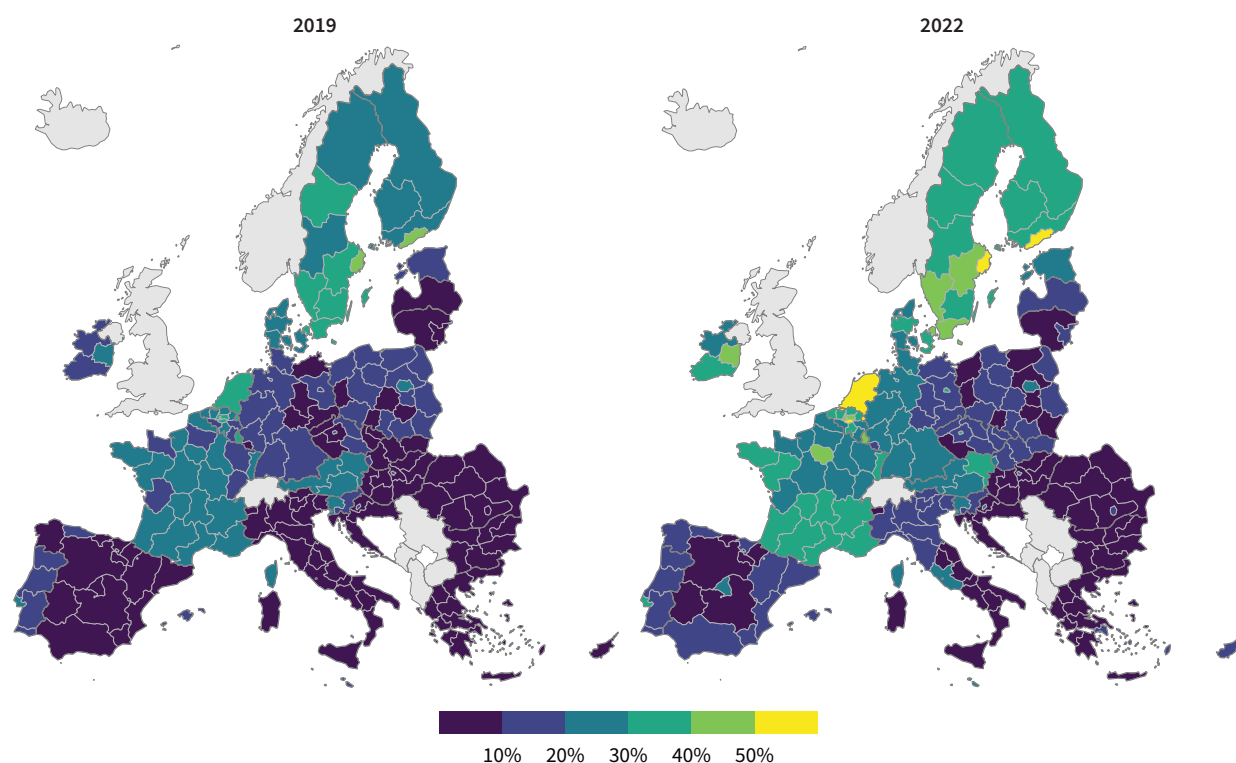
from home. This reduction was in the order of around 3.6 percentage points on average, with larger drops in Luxembourg and Belgium (around -10 percentage points), Sweden (-9 percentage points), and Portugal, Ireland and Denmark (around -6 percentage points). This reduction in regular telework was partly compensated for by an increase in the share of those reporting working from home sometimes (around 1.4 percentage points on average), especially in the same countries that saw the sharpest drops in regular telework.

While it was in countries with the lowest starting incidence of telework that it grew the most between 2019 and 2022 (the rate more than quadrupled in Cyprus and Bulgaria, and tripled in Romania), marked geographical differences remained. In 2022, telework continued to be more common in the Nordic and Benelux countries (with rates above 50% in the Netherlands and above 40% in Sweden, Finland and Luxembourg) and much less widespread in eastern and southern Europe (with rates below 15% in most countries and at only 4% in Bulgaria and Romania). Ireland had the fifth highest telework incidence (36%, up from 20% pre-COVID-19).

Besides the differences across Member States, there was considerable heterogeneity in the prevalence of telework across European regions, as shown in Figure 12, based on region of residence of EU-LFS respondents. Before the COVID-19 pandemic, Stockholm and Helsinki-Uusimaa were the only NUTS 2 regions with telework rates higher than 40%; the capital regions stood out also compared with other areas of the country (particularly in Finland, as several other southern and central regions in Sweden also recorded high incidences, around or above 30%). In 2022, 13 regions across the EU recorded teleworking incidence higher than 40%.

Among the regions with the lowest incidence of telework (1.2% or lower) before the pandemic, 8 out of 10 were in Bulgaria and Romania (4 in each country) with the remaining 2 in Greece, and they tended to be mostly rural. The same regions were also still at the bottom of the ranking in 2022, albeit recording a slightly higher incidence in telework. Bulgaria and Romania, which had very low pre-COVID-19 rates of telework, also had the lowest interregional variability, although this increased over time (it was below 1.5 percentage points in both countries in 2019 and it had reached 4 and 9 percentage points, respectively, in 2022). Conversely, Belgium is a country with a high rate of telework (25% in 2019 and 36% in 2022) but also high, and growing, regional variation (22 percentage points in 2019 and 26 percentage points in 2022).

¹⁴ For more information, see ‘Local administrative units (LAU)’, Eurostat, available at <https://ec.europa.eu/eurostat/web/nuts/local-administrative-units>

Figure 12: Share of workers teleworking by NUTS region (%), EU27, 2019 and 2022

Note: Regions are NUTS 2 where available; Austria and Germany are NUTS 1; the Netherlands is NUTS 0.

Source: EU-LFS microdata

While telework rates have risen across the great majority of EU regions since 2019, as discussed, this increase has been uneven not just across countries but also across different regions in the same country. The EU average variation between the regions in each country with the highest and lowest rates of telework increased from around 10 percentage points in 2018 and 2019 to 19 percentage points in 2021, before

reducing somewhat in 2022 (17.3 percentage points).¹⁵ In other words, the average level of telework increased across EU NUTS regions, and so did the range of values between the regions with the highest and lowest teleworking rates within each country. Box 3 provides an in-depth analysis of convergence trends in teleworking rates at regional level, presenting alternative measures.

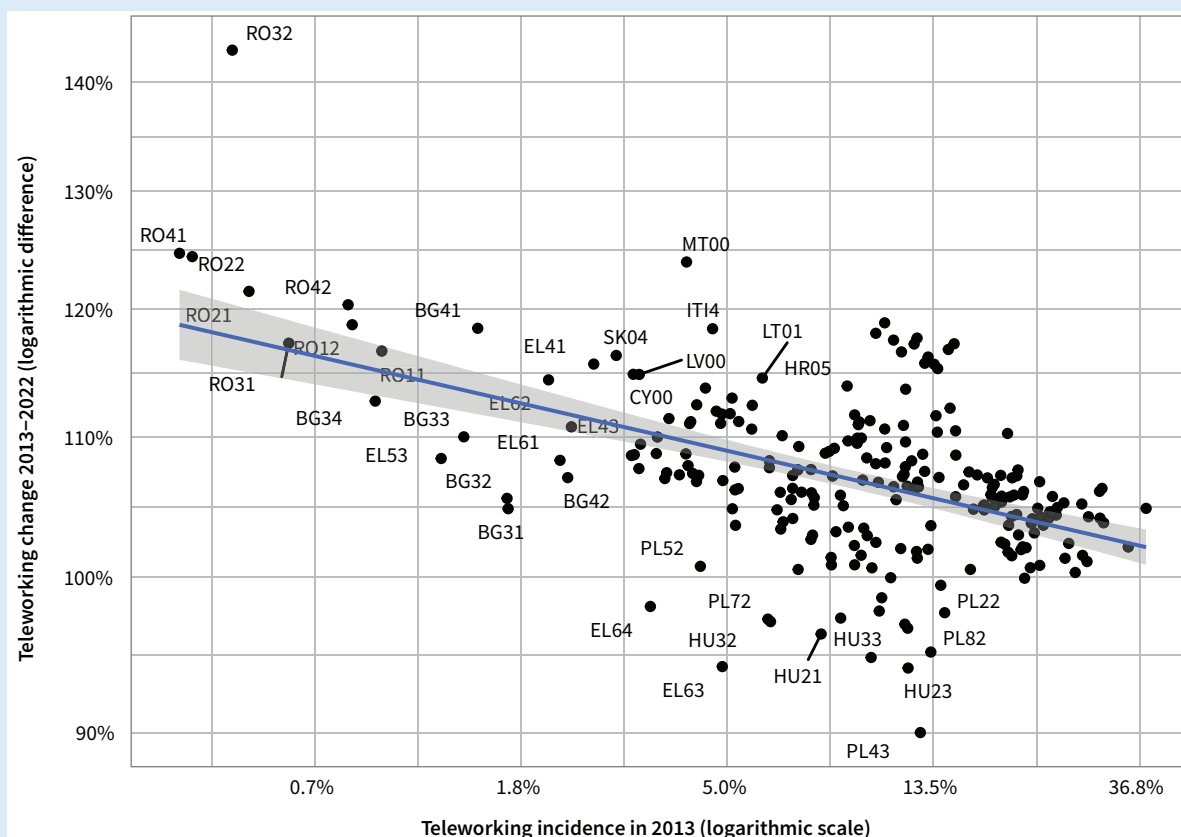
Box 3: Regional convergence in the incidence of telework

Over the past decade, European regions have seen upward convergence in their teleworking rates (as proxied by the working from home variable in the EU-LFS data).¹⁶ This process of convergence can be observed using various measures, each emphasising a particular aspect. The analysis presented here is based on a Eurostat data extraction from November 2023, covering the period from 2013 to 2022 and including NUTS 2 regions in all 27 EU Member States. The sample includes all employed people aged 15 and over, excluding unpaid family workers.

The first measure, that of beta-convergence, is directly related to economic neoclassical growth theory and refers to a catch-up process in which poor regions grow faster than rich ones. In the context of regional telework rates, beta-convergence can be observed, as the teleworking rate grew faster in regions starting with lower levels. Statistically, this results in a negative relationship between the initial rate of teleworking (in 2013) and its subsequent growth (between 2013 and 2022), as illustrated in Figure 13.

¹⁵ This excludes EU Member States that consist of a single NUTS 2 region (namely Cyprus, Estonia, Latvia, Luxembourg and Malta). Data on the Netherlands are also reported only at national level in the EU-LFS microdata used in this chapter. This differs from the EU-LFS ad hoc extraction used in the previous chapter, in which data on the Netherlands were reported at NUTS 2 level (hence Table 1 reporting only five 'whole country' NUTS 2 regions).

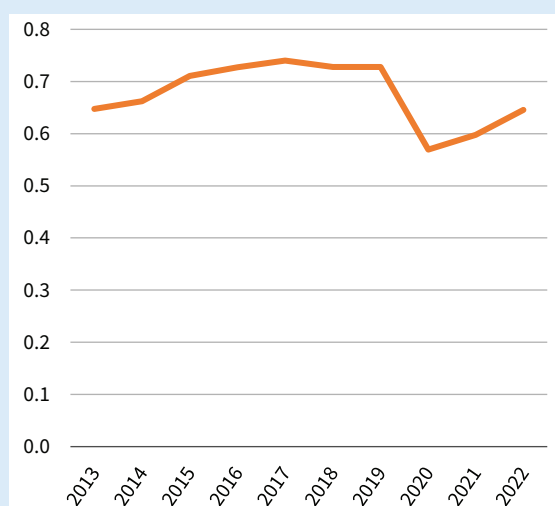
¹⁶ Eurofound has defined upward convergence as an improvement in the EU average level of a given indicator, moving towards a policy target or to a societally acceptable level, combined with reduced disparities in this indicator across Member States (Eurofound, 2018).

Figure 13: Beta-convergence in teleworking incidence among EU27 NUTS 2 regions, 2013–2022

Source: Authors' calculations based on an ad hoc extraction of Eurostat data

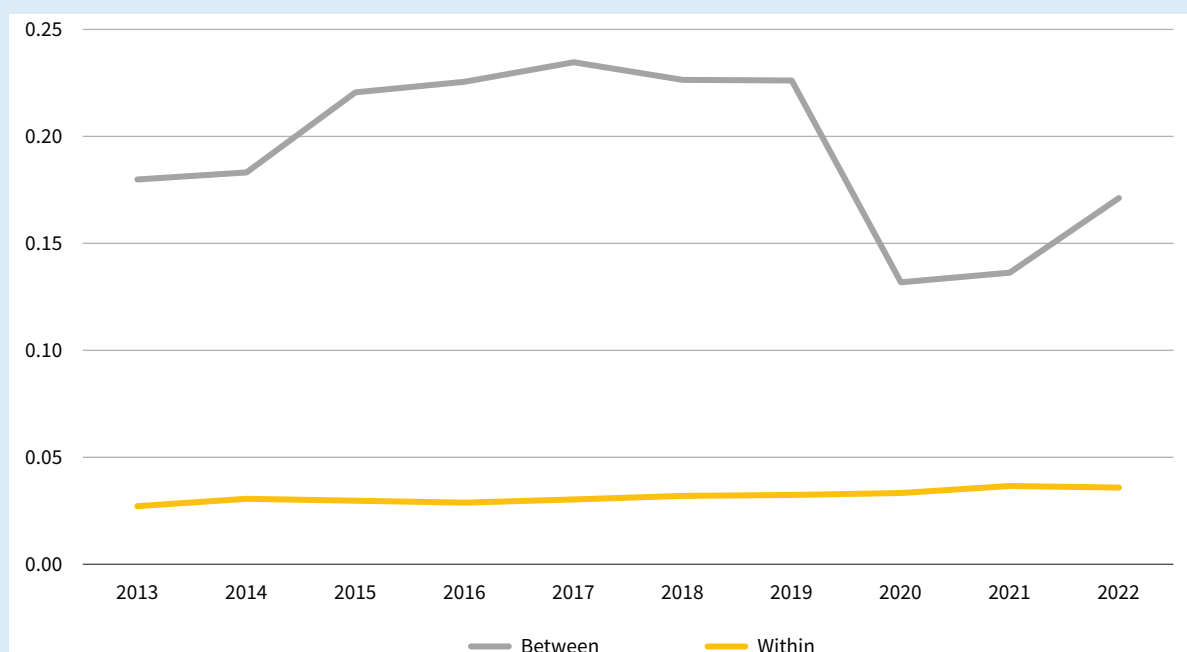
An alternative and complementary approach to measuring convergence relies on detecting possible reductions in disparities among regions over time. This is referred to as sigma-convergence, and it can be analysed using various measures, including the coefficient of variation, the Theil index and other inequality indices. The convergence measure presented in Figure 14 is the coefficient of variation, which shows a marginal increase in disparities between regions from 2013 to 2019 and then a noticeable reduction in the first year of the COVID-19 crisis (2019–2020). However, this reduction in regional disparities seems to have been only temporary, as the coefficient increases again between 2020 and 2022. Nevertheless, in 2022 it was still marginally lower than in 2013, suggesting weak upward convergence.

The Theil index makes it possible to decompose the overall disparities in teleworking rates between Member States and between regions within these Member States. The higher the index is, the bigger the differences in teleworking incidence are. As shown in Figure 15, the differences across regions are mostly accounted for by the country component ('between'), which sharply declined between 2019 and 2020, but then increased again, which is consistent with the findings presented above. The regional component ('within') has marginally increased, but it remains proportionally very small.

Figure 14: Coefficient of variation in teleworking incidence between EU27 NUTS 2 regions, 2013–2022

Source: Authors' calculations based on an ad hoc extraction of Eurostat data

Figure 15: Theil index decomposition of within and between Member State variation in teleworking incidence in EU27 NUTS 2 regions, 2013–2022



Source: Authors' calculations based on an ad hoc extraction of Eurostat data

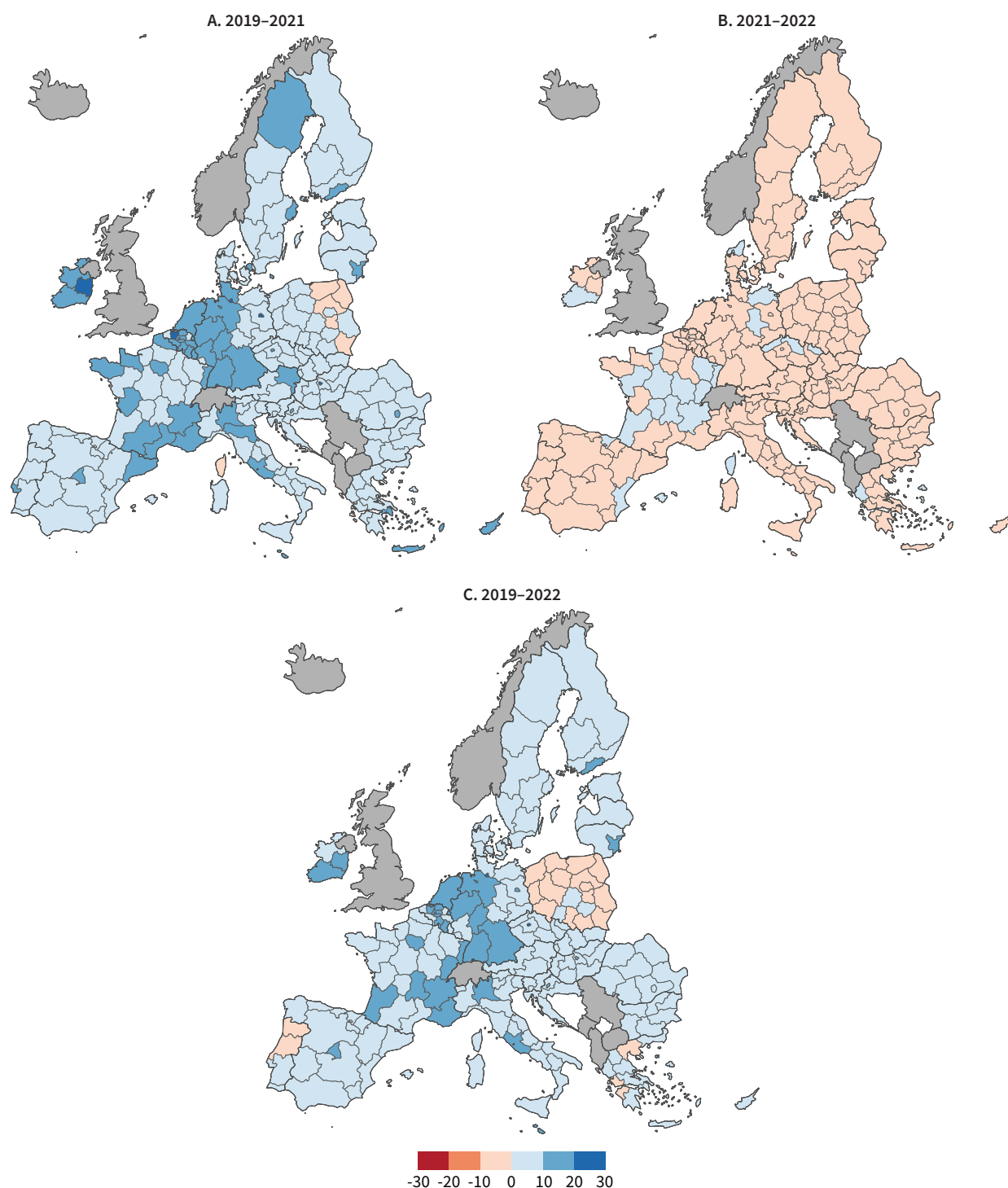
To better understand how regional rates of telework changed during the surge and retreat of COVID-19, and related lockdown measures, Figure 16 shows changes in the proportion of workers teleworking by region over different time spans. Panel A shows changes from the pre-COVID-19 situation in 2019 to the peak of telework in 2021; panel B shows changes from 2021 to 2022, by which point lockdown measures had been lifted in most countries; and panel C shows overall changes between 2019 and 2022.

During the peak of the COVID-19 pandemic, telework increased in nearly all NUTS regions (panel A), with the notable exception of some mainly rural regions in Poland and the French island of Corsica. Capital regions recorded the most significant expansions in the incidence of telework, around 24 percentage points in Eastern and Midland (Dublin) and Budapest, and between 19 and 21 percentage points in Berlin, Île-de-France (Paris), Brussels Region and Lisbon Metropolitan Area. The lowest increases (5 percentage points or below) were recorded in Bratislava, West Slovenia (Ljubljana) and Warsaw Capital. While in several capital regions the increase can be exclusively attributed to regular telework, with a decline in the incidence of occasional telework (this applies to Stockholm, Paris, Brussels, Copenhagen and Dublin), in most cases the situation was more balanced.

Besides capital regions, Hamburg in Germany, East Flanders and Flemish Brabant, both in Belgium, and the South Aegean region of Greece¹⁷ stand out as mainly urban or intermediate regions recording large increases in telework between 2019 and 2021 (19 percentage points or more). Hamburg recorded the third-largest increase in incidence of telework (+23 percentage points) after Dublin and Budapest; that increase compares with 21 percentage points for Berlin and 12–13 percentage points in the other mainly urban German regions, namely North Rhine-Westphalia, Bremen and Hessen.

While in some countries the capital regions clearly stand out as having experienced by far the largest expansion in remote work (e.g. in Hungary, Portugal, and Romania), in other Member States significant increases are visible in many regions. This is the case, for instance, in Belgium, where the incidence of telework increased by more than 12 percentage points in 8 out of 10 non-capital regions. Another example is Italy, where the northern region of Lombardy and the central region of Emilia-Romagna recorded significant increases in the share of people working from home (+14 and +10 percentage points, respectively), along with the Lazio capital region (+18 percentage points).

¹⁷ It should be noted that the number of respondents from this NUTS 2 region was 3,115 in 2019 but only 200 in 2021, which casts doubt on the reliability of the data indicating this increase.

Figure 16: Change in proportion of workers teleworking by NUTS region (percentage points), EU27

Note: Regions are NUTS 2 where available; Austria and Germany are NUTS 1; the Netherlands is NUTS 0.
Source: EU-LFS microdata

As lockdown measures ended, the share of people teleworking decreased in most EU regions between 2021 and 2022 (panel B), without returning to pre-pandemic levels; the largest reduction in any region was below 10 percentage points. The largest drops were observed in Greece (South Aegean, -9.9 percentage points; Crete, -7.5), Portugal (Lisbon Metropolitan Area, -9.3 percentage

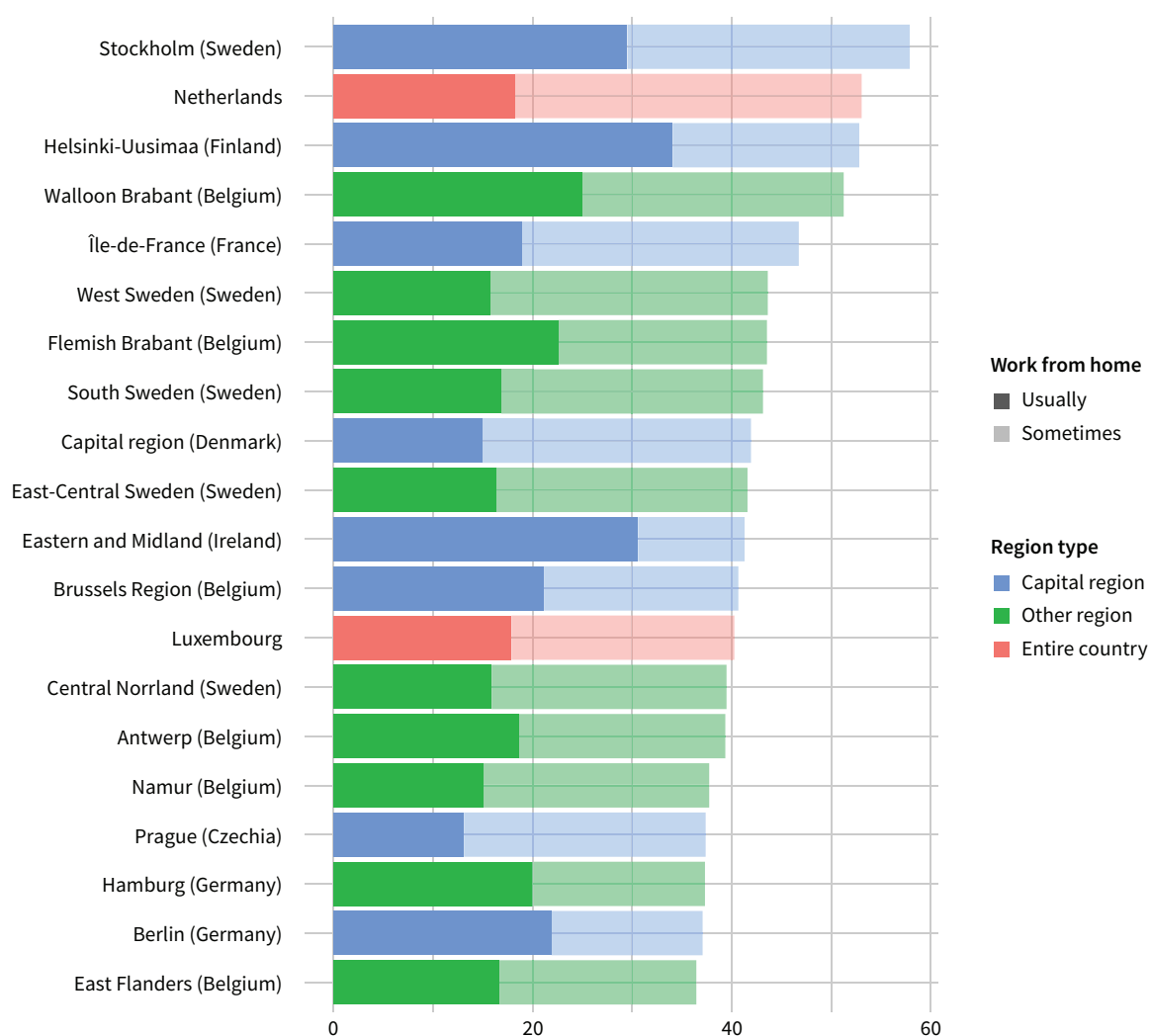
points; North, -9.2) and Belgium (Liège, -7.3 percentage points; Brussels Region, -7.0). By contrast, several regions reported an increased share of telework compared with the previous year, including in Czechia (Prague, +8.2 percentage points, the highest overall; North-West, +4.3), France (Corsica, +7.4 percentage points; Aquitaine, +4.1; Auvergne, +3.9) and Spain (Basque Country, +4.1 percentage points).

Comparing the teleworking rates before the pandemic with the latest figures (panel C), around 90% of EU regions reported a higher proportion of people working from home in 2022 than they did in 2019. Many of the largest increases occurred in capital regions: Prague (+21.1 percentage points), Eastern and Midland (+19.7), Berlin (+19.7), Île-de-France (+17.8) and Budapest (+17.2). Hamburg (+20.6 percentage points), Malta (+16.4) and the Netherlands (+16.0) also saw increases that were among the largest, but they are not, or not strictly categorised as, capital regions. Only 21 regions saw an overall decrease in the share of people teleworking between 2019 and 2022, of at most -5.5 percentage points (Ceuta, Spain). Most of those regions are classified as rural or intermediate and are in Greece, Poland or Portugal. Warsaw is the exception; it saw an

overall decrease of 1.7 percentage points over the period, which was unusual for a capital region.

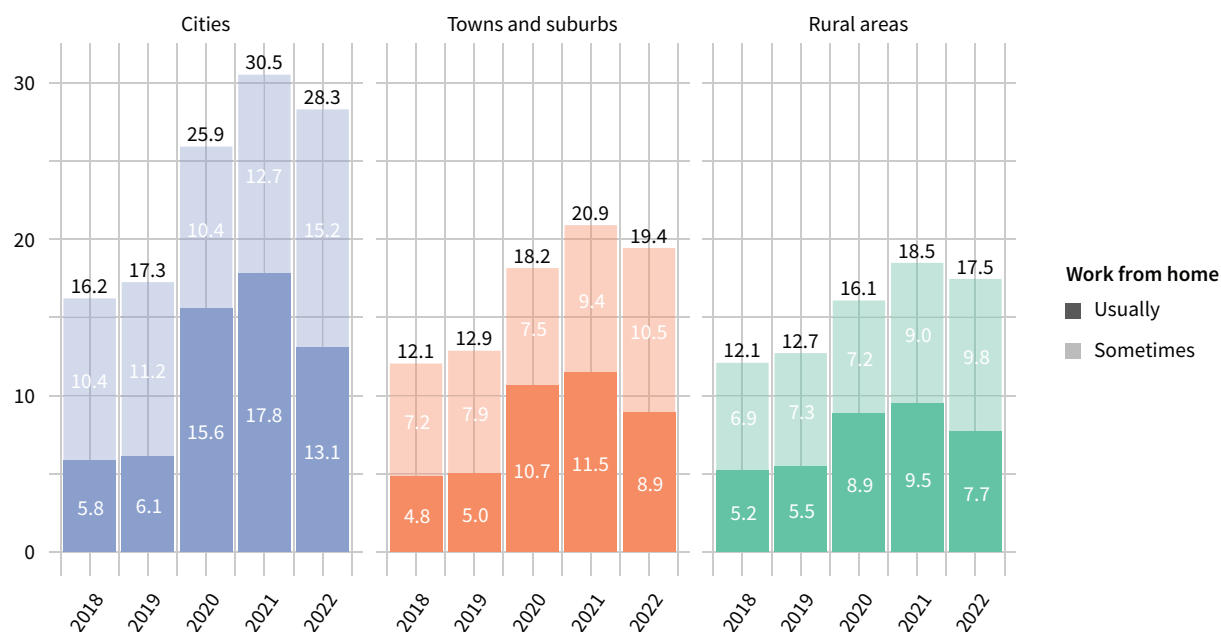
Indeed, the high rates of telework in capital regions, and some of their immediate neighbours, stand out. Among the 20 regions with the largest shares of people working from home in 2022, the majority were capital regions – or those bordering them, such as the Brabant regions in Belgium – in Nordic or continental countries, and particularly in the Benelux countries (see Figure 17). For context, in 2022 the shares of telework across regions varied between 57.9% in Stockholm and 2.4% in the Romanian region of South-Muntenia. The regions with the lowest rates of teleworking were found in Romania, Bulgaria, Greece and Poland. These are mainly rural or intermediate regions.

Figure 17: The 20 EU regions with the highest rates of telework, 2022



Notes: Regions are NUTS 2, except for the Netherlands, data on which are reported at country level in the microdata. Luxembourg consists of a single NUTS 2 region.

Source: EU-LFS microdata

Figure 18: Share of workers teleworking by degree of urbanisation (%), EU27, 2018–2022

Source: EU-LFS microdata

Telework by degree of urbanisation

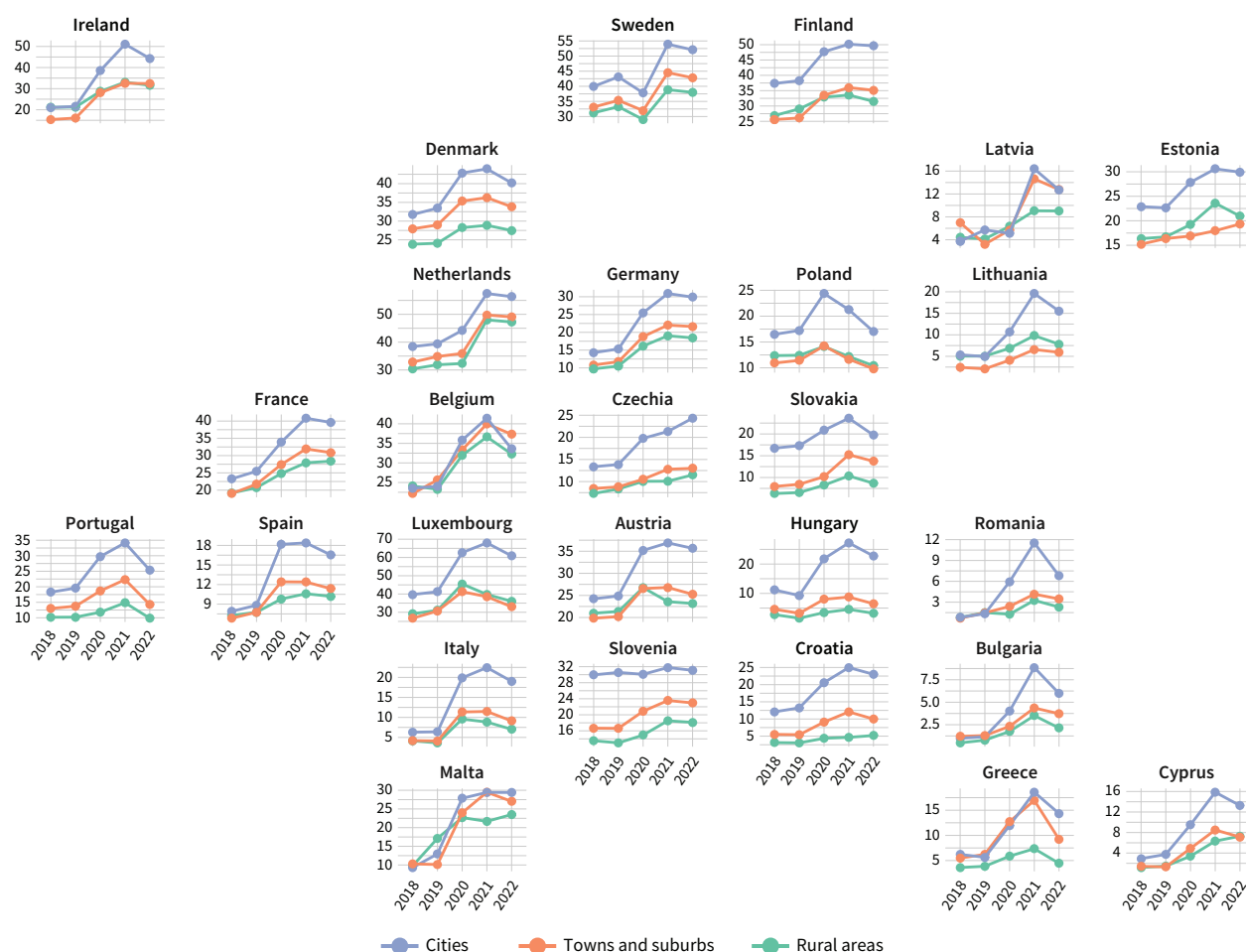
In addition to capital regions having notably high levels of remote work, since 2020 there has been a more general divergence across EU NUTS regions: between cities on the one hand, and towns, suburbs and rural areas on the other. At EU27 level, the share of people working from home at least some of the time in cities increased from 17.3% in 2019 to 30.5% in 2021, before dropping slightly to 28.3%; this amounts to an overall increase of approximately 11 percentage points between 2019 and 2022 (Figure 18). This compares with an increase of approximately 6.5 percentage points in towns and suburbs and around 4.7 percentage points in rural areas. Across all degrees of urbanisation, the increase resulted largely from a greater share of people reporting that they usually work from home.

The same trend is visible in most EU countries: Figure 19 shows that telework became more common in cities in particular between 2018 and 2022. Poland is a notable exception, as the share of the working population teleworking declined or remained stable across all degrees of urbanisation. In 2022, the gap between the urban and rural incidence of remote work was largest in Luxembourg, Hungary, Finland, Croatia, and Portugal.

Between 2019 and 2021, the gap between cities and rural areas widened in the majority of countries, with the exception of Slovenia. It is also interesting to note that in Belgium the evolution in the incidence of telework has been remarkably similar across different degrees of urbanisation. Otherwise, in most countries the extent of telework in towns and suburbs remained similar to that in rural areas, rather than expanding to match its prevalence in cities (with the notable exceptions of Greece, Latvia and Malta).

In every country, the share of people teleworking decreased slightly between 2021 and 2022. On average, the drop was slightly larger in cities (-2.2 percentage points) than in towns and suburbs (-1.5) or in rural areas (-1). Some countries saw more marked drops in cities, notably Ireland (-6.8 percentage points, compared with virtually stable rural areas and towns and suburbs), Romania (-4.7), Lithuania (-4.1), Latvia (-3.7) and Bulgaria (-2.9). Nevertheless, in most Member States, cities stand apart in the extent to which their rates of telework have increased overall since 2019, with marked differences between the rates in cities and those in towns and suburbs and in rural areas.

Figure 19: Share of workers teleworking by degree of urbanisation (%), Member States, EU27, 2018–2022



Source: EU-LFS microdata

Teleworkability and internet connectivity across regions

The previous section described a generalised increase in the prevalence of telework during the COVID-19 crisis across most European regions, especially in capital regions and urban areas more broadly. Obviously, the direct cause of this increase in telework was COVID-19 itself or, more specifically, the need to limit social interaction to a minimum to reduce contagion and health risks. Providing labour input from home rather than in crowded workspaces was a very effective way to reduce the risks posed by the pandemic. However, not all types of jobs can be done remotely: some require direct physical manipulation of things or human interaction. In other words, technical feasibility is an essential precondition for telework, and thus a key factor determining the prevalence of telework by geography during the pandemic period. The same applies to internet connectivity, which is essential to enable telework. The following section discusses these two factors in turn.

Telework incidence and potential at regional level: a correlation analysis

The COVID-19 crisis entailed a large-scale change in the nature and practice of telework across Europe, showing that telework was feasible for a much larger share of workers than had previously participated in it. For instance, mid-level clerical and administrative workers had limited access to remote working arrangements before the pandemic, but in 2020 and 2021 the share of these white-collar employees working from home rose significantly. In fact, the nature of these jobs made it technically possible for them to work remotely even before COVID-19, but the extent of telework was limited by organisational, cultural and legal factors. These constraints were lifted during the pandemic, and most clerical and administrative workers did work remotely during lockdowns. These occupations illustrate a broader trend in rates of telework catching up with what was already technically possible.

The potential for telework is quantified by the technical teleworkability index developed by Sostero et al (2020, 2023). Sostero et al sought to gain an understanding of which jobs could be performed remotely in the digital age. The index is based on the task content of occupations – what people do at work – as measured through surveys administered before the pandemic. It captures whether workers in any given occupation face physical constraints on working remotely, because the job requires physical manipulation of objects, people or machinery that cannot be done remotely with available digital technologies. The index ranges from 0 (the occupation is not technically teleworkable, because it requires physical interaction with machinery, tools or people) to 1 (the occupation is fully technically teleworkable).¹⁸

The regional share of people employed in technically teleworkable occupations helps explain the difference in observed rates of telework across European regions, since the regions have different occupational structures, mostly because of their various levels of economic development and patterns of economic specialisation (as seen in Chapter 1). Some regions specialise in manufacturing industries that require labour input from workers in manual occupations; others specialise in tourism services that tend to involve direct personal interaction; and some regions specialise in knowledge-intensive services that require little manual input or direct personal interaction and can therefore be carried out remotely. In other words, since economic specialisation results in different occupational structures, the telework potential of different regions will also tend to vary.

As we have seen, the COVID-19 pandemic prompted a general shift in remote work, lifting many of the administrative, cultural and legal constraints that had previously prevented it. As a result, technical teleworkability – aggregated at regional level based on regional occupational structure – has become an increasingly good predictor of the incidence of telework at regional level.

Figure 20 provides a simple but effective test of this argument. It shows the change over time in the relation between mean regional teleworkability (horizontal axis) and the share of the working population actually teleworking (percentage of workers working from home at least some of the time, vertical axis) across EU NUTS 2 regions (circles, scaled by population). As expected, the technical feasibility of telework at regional level, estimated based on the occupational structure of each region, has become a much better predictor of the regional prevalence of telework since 2020: the regression coefficient of the linear regression (β) – which measures the strength of the observed relation between mean regional teleworkability and the share of people working from home – increased sharply from 0.81 in 2019 to 1 in 2020 and 1.2 in 2021. Likewise, the R^2 coefficient – which measures the proportion of variation in regional telework that can be predicted by regional teleworkability – went from 40.6% in 2019 to 59.5% in 2020, a substantial increase in predictive capacity. This then remained at similarly high levels during the recovery period in 2021 and 2022.

Figure 20: Correlation between technical teleworkability and share of workers working from home at NUTS 2 regional level, EU27, 2019–2022



Sources: EU-LFS microdata; technical teleworkability values from Sostero et al, 2020, 2023

¹⁸ The technical teleworkability index was originally computed at ISCO-08 three-digit level, which is reported in EU-LFS data for most countries, excluding Bulgaria, Malta and Slovenia, which report on occupations at a less granular level.

Among the NUTS regions, several categories can be distinguished, based on their population density: urban regions tend to have higher values for both teleworkability and actual prevalence of telework; however, they are often below the diagonal, indicating that the prevalence of telework is lower than their occupational structure would predict, meaning that in many cases they could expand effective telework even further. By contrast, rural regions tend to have lower values, but they tend to be above the diagonal, suggesting levels of remote working slightly higher than expected given their occupational structure. This may stem from the share of agricultural work, which is not teleworkable according to the definition used here – it is essentially manual work – but tends to be done from home rather than from a central workplace. In any case, for all types of regions we can see that during the COVID-19 crisis the correlation between teleworkability and telework became considerably stronger.

Overall, a simple correlation analysis shows that most of the variation across EU regions in the observed rates of telework after COVID-19 can be explained by differences in regional occupational structure, which result in different average technical teleworkability values. However, other potentially relevant regional-level explanatory factors may also contribute to explaining regional differences in telework, including, for instance, regions' levels of digital infrastructure. The next section looks more specifically at regional internet connectivity, providing information on the relevant policy context, as well as detailed novel evidence.

Regional internet connectivity

Internet connectivity is an important technology for economic and social development, in cities and rural areas alike. It also happens to be the essential infrastructure required for remote work. Historically, internet connectivity has generally been better in urban areas, which are more densely populated and tend to be richer, which has made investing in internet infrastructure there more appealing than in less densely populated rural areas.

Improving internet access has been a long-standing policy objective of the EU, to better integrate its single market and improve access to services; it was on the agenda well before COVID-19 and lockdown measures made it an urgent necessity. In 2010, as part of its Europe 2020 strategy, the European Commission set out, as one of its seven flagship initiatives, a Digital Agenda for Europe to 'speed up the roll-out of high-speed internet and reap the benefits of a digital single market for households and firms' (European Commission, 2010a, 2010b). These documents established a target of

providing every European with 'basic broadband', defined as an internet speed of between 144 kbps (kilobits per second) and 30 Mbps (megabits per second; 1 Mbps = 1,000 kbps), by 2013. By 2020, the target was for all Europeans to have access to the internet at speeds above 30 Mbps, with 50% or more of European households subscribing to an internet connection providing more than 100 Mbps. The EU made over €15 billion available to Member States in 2014–2020 to support the necessary investments. These objectives were revised in 2016 when a vision for a 'European Gigabit Society' was set out; this established new connectivity targets for 2025 (European Commission, 2016). These notably put an emphasis on the degree of urbanisation by explicitly aiming to ensure that all households, whether rural or urban, have access to connectivity offering a download speed of at least 100 Mbps, which can be upgraded to gigabit speed (1,000 Mbps). The implementation of these and other digital targets was monitored by the Digital Economy and Society Index (European Commission, 2018). However, in 2018 a special report by the European Court of Auditors noted that 30 Mbps broadband coverage reached less than 50% of the EU population in rural areas, while in cities the figure was closer to 80%. As a result, the Court of Auditors noted that most Member States were not on track to reach their 2020 targets (ECA, 2018). A granular geographical analysis by the European Commission Joint Research Centre has also shown a wide urban–rural divide in internet connectivity: by 2019, 96% of EU households had access to some form of fixed broadband connection, but less than 40% of rural households had access to fast broadband (> 30 Mbps) compared with about 63% of urban ones (Perpiña et al, 2021; Sulis and Perpiña, 2022).

The different levels of internet connectivity by degree of urbanisation across EU regions are shown in Figure 21, which presents average real-world connectivity speeds, as tested by consumers, in cities, towns and suburbs, and rural areas in EU NUTS 2 regions.¹⁹ Internet speeds are grouped into three ranges, based on the thresholds used in the Digital Agenda for Europe in 2010 (also used in Sulis and Perpiña, 2022), namely basic broadband, below 30 Mbps; fast broadband, between 30 and 100 Mbps; and ultra-fast broadband, above 100 Mbps.²⁰

In 2019, the urban–rural divide was apparent in many EU regions, as shown in the top row of maps in Figure 21. Rural areas in most NUTS 2 regions of Austria, Bulgaria, Czechia, France, Greece, Ireland, Italy and Slovakia experienced average speeds under 30 Mbps (basic broadband), whereas cities and towns and suburbs in the same regions tended to enjoy services offering above 30 Mbps, or even above 100 Mbps.

19 Based on Speedtest Intelligence® data for 2019 and 2022 provided by Ookla® and processed by Patrizia Sulis of the European Commission Joint Research Centre.

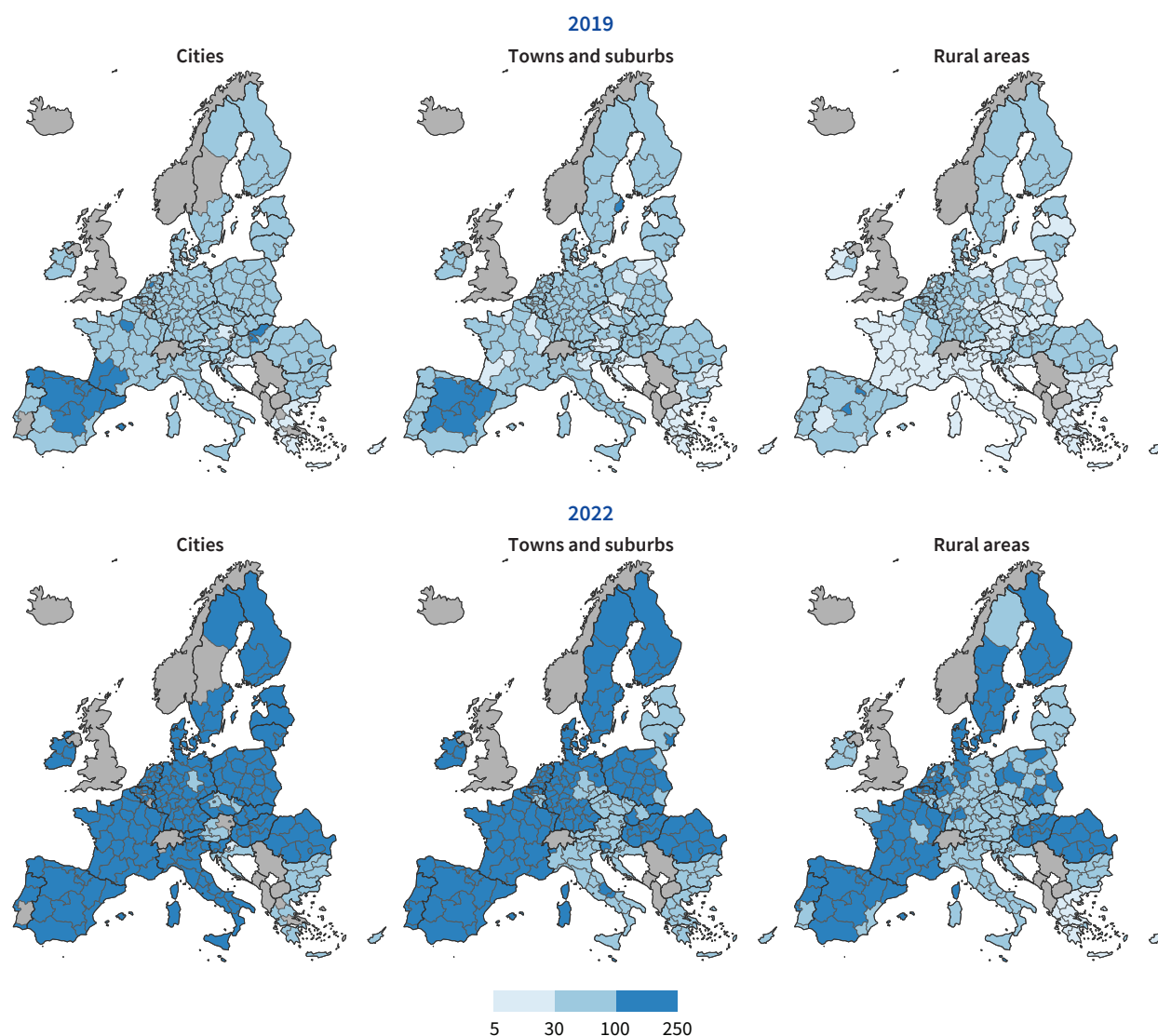
20 The measurements differ from those reported by Eurostat, which are expressed in terms of share of households with access to broadband internet speeds, but which distinguish between different degrees of urbanisation only at national level, not at regional level. See European Commission (2023c) and Eurostat, Households with broadband access [isoc_r_broad_h].

The COVID-19 crisis provided an impetus to accelerate investment in infrastructure, and led to more resources for investment, which resulted in dramatic changes. Whereas in 2019 only two EU regions (Madrid and La Rioja in Spain) had average internet speeds of over 100 Mbps in rural areas, by 2022 this had become much more common (see the bottom row of maps in Figure 21), most notably in Denmark, Finland, France, Hungary, Portugal, Romania, Spain and Sweden. Improvements were made across all degrees of urbanisation, and the urban–rural gap in internet connectivity remained visible, notably in the Baltic countries, the Walloon Region in Belgium, Bulgaria, Germany, Ireland, Italy and Poland. Closer analysis shows that in 2022 rural areas on average enjoyed faster internet speeds than urban areas did as recently as 2019, although there is substantial variation at national and regional levels.

Meanwhile, connectivity in cities had increased even further: the urban–rural gap in internet speeds widened slightly in 2022.

The policy targets for connectivity were also raised during the COVID-19 years. In 2021, the European Commission, in its communication on the long-term vision for the EU's rural areas, highlighted the gap in internet speeds available in rural areas compared with those available in urban areas (European Commission, 2021; see also the policy brief by Perpiña et al, 2021). In 2022, the EU raised its connectivity targets even further as part of the Digital Decade policy programme 2030, which set the goals of making a fixed gigabit network available to all and offering high-speed mobile coverage to all populated areas by the end of the decade (European Parliament and Council of the European Union, 2022).

Figure 21: Internet speed (Mbps) by NUTS 2 region for different degrees of urbanisation, EU27, 2019 and 2022



Source: European Commission Joint Research Centre, based on Speedtest Intelligence® data from Ookla® for 2019 and 2022

How did the availability of broadband internet affect the feasibility of telework across different degrees of urbanisation during the COVID-19 crisis? On the one hand, the tasks most commonly required for remote work, such as internet browsing and videoconferencing, are not especially demanding in terms of bandwidth compared with high-definition video streaming for entertainment. The US Federal Communications Commission's broadband speed guide indicates that the minimum download speed for 'telecommuting' (namely, telework) is between 5 and 25 Mbps, and high-definition videoconferencing requires only 6 Mbps, which would put telework within the upper range of the capabilities of a basic broadband service offering up to 30 Mbps, depending on the number of users per household connection (Federal Communications Commission, 2020). This minimum level of service was already widely available in 2019 in cities, towns and suburbs across the EU, although not in many rural areas.

On the other hand, the figures for average download speeds by degree of urbanisation presented above may not paint the full picture: effective internet connection speed can vary by three orders of magnitude (in terms of kilobits to megabits to gigabits per second, depending on the technology), resulting in a heavily skewed distribution of speeds, which means that a few high-bandwidth households may skew the averages up in otherwise poorly connected rural areas; this is apparent in a study conducted at the more granular levels of the functional urban area and the local administrative unit (see Sulis and Perpiña, 2022).

In addition, most policy targets, as well as the measurements presented here, focus primarily on download speeds. For telework in particular, the bottleneck is typically not download speed (from server to client), but upload speed (from client to server). Commercial internet offers are typically asymmetrical, with more bandwidth allocated to download than upload, with ratios often 10:1, depending on technology, for instance a 20 Mbps download speed and a 2 Mbps upload speed. For reference, a Microsoft Teams video meeting requires a minimum bandwidth of 100 kbps download and 200 kbps upload per user –

which should be within the capabilities of many basic broadband services. However, Microsoft recommends 4,000 kbps (4 Mbps) for both download and upload for best performance (Microsoft, 2023), which would require fast broadband, especially for multiple users. Moreover, for videoconferencing, low latency is an important feature of internet connectivity that is not always reported on. Latency refers to the time it takes for an internet packet to travel from origin to destination, expressed in milliseconds, with lower values being preferable. It is distinct from bandwidth – which refers to how much data can travel per unit of time – and is not usually featured in policy targets. In practice, the features of good connectivity (high bandwidth and low latency) are usually correlated. There may be exceptions to this trend in rural areas, where internet services delivered over the air (using 'line of sight' technologies such as WiMAX, or satellite) feature relatively high bandwidth but poor latency, making them unsuitable for videoconferencing and telework.

Overall, the internet connectivity figures for 2019 remind us that, in most EU regions, both cities and towns and suburbs entered the COVID-19 crisis with sufficient internet connectivity to handle telework while this may not have been the case for rural areas. Since 2019, there have been remarkable improvements in internet connectivity across the board, but the urban–rural gap remains and indeed has increased slightly.

In conclusion, internet connectivity and regional teleworkability (which ultimately depends on regional occupational structure) are two relevant factors that can contribute to explaining regional differences in telework. Further empirical econometric analysis of the determinants of working from home at regional level has examined their relative importance and found that technical teleworkability explains most of the differences, even when accounting for other territorial characteristics and the sociodemographic composition of regions (see Sostero et al, 2024). These results complement earlier analysis indicating that workforce and industrial composition play a larger role than territorial factors in explaining the regional variation in remote work (OECD, 2023).

Summary of findings

The proportion of the EU's working population engaging in telework rose sharply during the COVID-19 crisis, from 14% on average in 2019 to a peak of 24.2% in 2021. Even after public health measures had ended in 2022, the share remained at 22.6%, well above the pre-COVID-19 level.

Before the pandemic, the rate of telework differed significantly across EU Member States: between 20% and almost 40% of workers teleworked at least some of the time in the Benelux and Nordic countries, but less than 5% did so in some southern, eastern and Baltic countries. Although the countries with the lowest levels of telework in 2019 increased their rates proportionally more than other countries, significant differences remain across Member States.

Within countries, the differences in rates of telework among regions and degrees of urbanisation has become sharper. NUTS regions encompassing national capitals, and those bordering them, tend to have the highest rates of telework, whereas predominantly rural regions have the lowest rates. Even within NUTS regions, across the EU there has been a divergence in rates of telework between cities on the one hand, where the rate of telework has risen fastest, and towns and suburbs and rural areas on the other, where it has grown to a lesser extent.

Occupational structure and internet connectivity are some of the many factors that may explain the trends in national, regional and territorial differences in rates of telework. Overall, different regional rates of technical teleworkability explain most of the variation in teleworking rates across NUTS regions. Regional technical teleworkability ultimately reflects local industrial structure, as it is based on the characteristics of individual occupations and their geographical distribution, which tend to be relatively stable. The rate of telework seems to have caught up to some extent with its potential level in some countries.

Internet connectivity is the essential enabling technology for telework. When the COVID-19 crisis began, most residents of cities, towns and suburbs had sufficient internet access to work from home, but many in rural areas did not. Internet speeds in rural areas have improved to a remarkable extent since the pandemic: rural areas in 2022 had higher average speeds than cities did in 2019. However, progress on connectivity in cities was still faster during the period analysed, and therefore the urban–rural gap in internet connectivity widened slightly.

3 Remote work in peripheral, rural and marginalised areas

Cities have higher rates of knowledge workers who can work remotely (and therefore live anywhere, at least in principle), and they also have higher rents and property prices, as well as longer commuting times. The broad adoption of teleworking arrangements during the pandemic opened up new opportunities outside urban centres to many more people. It relaxed constraints on relocation affecting potential movers from large city centres (and notably capital cities) to areas with a lower cost of living and a higher quality of life (in terms of more green areas and less pollution, for instance).

Since the outbreak of COVID-19, and the related surge in working from home, some media attention has been paid to the question of whether the pandemic was ‘killing the attraction of megacities’ (Financial Times, 2021). However, the picture appears to be much more nuanced, and the spatial effects of the increase in working from home are still not entirely clear. According to leading academics, the pandemic was ‘unlikely to significantly alter the winner-take-all economic geography and spatial inequality of the global city system’, but it could potentially change ‘the structure and morphology of cities, suburbs and metropolitan regions’ (Florida et al, 2023) and bring some dynamism to new residential areas close to cities (Bellés et al, 2022). The possibility of working from anywhere could favour relocation within a commutable distance from large cities, due to a reduction in commuting frequency, enabling workers to continue to benefit from agglomeration-related advantages that are often not available outside urban areas (Bond-Smith and McCann, 2022).

In addition to the increased suburbanisation observed in many cities in the United States, there is some evidence of population movement away from the largest cities to smaller centres (Frey, 2022). Relocation to suburban or exurban areas, resulting in the expansion of commuting zones around cities (known as the ‘doughnut effect’), is only one of the possible scenarios for settlement patterns post-pandemic. Intermediate (small and medium-sized) cities, which can provide a balance between living costs and benefits, have the potential to greatly benefit from the rise in remote work (OECD, 2021).

At the time of writing, national-level analysis covering Europe on relocation due to the experience of remote working since the COVID-19 pandemic was still very limited. The annual National Remote Working Survey conducted in Ireland by the University of Galway and the Western Development Commission since the start of

the pandemic is among the few sources providing evidence on geographical mobility directly linked to remote work. However, it should be noted that those whose work can be conducted fully remotely or in a hybrid manner are the target respondents to this online survey, and the findings are not intended to be generalised to the entire working population.

Evidence from September 2023 shows that 13.7% of respondents to the survey had already relocated within Ireland due to their experience of remote working since the pandemic, up from 8.2% in 2021 and 9.3% in 2022 (Frost, 2022, 2024). The findings show a degree of consistency in terms of relocation preferences in Ireland over the three years, suggesting a relatively stable pattern. Around 0.5% of respondents indicated that they had relocated outside Ireland. The more populous counties have larger numbers of people relocating, and nearly two-thirds (63.5%) of those who had already moved within Ireland had relocated from Dublin. This is a relatively large share, considering that just under 30% of survey respondents were resident in Dublin (Frost, 2024). In terms of relocation destinations, only one of the top five counties is within the greater Dublin area. All the others are in the west of the country, and they include Donegal, one of the most rurally dispersed counties in Ireland.

In France, a study conducted by the Ministry of Employment provided a first quantification of geographical mobility during the COVID-19 crisis, examining the link with the possibility of teleworking (DARES, 2022). The study indicates that between April 2020 and April 2021 the likelihood of leaving a metropolitan area increased compared with the previous year, and the proportion of moves to a mainly rural *département* increased, although to a smaller extent. The most teleworkable occupations contributed two-thirds of the increase in the share of departures from metropolitan areas to a location more than 100 km away in the year to April 2021 compared with the previous year. The increase was particularly marked in the Île-de-France region: departures from Paris increased by 34%, amounting to an additional 4,000 moves more than 100 km away in one year.

Without denying the reality of certain figures, a later report on post-COVID-19 residential mobility in France concludes that – far from being so significant as to qualify the flows concerned as an ‘urban exodus’ – mobility remains modest, to the extent that a clear break in pre-existing trends is not evident (Collet et al, 2023). The study, based on qualitative investigations in

five different territories, observed the continuation of pre-existing trends, including a process of revitalisation of rural areas and the peri-urbanisation of metropolises. However, the pandemic was an accelerator for certain types of mobility, in particular for those who can telework, as it extended the range of geographical possibilities in terms of choice of residence.

While a massive flow of people leaving cities for the countryside did not materialise, and available evidence indicates mostly marginal and localised trends, the COVID-19 pandemic undoubtedly drew attention to remote work in more peripheral and rural areas (Akhavan et al, 2021; Manzini Ceinar and Mariotti, 2021; Mariotti et al, 2023), as well as to the role that intermediate or second-tier cities can play in the evolving geography of work and workplaces (Burgalassi, 2023; Biagetti et al, 2024). In particular, more collaborative workspaces are being created in peripheral and rural contexts, in which they are a potential tool to enable more balanced regional development and especially to support those regions that face economic and social challenges such as brain drain, depopulation and loss of cultural roots (Marmo and Avdikos, 2023).

Coworking spaces as an alternative to home offices

The recent widespread adoption of remote and hybrid working arrangements, coupled with a rise in non-standard forms of employment in the past two decades, has increased interest in workspaces offering alternatives to (central) city office locations. While home remains the main alternative location to the office for those in teleworkable jobs, coworking spaces – shared physical places where freelancers, people from different

companies or organisations and entrepreneurs can work next to each other, and possibly collaborate with one another, while accessing dedicated desks and possibly business services or other amenities – have grown in number.

Coworkers used to be mainly freelancers, but coworking later shifted towards a neo-corporate model of work, appealing also to other workers, such as (social) entrepreneurs and ‘startupper’, predominantly in the tech sector (Gandini and Cossu, 2021). After the COVID-19 pandemic, remote workers became other potential users of coworking spaces. These spaces are also emerging as a business model in popular destinations for digital nomads (Chevtaeva and Denizci-Guillet, 2021). Digital nomads are professionals who perform work over the internet to enable a lifestyle of constant travelling and living abroad (Schlagwein, 2018). A coworking space is the natural working environment for digital nomads, as it provides a physical and social infrastructure with all necessary amenities, sometimes even in combination with co-living options. Indeed, collaborative working spaces can offer not only new physical environments for work but also new ways of working based on collaboration.

Various classifications have been proposed for coworking spaces. Bages (2021) identifies different types of coworking spaces according to their purpose (coworking, co-living, third places), location (fixed, pop-up coworking, virtual spaces), additional services (fablab, café coworking, accelerator, incubator) and users’ professions (generic or specialised) (Table 5 shows some of these aspects). All these options can be combined with each other in hybrid spaces. Eurofound (2024) provides a description of other typologies of collaborative workplaces identified in the literature.

Table 5: Types of coworking spaces

The space’s purpose	
Coworking	100% workspace, with an open area and private spaces such as meeting and training rooms
Co-living	Workspace plus housing, either for long-term rental or holidays. Coworkers share a workspace, housing and experiences
Third place	Workspace plus socialisation and social inclusion activities
The space’s location	
Fixed	This is the most common. Located in a permanent space with fixed equipment
Pop-up coworking	Sporadic, ephemeral or mobile. Usually located in different space. May take the form of an office on wheels
Virtual space	Offers online services and is mostly meant to supplement a physical space
Additional services offered by the space	
Fablab	A fabrication laboratory, or digital manufacturing workshop. Coworkers can use the machinery and managers are there to help or offer training
Café coworking	Café serving as a space in which coworkers can work and meet. The cost is usually per day or hour and includes consumption
Accelerator	Supports the growth of projects developed in the coworking location
Incubator	Supports the creation of projects in the coworking area and their introduction to the market

Source: Based on Bages, 2021

Rural coworking

Because coworking is much more widespread in large urban areas in or around city centres with a concentration of skilled labour, innovation and knowledge (Mariotti et al, 2017), research on coworking in rural and peripheral areas, and its potential to support local development, has been much more limited. Yet, although the coworking movement began in urban environments, there is evidence now that the phenomenon has already spread beyond urban areas (Marmo and Avdikos, 2023). Although it is still in an uneven state of development across Europe, rural coworking has gained significant traction over the past few years (Bertelsmann Stiftung, 2021).

Coworking in rural areas is an innovative concept that can potentially do a great deal to encourage and enable people to live and work in rural areas. Several EU-funded cooperation projects on collaborative workspaces in rural and peripheral areas have been launched in recent years, with the aim of better understanding the key success factors for the development of coworking spaces in rural areas, sharing experiences of and best practices for creating and managing these spaces, and assessing their effects on local communities (for more details, see Eurofound, 2024).

A distinctive feature of rural coworking is the development of local communities and their integration into the local socioeconomic context (Capdevila, 2022). Building communities that share professional interests, and dynamic work environments where people can learn from each other, is at least as important as the establishment of physical facilities. As in other community initiatives, the role of the facilitator is paramount (Capdevila, 2022). The community (or third place) manager can facilitate various intermediation activities to develop relationships and foster exchanges between coworkers and with local actors, for example. They can also help to develop the appropriate environment and infrastructures.

Advantages and challenges

There are several reasons why a coworking space represents a preferable alternative to a home office, for workers in rural areas and in cities. These include, for instance, preventing isolation and a lack of social and professional contacts; avoiding distractions related to family and household responsibilities; accessing a high-quality internet connection and office facilities, such as rooms for meetings and videoconferences, printers and so on; and establishing clearer boundaries and a better work–life balance. Akhavan and Mariotti (2022) explore the effects of coworking spaces on users' well-being, finding that the benefits are greater in rural and peripheral areas.

Moreover, in rural areas, commuting to a coworking space relatively close to one's place of residence, instead of to a city centre, will result in travel time savings and changes in mode of transport, leading to environmental benefits (i.e. a significant decrease in the use of cars for commuting and an increase in the use of active modes of transport, including cycling and walking, and public transport) (Caulfield and Charly, 2022).

Teleworking from a coworking space outside a major urban centre has multiple benefits for companies and for the neighbourhood, as well as for individual employees. For companies, it can be a strategy to decentralise staff, for instance to reduce expenses linked to office buildings, or to expand recruitment opportunities by accessing a wider pool of talent. At local level, coworking in rural areas can help to retain people (especially young people) and economic activities, thus reducing depopulation and contributing to the economic development of the area. Coworking may also have a stimulating effect on local communities in terms of the regeneration of spaces, which can positively affect the value of commercial properties in the vicinity and attract developers (Vogl and Akhavan, 2022).

However, while the positive impacts of coworking in rural settings can extend to local communities, some potentially adverse effects are also to be recognised and addressed. These relate, for instance, to the relocation of remote workers from urban areas to rural ones, especially if this is on a temporary basis and the workers do not have a desire to become embedded in the local community – a phenomenon described in the literature as the 'invasion of urban hipsters' (Ciccarelli and Mariotti, 2024). The inflow of new residents to rural and peripheral areas can be expected to drive up demand for housing and land, thus putting upward pressure on prices, with the potential long-term effect of crowding out locals and leading to gentrification (Morgan and Woodriff, 2019). Public service infrastructure may also struggle to cope with rising demand.

There are also challenges in establishing and running coworking spaces. According to the 2023 Global Coworking Survey, the major problem encountered by those running coworking spaces in general is attracting new members and users (DeskMag, 2023). The critical mass of potential users is still limited in more peripheral areas, and rural coworking spaces tend to be smaller operations, which means that they are rarely profitable in the short term. Given this lower profitability compared with urban settings, funding and support from public sector actors are key to making rural coworking spaces financially viable and to supporting their growth, notably during the early stages. Unlike in urban settings, where coworking spaces are generally privately owned, those in rural areas are more likely to be established and co-managed through the public sector (Merrell et al, 2022).

Finally, there are important structural factors that determine regional attractiveness, and which can constitute a barrier to the spread of remote work in rural and peripheral areas. The availability of local services is one of the key pull factors for residential migration, alongside landscape amenities and cultural dynamism (Flipo et al, 2022). Currently, the rural–urban gap in access to essential services (e.g. schools, hospitals, public transport) persists, in terms of both considerably greater distances to travel to access such services and poorer quality of the services provided (Eurofound, 2023a).

Restricted access to reliable and high-speed internet connections in rural and marginalised areas is also an important element limiting the possibilities for remote work. The previous chapter showed that regional differences in access to digital infrastructure have been narrowing since the pandemic thanks to the impetus created by new initiatives. However, while basic broadband is almost universally available across the EU, the same cannot be said of high-speed internet connections, with a digital divide persisting between cities and other areas in several Member States (European Commission, 2022).

Moreover, while the deployment of fast broadband would seem to be an essential aspect of development strategies intended to attract teleworkers to more remote areas, it will not necessarily be sufficient in itself. The mobilisation of local public actors to support coworking initiatives to engage with rural communities on relevant issues is equally important (Collet et al, 2023).

Initiatives supporting rural coworking spaces

At European, national and local levels, some interesting initiatives have been launched (or have received significant additional funding) since the onset of the COVID-19 pandemic to support remote work in rural, peripheral or marginalised areas through the creation and expansion of coworking spaces. This section

summarises information on five initiatives in different Member States:

- Estonia: Kupland network
- France: National and local support for *tiers-lieux* (third places)
- Ireland: National Connected Hubs Network
- Italy: South Working
- Portugal: National Network of Telework and Coworking Spaces in the Inland Territories

These initiatives were selected because of their large scale, structured management and governance, and public funding support. Table 6 presents an overview of the main characteristics of each initiative, including the aim, launch date, geographical scope, number of coworking centres, external sources of funding and other actors involved. While all initiatives benefit entirely or partly from public funding, they are different in nature, geographical scope, actors involved and stage of implementation. A fuller presentation of each initiative can be found in the following sections.

More detail is provided in the Eurofound working paper *Remote work in rural and peripheral areas: Characteristics, challenges and initiatives to support it* (Eurofound, 2024), which accompanies this report. The working paper includes additional information on, for instance, the timeline of the initiatives, the management of the spaces, facilities provided, costs for users and other aspects related to the use of available funds for various activities.

The information was up to date as of January 2024 and it was collected by the Network of Eurofound Correspondents (see Annex 1 for a list of contributors). The working paper also presents a summary of other significant pre-pandemic initiatives that have contributed to the shift in working practices and the popularity of the rural coworking phenomenon in recent years (e.g. the Cowocat Rural project in the Spanish region of Catalonia and CoWorkLand in Germany). The study also compiles information on relevant European cooperation projects on collaborative workspaces in rural and peripheral areas.

Table 6: Initiatives supporting the expansion of coworking spaces, with a focus on peripheral, rural or marginalised areas

Geographical scope	Name in original language	Name in English	Aim of the initiative	Launch date	Number of coworking centres	Financial support	Total funds allocated	Other actors involved
Estonia; south-east	Kupland	Kupland	To boost south-east Estonia's reputation by attracting a larger population and advocating for remote work to enhance employee well-being and working conditions	July 2020	27 coworking hubs	Ministry of Finance; counties of Põlvamaa, Valgamaa and Võrumaa	€50,000 per year	Põlvamaa Development Centre, other local development centres, Estonian Business and Innovation Agency, Interreg Europe, local businesses and organisations
France	Tiers-lieux	Third places	To provide physical places dedicated to various activities, including coworking, where the creation of economic value is linked with social utility and work mixes with other aspects of collective life	August 2021*	1,925 tiers-lieux offer coworking options	Public subsidies at EU, national, regional and local levels	€130 million committed in 2021; about €432 million in public subsidies in 2023	Regional networks, associations, cooperative societies, private companies, intermunicipal bodies, schools and universities, businesses
Ireland	National Connected Hubs Network	National Connected Hubs Network	To make remote working a reality throughout rural Ireland and to provide a vehicle for individual hubs to come together under a shared identity to maximise the economic opportunities of remote working, simplifying and standardising the process of sourcing and booking spaces	May 2021	346 coworking hubs	Irish government	€14.2 million	Department of Rural and Community Development, Western Development Commission
Italy; national, but with a focus on southern Italy	South Working – Lavorare dal Sud	South Working – Working from the South	To foster sustainable remote working in Italy, enhancing economic and social cohesion, particularly in the south and in marginalised areas, by retaining human capital and revitalising underused spaces	March 2020	230 community hubs (<i>presidi di comunità</i>)	Fondazione con il Sud; national and European funding; donations	€6–7 million plus over €100,000 for non-profit projects	Municipalities, businesses, local communities
Portugal; national, but with a focus on the inland territories	Rede Nacional de Espaços de Trabalho e Territórios do Interior – Teletrabalho no Interior. Vida Local, Trabalho Global	National Network of Coworking Spaces in the Inland Territories – Telework in the Inland. Local Life, Global Work	To attract and retain people and companies in areas with low population density, with the ambition of helping to reduce territorial inequalities	June 2020	78 coworking hubs	European Regional Development Fund	€20 million	Ministry of Territorial Cohesion; Ministry of Labour, Solidarity and Social Security; Commissions for Regional Coordination and Development; Institute for Employment and Vocational Training; Directorate-General for Administration and Public Employment; Intermunicipal Community; municipalities

Notes: The information was up to date as of January 2024. * While several key initiatives to support the development and structuring of tiers-lieux have been implemented since 2019, the public policy was strengthened in August 2021 as part of the national recovery plan (France Relance).

Source: Eurofound Network of Correspondents

Kupland network – south-east Estonia

Kupland is a network that brings together local businesses and organisations that provide remote working facilities in south-east Estonia, mostly in rural locations. This part of Estonia, located near the borders with Latvia and Russia, has long been described as a periphery. As part of the Reputation Strategy for South-east Estonia initiated by the Ministry of Finance, the largest counties in the region (Võrumaa, Põlvamaa and Valgamaa) were tasked with developing and promoting specific types of tourism. The county of Põlvamaa was entrusted with promoting digital nomadism in south-east Estonia.

The Kupland brand was officially launched in July 2020. Kupland's mission and vision revolve around promoting remote work as an opportunity to improve working conditions and well-being for employees. Indeed, Kupland's value lies in its hubs being located in picturesque countryside settings, providing opportunities for sport and leisure activities amid nature during work breaks, thus offering a high-quality 'workation' experience.

The network comprises various types of hubs, including new informal working spaces in places such as cafés, rental properties, hotels, community centres, recording studios, holiday homes, museums, art studios and sports clubs; it also includes dedicated coworking spaces. Certain facilities are more directly targeted at the international digital nomad community, for instance the Entrepreneur's Forest. This facility offers social events in the evenings, including networking activities, sporting activities and sauna sessions, and anyone wishing to stay there must apply to do so (Kupland, undated). Local IT sector workers, public sector employees and self-employed individuals are also among the network's target groups.

In order to become a member and be promoted as a remote working hub, a business has to sign a membership agreement with the Kupland network. This is subject to the fulfilment of specific quality standards that set out the remote working conditions that the business must provide; different standards apply, depending on the target group (e.g. individual remote workers, teams, families).

In June 2023, there were 37 hubs in the Kupland network. This figure surpassed the target specified in the Reputation Strategy, which was the establishment of at least 30 service providers (hubs) within the first three years. However, as a small membership fee was later introduced, the number of hubs had fallen to 27 in January 2024. In 2023, the number of workers who visited Kupland hubs exceeded 10,000. Altogether, from 2020 to 2023, Kupland hosted about 22,400 visitors from Estonia and all over the world.

The implementation of the network falls under the jurisdiction of the Põlvamaa Development Centre, a

foundation established by local governments in the Põlvamaa region. The network coordinator has been overseeing the management of Kupland since its inception, ensuring centralised responsibility and providing a stable focal point for the network's growth. The network coordinator is supported by an advisory body that includes directors of local development centres, owners and managers of local businesses (members of the network) and other experts.

The network is funded by the Ministry of Finance (which provides 67% of the budget) and the counties of Põlvamaa (11%), Võrumaa (11%) and Valgamaa (11%). Since the launch of the initiative, the total budget has amounted to €50,000 per year. This money has been used for various purposes, such as funding the network coordinator position, organising network events, developing the brand and providing other administrative support. Since 2023, a small membership fee has been levied; the fees contribute to a joint marketing budget to promote the Kupland network and its hubs. The total membership fees from the 27 members make up about 10% of the total budget.

Businesses themselves make the investments required to upgrade their facilities to make them suitable for remote work, and some of them have applied for and received funding from the Estonian Business and Innovation Agency (EAS). The businesses manage their hubs independently. All the hubs were already operational and established venues and businesses before the network was created, and they adapt their environment and resources to the needs of digital nomads relatively quickly.

Overall, the Kupland network has brought significant benefits to the region and the local economy, notably in terms of networking, collaboration and sharing of experiences among hubs/businesses, and users have reported experiencing improved well-being as a result of working in close proximity to nature. In 2023, Kupland participated in an interregional peer review of the project, facilitated by Interreg Europe (an interregional cooperation programme co-funded by the EU), in which representatives of other similar initiatives in the EU offered recommendations on the next steps for Kupland. The recommendations included widening the geographical scope of the initiative, improving and expanding communication and offering more support to network members.

National and local support for *tiers-lieux* – France

The term 'third place' refers to physical places where people can spend time or meet informally outside the home (the first place) and the workplace (the second place). In France, *tiers-lieux* (third places) run a variety of activities; in them, the creation of economic value is linked with social utility. They allow for informal exchange and promote creativity, co-creation and

collective projects. A *tiers-lieu* can be, for example, a coworking space, a fablab (a fabrication laboratory – that is, a digital workshop), an *atelier partagé* (shared workshop), a makerspace or hackerspace, a *garage solidaire* (solidarity garage) or a repair café.

Tiers-lieux contribute to the economic development of a region and animate a community of people who work and live there. They are alternatives to working from home and they are also spaces conducive to innovation and business development, as they host entrepreneurs, project managers and self-employed workers. They provide an appropriate setting for working remotely, ensuring good material conditions (e.g. good Wi-Fi, a printer) and helping to maintain social links. *Tiers-lieux* also play an important role in offering professional training.

Although their origins date back to the 1960s, it was between 2010 and 2015 that the concept of *tiers-lieux* was adopted at national level, the first networks were born and a manifesto was drafted. In 2017, a national coworking mission was launched when the Secretary of State to the Minister for Territorial Cohesion tasked the Fondation Travailler Autrement, a think tank concerned with new ways of working and new forms of employment, with providing an analysis of coworking spaces and their deployment, in consultation with local actors, local elected representatives, users, businesses and social partners. In 2018, the publication of the report *Mission coworking: Faire ensemble pour mieux vivre ensemble* marked the official recognition of the *tiers-lieux* movement, with the report making recommendations to the government on developing *tiers-lieux* (Fondation Travailler Autrement, 2018).

The government supported the development and organisation of *tiers-lieux* through several important initiatives in 2019, including the following:

- the creation of the National Council of Third Places and the association France Tiers-Lieux
- the launch of the ‘Nouveaux lieux, nouveaux liens’ initiative, aimed at accelerating the development of *tiers-lieux* throughout the country and managed by the National Agency for Territorial Cohesion
- the allocation of funds following a €45 million call for expressions of interest to identify 300 existing or planned *fabriques de territoire*, 150 of which would be located in rural areas (a *fabrique de territoire* is a resource centre for the network of *tiers-lieux* in the region; it serves to increase the effectiveness of the activities of the *tiers-lieux* in the communities they serve, particularly in medium-sized towns and rural areas)

In the wake of the COVID-19 pandemic, the public policy supporting *tiers-lieux* was further strengthened. In August 2021, the then Prime Minister announced an additional investment of €130 million to support the expansion of *tiers-lieux* throughout the country over a

three-year period; half of the funding came from the national recovery plan France Relance (Le Monde, 2021). The Minister for Territorial Cohesion and Relations with Local Authorities was responsible for the budget, while the National Agency for Territorial Cohesion was tasked with launching calls for projects and managing project funding. The government also entrusted the president of the France Tiers-Lieux association with a coordinating role.

At a practical level, the investment of €130 million translated into five measures:

- the creation of 100 local factories (*tiers-lieux* dedicated to production)
- the provision of support for the development of professional training in *tiers-lieux*
- financing for 3,000 Service Civique missions in *tiers-lieux*; Service Civique is a programme funded by the French government that aims to give young people the opportunity to develop personal skills while participating in volunteering activities
- training of France services digital advisers in *tiers-lieux*; France services is a network of facilities that combine in-person and digital support, bringing together several public services in one place
- measures to strengthen national and territorial networks of *tiers-lieux*

Other initiatives followed, including support for a further 80 new *fabriques de territoire* in 2023, the launch of the Observatory of Third Places (Observatoire des Tiers-lieux) and a census of *tiers-lieux* (for more information and a timeline of key milestones, see France Tiers-Lieux, 2023, and Eurofound, 2024).

Although there are no legal requirements for a *tiers-lieu*, the public authorities have adopted five criteria for a location to be considered a *tiers-lieu* for the purposes of their funding initiatives: a strong territorial base, a community of committed local players, shared governance, hybridisation of activities, and an ethos of experimentation and innovation (France Tiers-Lieux, 2021).

In 2023, there were 3,500 *tiers-lieux* in France, up from 2,500 in 2021 and 1,800 in 2018. Around 55% provide spaces for coworking/shared offices; this is the most common service provided. This is followed by spaces for cultural activities (31%); a fablab, hackerspace or makerspace dimension (28%); shared craft workshops (16%); living labs (15%); farmland or shared gardens (10%); and shared kitchens or culinary laboratories (6%) (France Tiers-Lieux, 2023).

By their very nature, *tiers-lieux* are used on an intermittent rather than a permanent basis. The three most common types of regular users are self-employed people, entrepreneurs and employees. Among users of the 1,925 *tiers-lieux* offering coworking facilities in 2023, around 30% were employees who were teleworking.

Students and jobseekers are also among the users. Around 50% of *tiers-lieux* have partnerships with educational bodies, and 47% have partnerships with job centres and employment inclusion structures. More than half of *tiers-lieux* offer training or apprenticeship initiatives; in 2023, 400,000 people followed a training course in a *tiers-lieu* (this was three times higher than the figure for 2021). Among the *tiers-lieux* offering training, around half of them do so to unemployed people.

In 2023, the total turnover of *tiers-lieux* was €882 million, which was 3.5 times higher than in 2021.²¹ About 49% of the turnover (€432 million) came from public subsidies, while the rest came from own resources (notably rental of workspaces). Half of *tiers-lieux* received funds for investment from the state and their region, 43% from their *département* and their municipality, and 36% from public intercommunal cooperation bodies (*établissements publics de coopération intercommunale*) (France Tiers-Lieux, 2023). One-fifth of *tiers-lieux* receive funds from the EU. The percentages in terms of sources of funding are broadly similar for *tiers-lieux* that benefit from public funding for their operating expenses rather than investment. While there are no specific details available on how public funds are used, they go mainly to the structures that manage the *tiers-lieux* (e.g. associations, private companies), and not to the users.

More than half of *tiers-lieux* are managed by an association (51%); the second most common form of governance is a private company (19%) (France Tiers-Lieux, 2023). In addition, there are three other forms of governance: cooperative societies, intermunicipal bodies, and schools or universities. In terms of governance, the board of directors is the main body responsible for strategy, but, unlike in traditional organisations, employees and users are involved in strategic decisions.

The majority of *tiers-lieux* have a facilitator, who is in charge of running, organising and managing the space. Facilitators serve as community managers and they are responsible for creating a friendly atmosphere and a working environment that encourages sharing and collaboration. They also promote the *tiers-lieu*, by organising events and communication activities, and contribute to fundraising activities. The teams that run the *tiers-lieux* are made up of both volunteers and permanent employees, with 61% of *tiers-lieux* reporting that they have some permanent employees.

It is in the heart of the suburbs, medium-sized cities, small towns and villages that the potential of *tiers-lieux*

is fully realised. In 2023, 62% of *tiers-lieux* were outside the 22 French administrative metropolises, of which 34% were in rural areas and 28% in medium-sized cities (France Tiers-Lieux, 2023). As the activities of a *tiers-lieu* are determined by the specific needs of the community, those operating in rural areas tend to differ from those in urban environments in several ways. A third place in a rural area will generally be a small-scale structure that meets the needs of the community, with fewer potential users but often more uses and activities. In rural areas, a coworking-only model is not enough to ensure the long-term viability of a *tiers-lieu*, even though this service may be valuable for some users who want to stay close to home and avoid travelling to a major city to work.

In rural areas, the contribution of *tiers-lieux* to economic development appears to be closely linked to the area's dynamism and quality of life, essential factors in attracting workers and entrepreneurs and creating links (Banque des Territoires, 2020). As a result, *tiers-lieux* are increasingly becoming a major tool to support local development.

National Connected Hubs Network – Ireland

Mapping and investing in a network of remote working hubs across the country is among the main actions taken as part of Ireland's National Remote Work Strategy. Published in January 2021, and led by the Department of Enterprise, Trade and Employment, the strategy's objective is to ensure that remote working becomes a permanent feature in the Irish workplace in a way that maximises economic, social and environmental benefits (DETI, 2021).

The National Connected Hubs Network and the ConnectedHubs.ie platform were launched by the Department of Rural and Community Development and the Western Development Commission in May 2021. The department is the project sponsor, while the commission's Connected Hubs team serves as the project management office. The project is steered by a government interdepartmental group made up of representatives of key government departments and agencies.

The National Connected Hubs Network aims to make remote working a reality throughout rural Ireland by facilitating workers' and employers' relocation away from large urban centres to take advantage of remote working opportunities in hubs. The initiative also provides a vehicle for individual hubs to come together under a shared identity to maximise the economic opportunity of remote working.

21 See the infographic 'Les tiers-lieux, acteurs incontournables de nos territoires', available on the France Tiers-Lieux website, <https://francetierslieux.fr/>, under the heading 'Panorama des tiers-lieux 2023'.

ConnectedHubs.ie is Ireland's first ever digital hub network, and it is operated by the National Connected Hubs Network. The platform offers a suite of booking, hub management and e-commerce applications to members of the network. Membership of the National Connected Hubs Network is open to all existing and new locations offering remote working services.

Government investment underpins the development of the National Connected Hubs Network. Two competitive funding calls were administered by the Department of Rural and Community Development with support from the Connected Hubs team in 2021 and 2022. Approximately €13 million was distributed to hubs all over Ireland to assist them with upgrades to their facilities. Another €1.2 million has been invested in resourcing the ConnectedHubs.ie platform and team.

In order to become a hub, a location must provide services and facilities to support some of the following entities and potential users: small and medium-sized enterprises, startups, remote workers, community groups and digital nomads. Potential hubs must also complete the National Connected Hubs Network survey as the first step towards registering and becoming part of the network. The information submitted is reviewed by the Connected Hubs team, before the location's suitability to join the National Connected Hubs Network is discussed further.

Based on their target users and the facilities and services offered, five different types of hubs have been identified in the network by the Connected Hubs team (AEC, undated). These include not only simple coworking hubs, providing clients with offices or desks and access to meeting rooms and event spaces, but also larger hub infrastructures focusing on various activities, for instance connecting entrepreneurs through networking, supporting post-startup clients in the scaling and investment stages, supporting business development through incubation and acceleration or providing community services.

In January 2024, there were 346 hubs live on the platform and an estimated 22,000 desks available nationwide. Hubs are located throughout Ireland,²² but not all of them are thriving, with many in need of support with marketing and promoting their facilities. Excluding those in County Dublin, Cork city, Galway city, Limerick city and Waterford city, 81% of all hubs are located in rural areas, based on data available in February 2024. This corresponds to 8,140 desks in rural hubs.

Several measures have been taken to build the network, raise awareness and encourage use of the hubs. One of the main actions taken was the rollout of the National Connected Hubs Voucher Scheme, which entitled everyone who registered to a total of three free days of hot-desking/coworking in participating Connected Hubs. The scheme ended in January 2023, and since then Connected Hubs have witnessed an increase in bookings. A survey conducted at the end of December 2023 indicates that occupancy in the hubs across the entire network stood at 76%, with 17,129 desks in regular use.

The Connected Hubs team has continued to support the network in a number of ways, including provision of support and advice on general and IT queries, fortnightly network meetings, ongoing marketing campaigns, organisation of the National Connected Hubs Summit and regional knowledge-sharing workshops. It offers network members the opportunity to participate in future initiatives, encouraging additional and alternative activities in hubs.

Among these initiatives is Learning in the Hubs, which will enable tertiary-level students to complete college courses in their local remote working hub. Launched in June 2023 under a strategic partnership between the National Connected Hubs Network and the Technology University of the Shannon, the initiative aims to enable adult learners to study locally in a comfortable, professional and affordable space and within a supportive group environment.²³ The pilot scheme involved two courses, which commenced in September 2023 (Certificate in Business in Entrepreneurship and Bachelor of Business). Students can choose from more than 60 locations.

In June 2023, the Connected Hubs team was also working on developing a corporate initiative aimed at educating employers on the benefits of using hubs as part of their talent retention and talent attraction strategies.

A key objective of the Connected Hubs project is to ensure that hubs became a permanent feature in government policymaking. Over the past year, the Department of Rural and Community Development, the Department of Enterprise, Trade and Employment, and the Connected Hubs team in the Western Development Commission have led the work on developing Ireland's first National Hub Strategy, through a series of consultation sessions carried out around the country. The process of drafting the strategy is now well under way with a target for publication set for early 2024.

22 A complete map of the National Connected Hubs Network is available at <https://connectedhubs.ie/hubs/search>

23 See <https://tus.ie/flexible-learning/athlone/tus-learning-gates/>

The expectation for the coming years is that the Irish government will continue to promote rural regeneration and sustainability through the expansion of the National Connected Hubs Network and the delivery of the actions that emerge from Ireland's National Hub Strategy.

South Working – Italy

The South Working initiative is intrinsically linked to the COVID-19 pandemic. During the period of remote working imposed by the lockdowns, many people living in northern Italy or abroad had the opportunity to return to their home regions in southern Italy, often for extended periods. Thus March 2020 saw the birth of the idea and the association South Working – Lavorare dal Sud (South Working – Working from the South).

The aims of launching the initiative were to study remote working conditions in Italy, to advocate for remote working and to create stakeholder networks to build sustainable remote working conditions in the country. In particular, the project aims to improve economic, social and territorial cohesion by leveraging the opportunities presented by remote work to reduce the outflow of human capital from the south and from marginalised areas of Italy and to contribute to reducing existing economic, social and territorial gaps in these territories and communities. Moreover, the initiative seeks to address the issue of unused or underutilised buildings and spaces in these territories.

Some coworking spaces existed before the pandemic and joined the South Working network in the summer of 2020, and new locations began to open with the association's support during the same period. Among the first hubs to be included in the South Working network (*rete dei presidi*) were three spaces allocated to smart working in the municipality of Castelbuono, Sicily, and one space located in Fontanigorda, Liguria. The association does not open or manage these spaces directly, but it provides consultancy and administrative support to municipalities, businesses and local communities to help them to repurpose existing spaces or create new ones; these coworking spaces then become part of the network. In January 2024, around 230 community hubs (*presidi di comunità*) were part of the network. While a few community hubs under the South Working initiative are found in northern and central regions, the majority are based in southern regions.

A community hub should not be considered a mere workplace offering a remote version of a traditional office; rather, these hubs are spaces for collaboration, innovation and dialogue. Around 30% of them are in rural areas, and they have a stronger focus than those in urban areas on fostering community connections. It is also worth noting that the most socially innovative projects are conducted in Italy's 'Inner Areas' (*Aree Interne*). These are 'fragile territories', far from essential

services and too often neglected and in a state of abandonment.

Community hub users, or 'South Workers', consist of remote workers, freelancers, municipal workers, startups, small and medium-sized enterprises, students and academics, community organisations and cultural organisations. Users tend to adopt a cyclical approach, using the facilities regularly but not on an everyday basis (perhaps even once every six months). For example, they could make use of the hub's facilities when they are in the area and need to work. For the most part (in 95% of cases), the users have family in the territories where the hub is located, and access to a property. With regard to uptake, no up-to-date data are available for the entire South Working network. Individual hubs have logs to monitor access, but integrating the data from these is complicated by the requirements of the General Data Protection Regulation.

The South Working association also supports the Digichamps project, which was launched in July 2023. It focuses on training individuals who are not in employment, education or training (NEET) in IT subjects and facilitating their entry into the labour market through partnerships with companies. The network of coworking spaces serves as a platform for the provision of training and work experience, but also as a community support system for the participants in the project.

The South Working initiative has been successful in securing funds from the non-governmental organisation Fondazione Con Il Sud and through numerous national calls for applications for funding for social and cultural innovation projects, as well as donations from both private entities and supporters. The amount of funds the association has received since its foundation currently exceeds €100,000. These funds are used to implement non-profit projects, advocate for improvements to regulations affecting the sector and carry out specific project tasks. In addition, the funds support the running of the association.

Some €6–7 million have been added to these funds from European and national-level funding won with the help of various partners. Some of these funds are retained by the association for research, communication and project management activities that are conducted with those public or private territorial partners; most of the funds are used for the renovation of spaces. In short, the funds generally directly benefit the municipalities, businesses and local communities involved in creating or upgrading the remote workspaces.

Although in its early days the association consistently exceeded the expected results in all project reporting phases, the rate of expansion slowed in the post-pandemic months. The association's board has been reorganising its governance to make it more effective

and ensure that it makes a valuable contribution, taking into account the changing post-COVID-19 scenario. While its effects on local businesses, services and communities have been positive, the initiative needs to be stabilised and made scalable and economically viable.

In the coming years, the South Working association is expected to continue its success, having won numerous national funding calls for social and cultural regeneration projects. The funding will support projects to repurpose spaces for remote work, combat the digital divide and provide further education to individuals in vulnerable situations, among other things.

National Network of Telework and Coworking Spaces in the Inland Territories – Portugal

The National Network of Telework and Coworking Spaces in the Inland Territories (Rede Nacional de Espaços de Teletrabalho e Coworking nos Territórios do Interior) was launched in June 2020 and operates under the slogan ‘Telework in the inland. Local life, global work’ (*‘Teletrabalho no Interior. Vida local, trabalho global’*). It is part of the Economic and Social Stabilisation Programme (Programa de Estabilização Económica e Social) approved by the Resolution of the Council of Ministers No. 41/2020 of 6 June and is in line with the Programme for Inland Territories Enhancement (Programa de Valorização do Interior) (Ministério da Coesão Territorial, 2021). One of the main objectives of the network is to attract and retain people and companies in vulnerable areas with low population density, with the ambition of contributing to reducing territorial inequalities.

The network was created by the government ministries responsible for territorial cohesion (Ministério da Coesão Territorial) and labour, solidarity and social security (Ministério da Trabalho, Solidariedade e Segurança Social). Its main objective is to promote and extend teleworking – measure 2.6 under the Economic and Social Stabilisation Programme – as a means of supporting businesses in the inland territories (Ministério da Coesão Territorial, 2024). The implementation of this measure is based to a large extent on the creation of centres for coworking/telework in inland territories; these centres are supported by the municipalities and through technological infrastructure (as specified in point 2.6.2.2 of the programme), and they include technological centres, incubators and centres for innovation and development.

As part of a programme of incentives for civil servants to relocate to the inland territories, provided for by Decree-Law 40/2020 of 17 July, they were offered the opportunity to work remotely in coworking centres without any additional costs to themselves or the bodies or services to which they belong (MTSSS, 2021). Since June 2021, the Directorate-General for Administration and Public Employment (Direção-Geral da Administração

e do Emprego Público) has managed access to these spaces for civil servants through the Public Employment Platform (Bolsa de Emprego Público).

In the fourth quarter of 2023, the national network covered 92 municipalities in inland territories: 21 in the North region; 37 in the Centre region; 19 in Alentejo and 15 in Algarve. A map of teleworking/coworking spaces in operation is available on the government’s website. These spaces are available to all citizens, including foreigners, who want to work remotely, regardless of whether their employer is in the public or private sector, or whether they are employed or self-employed.

In accordance with the Resolution of the Council of Ministers No. 41/2020 of 6 June, the initiative is supported by €20 million in funds from the European Regional Development Fund. The main beneficiaries of the funds are the municipalities and technological infrastructures of the inland territories of mainland Portugal.

The network is overseen by the Commissions for Regional Coordination and Development (Comissões de Coordenação e Desenvolvimento Regional) in close cooperation with the Institute for Employment and Vocational Training (Instituto do Emprego e Formação Profissional). Under the terms of the applicable national legislation, the institute provides support for the mobility of workers through the Working in the Interior programme (Trabalhar no Interior – Emprego Interior Mais) and disseminates advertisements for jobs located in inland territories through the Public Employment in the Interior Platform (Bolsa de Emprego do Interior), aiming to promote the use of the coworking spaces by both self-employed workers and employees.

Municipalities in the inland territories and the Intermunicipal Community (Comunidades Intermunicipais) are the main actors involved in the running of the network. The municipalities are responsible for the operation of the spaces; they accept use requests and create the annual calendar, timetable and rules of use. The Commissions for Regional Coordination and Development monitor the implementation of the network in the different municipalities to ensure compliance with the legislation in force (in terms of organisation of space, equipment and furniture, for example).

According to the Office of the Secretary of State for Regional Development (Gabinete da Secretária de Estado do Desenvolvimento Regional) it is not possible to provide accurate information on the users of these spaces, who are often in the area on a temporary basis. In addition, it is not the intention of the network to register users or to impose requirements on time spent using the spaces. In the fourth quarter of 2023, it was estimated that there were a total of 249 users, but the figure is constantly changing, since there is no obligation to frequent the coworking centres.

For now, the National Network of Telework and Coworking Spaces in the Inland Territories is an open-ended project. Additional municipalities are expected to be integrated into it in the near future – for example, at

the time of writing, the municipality of Seia in the Centre region had shown an interest in joining – and the network is expected to evolve.

Summary of findings

Remote work opportunities revealed the potential for an increased number of professionals to migrate away from traditional urban settings to more peripheral and rural locations. This has potential benefits for individuals (e.g. lower living costs, less pollution and more natural amenities), for companies (e.g. expanding recruitment opportunities or retaining talent by decentralising their own staff) and for local development (e.g. promoting dynamism and diversity in rural economies by attracting knowledge-based workers and entrepreneurs).

In this context, there has been growing interest in coworking spaces as a preferable alternative to working from home. Among the advantages offered by these flexible working spaces are access to good office facilities, including meeting rooms; professional and social interaction with a community of workers with similar interests; learning, collaboration and networking opportunities; and the establishment of clearer boundaries between private and working life.

Across Europe, some noteworthy initiatives have been launched (or given a boost) since the COVID-19 pandemic to support remote work in rural, peripheral or marginalised areas through the creation and expansion of coworking spaces. All these initiatives have, more or less explicitly, an ambition to help reduce territorial inequalities and/or support (rural) local development.

Coworking spaces can play a significant role in the communities in which they are located, by engaging with local actors to address local needs, contributing to the revitalisation of unused or underutilised buildings, and supporting social and cultural regeneration and innovation. In this context, a sustainable rural coworking model tends to promote activities that the wider community can benefit from, rather than just offering physical facilities. This is true, for instance, of the Learning in the Hubs initiative in Ireland, which enables students to complete college courses in their local remote working hub. Another example is the Digichamps project, supported by the South Working association in Italy, which focuses on training NEETs (who are overrepresented in southern Italian regions) to facilitate their entry into the labour market.

This kind of hybridisation of activities can also support the creation of a critical mass of users of coworking spaces. Other initiatives can contribute to attracting users, including, for instance, voucher schemes or marketing and promotional campaigns. An accurate estimate of the number of users of the spaces was not available for some of the initiatives considered in this chapter, often because of a lack of integrated monitoring systems or because the spaces are used on a temporary or cyclical basis.

In many cases, critical mass is still limited in peripheral areas and rural areas, and the financial support of national and local public actors is instrumental in the creation, growth and economic sustainability of coworking spaces outside main urban areas. In some cases, coworking spaces are financially supported solely by national government investments (e.g. in Ireland) or European funds (e.g. in Portugal); in other cases, state funds are combined with public subsidies from European, regional and local levels (e.g. in France).

4 Conclusions and policy discussion

The COVID-19 crisis led to a sharp fall and a subsequent equally sharp rise in employment across the EU Member States and their regions. The speed of recovery, notably when compared with the Great Recession, is a testament to the quality of the policy response and the scale of state resources devoted to combating the pandemic's employment effects. European labour markets performed well, despite other challenges related to the energy crisis and Russia's war of aggression against Ukraine. Some regions were more exposed than others to the immediate impacts of the COVID-19 crisis, due to differences in the structure of their economies. Tourism-dependent regions in southern Europe suffered the sharpest declines in employment at the onset of the COVID-19 crisis. However, the subsequent recovery in some of the most affected regions has also been noteworthy.

In 2022, almost 90% of EU regions had employment rates that were above their pre-COVID-19 levels. More than two-fifths of all regions had an employment rate equal to or above 78% – the EU employment rate target for 2030. However, marked differences continue to exist. In three regions in southern Italy, less than half of the population is employed. This compares with an employment rate of more than 84% in the 10 EU regions with the highest employment rate, 6 of which are capital regions. EU capital regions also experienced the strongest employment growth between 2019 and 2022. Their resilience can be partly explained by their distinctive employment structure, and in particular a higher concentration of employment in services, particularly in private knowledge-intensive services (1 in 4 workers, compared with 1 in 10 workers in mainly rural regions). This resulted in a high proportion of work that could be performed remotely, which helped to protect employment during the pandemic.

Across the EU, the COVID-19 crisis revealed significant geographical differences in the shares of people who could potentially telework – and those who actually did – at all geographical levels: across Member States, regions within Member States and degrees of urbanisation within regions. While average levels of telework increased in most EU regions, regional disparities also increased and so did the difference between the regions with the highest and lowest teleworking rates within countries. Regions encompassing national capitals, and those surrounding them, tend to have the highest rates of telework, whereas predominantly rural ones tend to have the lowest. In addition, across the EU there has been a more general divergence in rates of telework between cities on the one hand, where the rate of telework has risen

fastest, and towns and suburbs and rural areas on the other, where it has grown to a lesser extent. In most EU countries, telework has become significantly more common in cities since 2020.

Regional occupational structure is the primary determinant of the share of people who can telework. Residents of urban areas also benefit from faster internet connectivity, which is the essential enabling technology for telework. The factors attracting employers, workers and infrastructure investment to cities are self-reinforcing and remain relatively constant over the short term. Telework is more common in cities because the teleworkable jobs are located there; teleworkable jobs are more common in cities because services sector employers are located there, in part because of better infrastructure, including digital connectivity, and also because of the larger immediate markets (such as larger numbers of people who buy their services). This might pose a risk of a territorial divergence, with urban and capital areas disproportionately reaping the benefits of the digital revolution.

Nevertheless, both regional economic development and internet connectivity are affected by policy, over different time horizons. Regional occupational structures differ according to geographical patterns of economic specialisation, with some territories specialising in manufacturing, others in services or agriculture. Regional and industrial policy have historically been concerned with driving investment to specific areas to foster economic and social development. For instance, the EU's smart specialisation strategies are part of its cohesion policy, intended to foster regional industrial and innovation ecosystems, and they reflect the commitment by the European Commission to support innovation-led territorial development (European Commission, 2024b). Smart specialisation aims to boost regional innovation, helping to generate knowledge-driven growth and prosperity by assisting and enabling regions to focus on their strengths, competitive advantage and uniqueness. This concept is consistent with place-based policymaking, a bottom-up approach that deepens the understanding of place-specific constraints and opportunities by focusing on collaborative efforts to positively impact each region (Barca et al, 2012). Of relevance in this context is the European Startup Village Forum, which focuses on connecting local businesses and people with external knowledge, resources and markets to provide favourable conditions for entrepreneurial and innovative ecosystems, thus enhancing the competitive performance of rural areas (Goodwin-Hawkins et al, 2023).

The issue of internet connectivity in urban and rural areas has taken on a new urgency and impetus since the COVID-19 pandemic. Compared with the situation before the pandemic, there has been significant progress across the board: on average, rural areas in 2022 enjoyed higher internet speeds than cities did in 2019; however, even faster progress in cities meant that the urban–rural gap in internet connectivity widened slightly overall. Policy targets for internet connectivity have been revised to address this. In 2022, the EU raised the connectivity objectives even further as part of the Digital Decade policy programme 2030, which set the goals of making a fixed gigabit network available to all and offering high-speed mobile coverage to all populated areas by the end of the decade (European Parliament and Council of the European Union, 2022). Over the decades to come, such investments may help to change the demographic and economic trends affecting rural and urban areas.

However, rural areas face multiple challenges in terms of economic and demographic decline, which internet connectivity alone cannot solve. Investments in transport infrastructure and in (essential) public services are also needed to prevent them becoming what Proietti et al (2022) term ‘lonely places’. Current EU priorities and ambitions for the EU’s rural areas in the years ahead are spelled out in the European Commission’s communication on the long-term vision for the EU’s rural areas, which aims to create stronger, connected, resilient and prosperous rural communities by 2040 (European Commission, 2021). The communication sets out the complex challenges involved in rural socioeconomic development, but it also highlights opportunities, including, for instance, ‘the renewed attention to rural areas as places of well-being, security, eco-living and new possibilities for social and economic renewal’ that resulted from the expansion of teleworking during the pandemic.

Could telework lead to an influx of urban workers into rural areas, revitalising them? At the height of the COVID-19 crisis, there was some speculation that the new possibilities afforded by telework would lead professionals to relocate outside the cities, to benefit from lower house prices, more space, less traffic and pollution, and more natural amenities. However, there is little evidence of this happening on any meaningful scale. Part of the explanation may be that, while the prevalence of telework remained at high levels even after public health measures ended, in 2022 a larger share of workers reported working from home only some of the time, rather than usually. This implies that

they work at their employer’s premises for most of the week, which limits the advantages that could be gained from relocation and significantly reduces how far away workers would be willing to move. According to online vacancy data from LinkedIn, the number of hybrid roles on offer across Europe at the end of 2023 was growing, while postings offering remote roles had fallen in some countries in comparison to the previous year. LinkedIn reported that, although advertisements for remote positions were fewer than at the height of the pandemic, jobseekers continued to apply for them, though the share of total applications for remote roles declined from 2022 to 2023.²⁴

In recent years, however, several initiatives have attempted to encourage remote work and to attract knowledge-based workers, professionals and entrepreneurs to rural, peripheral or marginalised areas. These initiatives aim primarily to support the creation and expansion of coworking spaces as a response to existing regional development challenges, and therefore can contribute to the reduction of territorial disparities by promoting dynamism and diversity in rural economies. The financial support of national and local public actors is instrumental in the creation, growth and economic sustainability of coworking spaces outside major urban areas, as this can help to address the challenges related to building a critical mass that can ensure the economic viability of these spaces and make them a feasible economic model for private actors.

The initiatives presented in this report are still ongoing and are at different stages of development. While formal assessments of their economic and social impact on local communities, workers and companies were not available at the time of writing, they have all been successful in continuing their operations, securing funding and in some cases expanding even after the pandemic. Developing a strong territorial base (including engaging with local actors and addressing local needs), building a community of people with shared professional interests, fostering a dynamic of innovation and collaboration, and favouring hybridisation of activities are among the key ingredients for successful and sustainable coworking spaces. The last factor might involve, for instance, offering training and learning activities that the wider community can benefit from, rather than just a service to a restricted group of remote workers. Social and cultural regeneration are as important as physical facilities and regeneration of spaces.

²⁴ See post by LinkedIn News Europe, available at <https://www.linkedin.com/feed/update/urn:li:activity:7133799234322993152/>

In conclusion, the rise in telework has potentially profound implications for the spatial organisation of economic activity and the structure and morphology of regions in the coming years. However, as employers' and workers' preferences are still evolving, long-lasting effects are challenging to predict. The implications of a shift towards widespread working from home for local urban economies are various, including, for instance, a reduced need for office space for companies, increased demand for housing outside urban centres and reduced demand in cities for local services (e.g. retail, leisure and hospitality) and infrastructure (e.g. public transport). These implications might trigger rethinking of spatial planning approaches.

At the same time, while remote work might be a key 'push factor' in the transformation of cities in the coming years, the persistence of 'pull factors' (notably availability of employment and education opportunities, cultural dynamism and agglomeration-related advantages more

broadly) continue to make urban areas very attractive to a large share of the population, especially the younger generations. In this context, more should be done to shape the transition to a more sustainable future for cities, by reducing car dependency and redesigning public spaces and services, which in turn would increase well-being and improve quality of life for city dwellers. Neighbourhood coworking spaces in cities are an example of this; they are proximity-based services for citizens, promoted by 15-minute city strategies, that aim to encourage 'living locally' (Moreno et al, 2021). These remote working spaces can support the concept of 'near working' – that is, working close to home (see Mariotti et al, 2022) – which has received renewed attention in recent years as an option that could improve both core urban areas and less urbanised areas in the EU. Through such measures, the EU could ensure that the secular trend towards urbanisation is balanced by elements favouring sustainable urban living.

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Annex

Annex 1: Network of Eurofound Correspondents

Table A1: National correspondents who provided information on the initiatives presented in Chapter 3

Member State	National correspondent	Organisation
Estonia	Miriam Lehari	Praxis Centre for Policy Studies
France	Frédéric Turlan and Pascale Turlan	Consortium IR Share and Association Travail, Emploi, Europe, Société (ASTREES)
Ireland	Rosanna Angel	Industrial Relations News
Italy	Alessandro Similari and Sofia Gualandi	Fondazione Giacomo Brodolini
Portugal	Paula Carrilho	Centro de Estudos para a Intervenção Social (CESIS)

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The fast and steady recovery in employment following the COVID-19 pandemic in the EU benefited from proactive policy responses to the crisis and from resilient labour markets. Almost 90% of regions across the EU had exceeded their pre-pandemic employment levels by 2022; however, significant regional disparities remain. EU regions fared differently, depending on their economic specialisation and notably on the concentration of jobs in knowledge-intensive services that can be performed remotely. The geography of telework across EU regions was primarily shaped by differences in occupational structure, and fast internet connectivity remains an essential enabling factor. Recent initiatives to support remote work in rural, peripheral or marginalised areas through the creation of coworking spaces show how dynamism and diversity in rural economies can be promoted.

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency established in 1975. Its role is to provide knowledge in the area of social, employment and work-related policies according to Regulation (EU) 2019/127.

