

COVID-19 and the shift to remote work

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Executive summary

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A version of this Policy Contribution will be published as a chapter in Whalley, J., V. Stocker and W. Lehr (eds) (2023) *Beyond the Pandemic? Exploring the impact of Covid-19 on telecommunications and the internet*, Emerald Publishing, forthcoming

COVID-19 HAS ACCELERATED the shift to remote work. Enabling knowledge workers to do their jobs from home or elsewhere brings benefits by increasing labour participation, avoiding unproductive commuting time (thus reducing the carbon footprint), and reducing the gender gap by enabling single parents or partners with domestic-care responsibilities to work.

NOT ALL JOBS are suitable for remote work, but far more remote work is feasible than was typical prior to the pandemic.

THE POST-PANDEMIC NEW normal is sure to differ both from the pre-pandemic normal and from current arrangements. Hybrid arrangements in which part of the week is spent at the office, and part at home, are likely to become the norm.

EMPLOYERS, WORKERS, EDUCATORS, TRADE UNIONS AND GOVERNMENTS will need to adapt to the new normal. For employers and managers, the change emphasises the need to manage based on results rather than hours worked, and likely implies many changes in how they manage their employees. Workers will need to be flexible in order to capitalise on the new opportunities in the evolving world of work, and to ensure they have suitable skills for remote work. Educators will need to further emphasise digital skills, and to accelerate the shift from traditional education to lifelong learning. Trade unions will need to re-think how they recruit workers who do not see each other every day, and how they can respond to evolving social protection needs. Policymakers will need to deal with distributional effects driven by the shift to remote work, to protect the work-life balance that remote work potentially erodes, and to seek to ensure that the shift to remote work does not erode social protection.



Recommended citation

Marcus, J.S. (2022) 'COVID-19 and the shift to remote work', *Policy Contribution* 09/2022, Bruegel

1 Introduction

If a pandemic like COVID-19 had emerged thirty or forty years earlier, the impact on the global economy would likely have been vastly greater. The shift in many developed economies to produce more services and relatively fewer goods, the corresponding shift of the labour force to increasing reliance on knowledge workers, and the progressive enhancement of remote collaboration technologies have together enabled a profound transformation of the workplace. By enabling knowledge workers to work from home, or indeed any other convenient location, during the pandemic, a high level of productivity was maintained in many economic sectors without putting the workers at risk of infection.

The pandemic has thus accelerated an important and positive evolution in the nature of work – though this is not to disregard the huge price humanity has paid. COVID-19 has accelerated shifts to remote work in the European Union (Ahrendt *et al*, 2021; Eurofound, 2020) and in the United States (Barrero *et al*, 2021). It has also boosted teleconferencing and telemedicine. The technology to do more remotely has been around for years, perhaps for decades, but institutional rigidities prevented them from being fully exploited. Now firms and individuals have had no choice but to adapt, they have found that enhanced digital tools, especially digital presence and teleconferencing tools, provide workable solutions.

These changes in behaviour are likely to be fairly durable beyond the pandemic. Hybrid arrangements are likely to proliferate, where the old co-exists with a richer mix of the new. Many knowledge workers will spend part of the week at the office, and the rest at home or anywhere else they choose.

In this Policy Contribution, we focus on developed countries where knowledge workers represent a substantial fraction of the workforce, because it is in developed countries that the proportion of knowledge-intensive occupations is high (Ojala and Pyoria, 2018, p. 402), and where the shift of knowledge workers to remote work has consequently been most visible. The shift to remote work has played a particularly noteworthy role in mitigating the impact of the COVID-19 pandemic in the United States, the EU and in a number of other OECD economies.

We begin by discussing remote work trends that were visible prior to, and during the COVID-19 pandemic. A key question, given that most of the necessary ingredients were already in place ten years ago or more, is why didn't this transformation occur sooner? We then consider what the lasting impact of changing work trends might be. We conclude by summarising key findings and noting their implications for public policy.

2 Trends visible to date

Prior to the pandemic, remote work had already been growing among highly skilled knowledge workers. The technological enablers were already in place and the benefits were already clear to many knowledge workers. Nonetheless, remote work grew at only a glacial pace for many years. With the pandemic, the situation changed very quickly.

The shift has however manifested differently in different sectors and for different groups, primarily because some tasks are more suitable for remote work than others.

2.1 Remote work by knowledge workers

What is meant by 'remote work', what kind of remote work has grown due to the pandemic, and what is meant by knowledge workers?

'Remote work', 'work from home' (WFH), 'teleworking' and more are sometimes used as if they were interchangeable, but they are not identical in meaning. We focus on remote work conducted by knowledge workers, which is similar to work from home in that the work is

performed at a location other than the employer's premises, but remote work includes work performed at a location other than the home.

Remote work is best understood as a sub-class of multi-locational work. For most workers, the employer's premises play an important role. Many workers have nonetheless regularly worked at locations other than the premises of their employer without necessarily being knowledge workers (eg in transportation, agriculture and fisheries, or construction). The circumstances of these workers might not be very different during or after the pandemic than they were before.

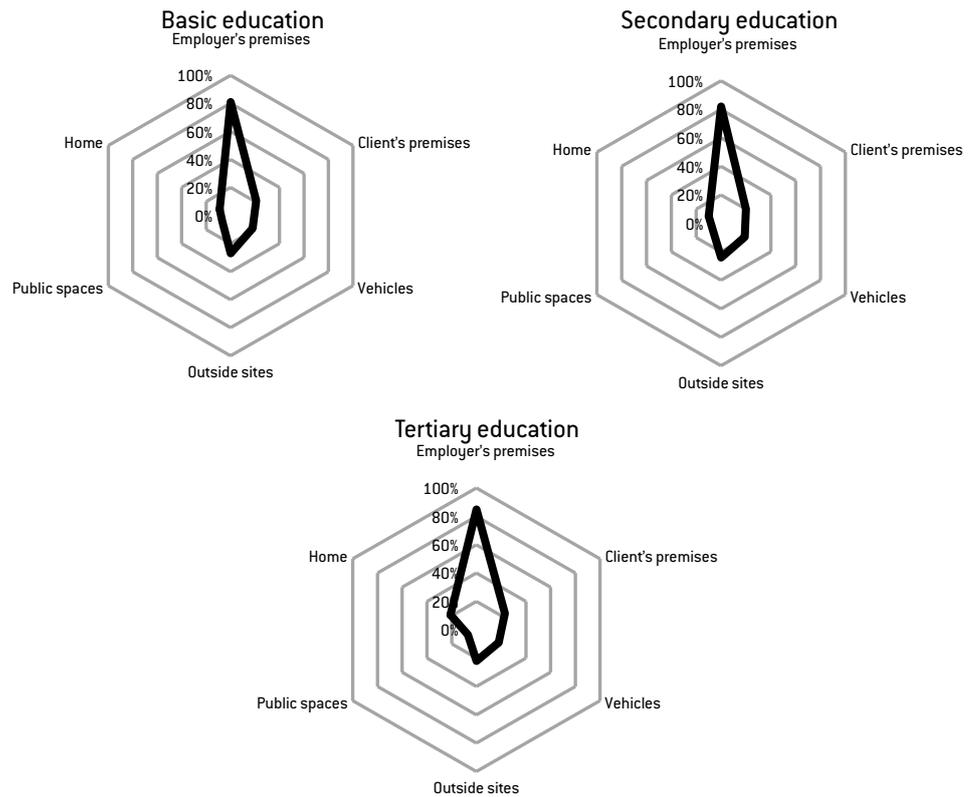
Ojala and Pyoria (2018, pp. 407-408) identified knowledge workers based on a combination of factors. They treated autonomy in the work process as representing the core of knowledge work; together with the worker's level of education, it is a key hallmark of a knowledge worker. The factors they used to identify those forms of multi-locational work that constitute knowledge work were:

- The worker's level of skills (which may differ from the level that the job requires);
- The worker's autonomy:
 - Autonomy in work practices; that is, in choosing or changing:
 - The order of tasks;
 - The speed or rate of work; and
 - Methods of work;
 - Autonomy in work content:
 - Involvement in improving the work organisation or work processes;
 - Involvement in the choice of working partners;
 - Ability to apply one's own ideas in one's own work; and
 - Ability to influence decisions that are important in the work; and
- The worker's user of ICTs.

The kind of remote work greatly accelerated by the pandemic is that of these knowledge workers. The degree of education is clearly a hallmark of this trend. Survey results help decompose the different forms of multi-locational work. Eurofound's European Working Conditions Survey (EWCS, Eurofound, 2017) distinguishes among six work locations: the employer's premises, the client's premises, vehicles, outside sites, public spaces and the home. Analysis of Eurofound EWCS survey data from 2016 by Ojala and Pyoria (2018) showed that some individuals at each education level may spend some fraction of their time away from their employer's premises, but those with tertiary education are most likely to spend time working from home: 21 percent versus 10 percent of those with only secondary education and 9 percent of those with only basic education¹.

¹ Since the question is formulated to identify which work sites are used, the numbers add to more than 100 percent.

Figure 1: Educational attainment and where work is performed (EU, 2015)



Source: Bruegel based on Ojala and Pyoria (2018).

2.2 A necessary shift

As previously noted, the shift to remote work has mainly happened in developed countries, because it is in those countries where large numbers of knowledge workers who could potentially work from home are to be found. Those developed countries and regions, notably including the EU and the US, will need to be highly productive post-crisis to make up ground lost in the course of the pandemic, but experience in recent decades is not encouraging. The OECD (2019, p. 57) found that pre-pandemic labour productivity (calculated by the OECD for this purpose as GDP per hour worked) varied greatly among OECD member countries; moreover, the rate of improvement in labour productivity has been declining in nearly all developed countries over the past twenty years².

Making it possible for workers to do their jobs from home potentially can have both positive and negative effects on worker productivity. The net effects are however difficult to judge. As Gascoigne (2020, p. 4) noted, “*productivity is hard to measure and to compare across different types of work. Knowledge work in particular – the kind of work most often done from home – is complex and intangible, meaning that we have no objective evidence on the relative productivity of knowledge workers based at home or in the office.*”

In general terms, the OECD has noted that remote work “*can improve or hamper firm performance, with its overall effect depending importantly on two main channels: A direct channel affects firm performance through changing the efficiency, motivation and knowledge creation of the workforce; an indirect channel is for telework to facilitate cost reductions that free up resources for productivity enhancing innovation and reorganisation*” (OECD, 2020, p. 11).

More specifically, on the plus side, remote work can increase labour productivity and

² Comparing the period 1998-2007 to the period 2008-2017, labour productivity (measured as GDP per hour worked) declined in every single OECD country with the exceptions of Spain and Ireland (see page 57 of OECD, 2019).

labour participation in many different ways. It avoids unproductive time commuting to work. Based on survey results, Barrero *et al* (2021, p. 4) estimated an overall productivity gain of 4.6 percent in the USA, all but 1 percent of which is due to reduced commuting time. WFH can also enable a presently non-working spouse or partner (who might otherwise need for instance to be responsible for childcare) or a single parent to work from home, thus increasing labour participation.

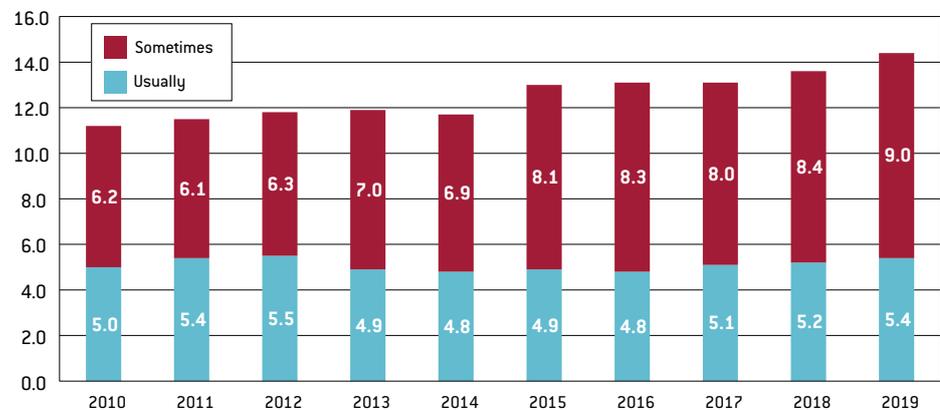
On the downside, distractions may be greater when working from home compared to working in an office, particularly for those who have children at home (although this concern might be less in a post-pandemic world). It is moreover common to assume that WFH is less productive than traditional office work because employee interaction is lost, and with it many forms of innovation; however, the evidence for this widely held presumption appears to be thinner than is typically assumed³.

Multiple studies in the EU and US show that WFH tends to result in more hours worked per week (see for instance Barrero *et al*, 2021), which should tend to increase productivity overall. However, at least one case study found that this gain was offset in the firm in question by reduced productivity per hour (Gibbs *et al*, 2021).

2.3 A shift that was long in coming

Over the past decade, the prevalence of remote work in the EU has grown substantially, but not nearly as much as was technically or practically feasible. According to Eurostat survey data, the percentage of those EU workers who said that they usually worked at home fluctuated from 4.8 percent to 5.5 percent between 2010 and 2019, but showed no consistent net change over the decade (Figure 2). The percentage of those who said they ‘sometimes’ worked at home increased fairly steadily from 6.2 percent in 2010 to 9.0 percent in 2019, which constitutes real movement but is hardly earth-shattering.

Figure 2: Employed persons working from home (%) in the EU

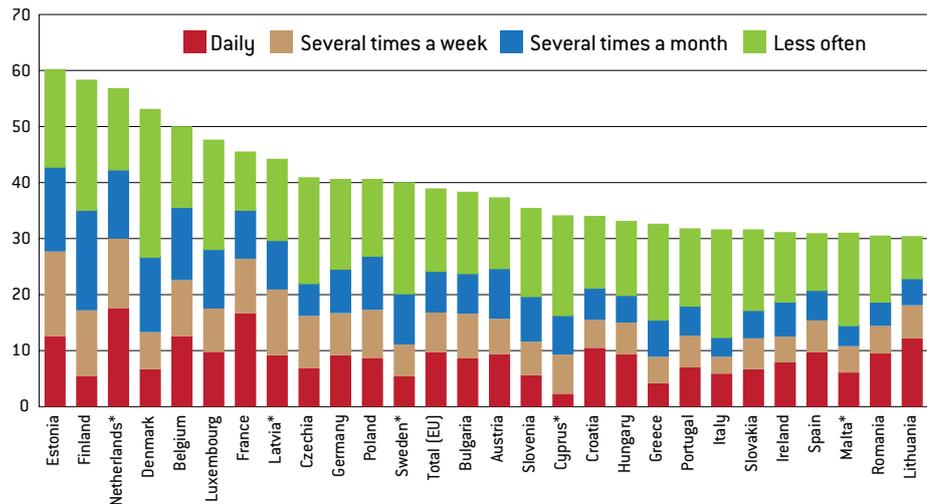


Source: Bruegel based on data from Eurostat lfsa_ehomp.

A Eurofound survey conducted in April 2020 (Ahrendt *et al*, 2020) asked respondents whether they had been working from home prior to the pandemic. The prevalence of work from home varied greatly among EU countries. Unsurprisingly, work from home was far more common in digital front-runner states like Estonia and Finland, than in laggards such as Romania and Lithuania; however, there are also some surprises, such as the rather high number of respondents who worked from home daily in France (Figure 3).

³ Claire Cain Miller, 'Do Chance Meetings at the Office Boost Innovation? There's No Evidence of It', 23 June 2021, *The New York Times*, <https://www.nytimes.com/2021/06/23/upshot/remote-work-innovation-office.html>.

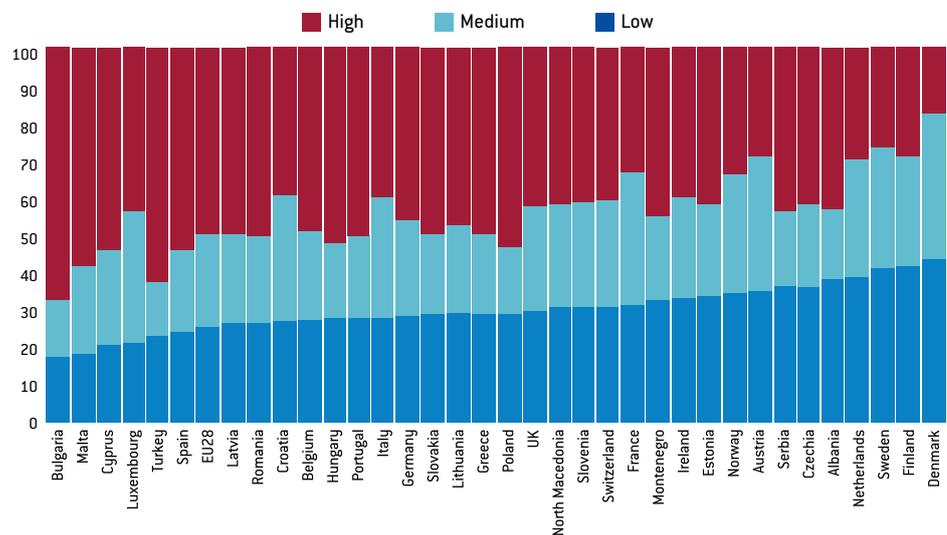
Figure 3: Frequency of working from home before the pandemic (2020, by country)



Source: Bruegel based on [Eurofound, 2020]. Note: * = low reliability.

The EU countries offering the greatest overall flexibility in working arrangements tend to be those that also are most open to working from home. Data from Eurofound’s sixth EWCS survey (Eurofound, 2017) identified the countries where regularity of working hours is lowest (a sign of relative flexibility in working arrangements) versus those where it is highest. Denmark, Finland and the Netherlands rank near the top both for flexibility of working hours and for work from home, while Malta and Spain have low ratings in both (Figure 4). But there are exceptions. Luxembourg for example ranks low in flexibility in hours but fairly high in overall work from home.

Figure 4: Regularity of working hours by country (% of workers)



Source: [Eurofound, 2017].

Survey data from the United States (DeSilver, 2020) based on the 2019 National Compensation Survey of the US Bureau of Labor Statistics, likewise showed only sluggish growth in remote work over the past decade, almost of all of which was associated with those in higher earning quantiles and working in the private rather than the public sector. The private sector showed limited overall growth from 5 percent in 2010 to 7 percent in 2019 in the share of workers with access to ‘flexible workplace’ benefits, while no growth at all was visible in the public sector.

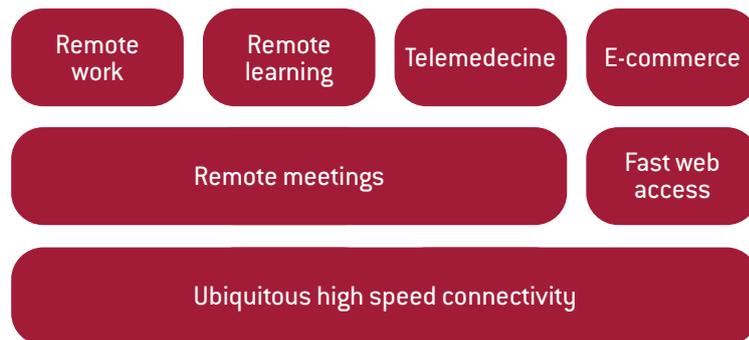
Over the same period, income (and presumably skill level as well) was strongly linked to being permitted to work from home in the US (DeSilver, 2020). Only 1 percent of the lowest earning 25 percent of wage earners were able to work from home in 2010, and this was substantially unchanged in 2019. By contrast, about 12 percent of those in the highest quartile were able to work from home in 2010, increasing to 19 percent in 2019. About 16 percent of those in the highest 10 percent were able to work from home in 2010, increasing to 25 percent in 2019.

While those with higher incomes were more able to work from home during the pandemic, they probably also benefitted in that they were less likely to find themselves out of work, or working fewer hours, than those in jobs that required physical presence. They were also less exposed to COVID-19 infection.

2.4 Digital tools as an enabler for remote work by knowledge workers

A wide range of distinct digital capabilities have contributed to the growth in remote work during the COVID-19 pandemic. Remote work (together with remote learning and telemedicine) has benefitted enormously from the ability to conduct meetings remotely via modern teleconferencing and telepresence services including Zoom, Cisco Webex and Microsoft Teams. All of these services, as well as a wide range of e-commerce services, benefit from modern high-speed fixed broadband networks that enable high-speed connectivity.

Figure 5: Modern digital services and telecommunications networks have enabled an effective response to the pandemic



Source: Bruegel.

Telecommunications networks experienced a massive surge of use in response to the pandemic. The OECD has estimated that internet traffic worldwide surged by up to 60 percent between September 2019 (pre-pandemic) and March 2020, when Europe and the US experienced the first wave of the pandemic⁴.

Sandvine⁵ (2020) reported an increase of nearly 40 percent in overall internet traffic from 1 February 2020 to 19 April 2020, which captures well the change from pre-pandemic conditions to those of the first wave of the pandemic. The data distinguishes between downstream traffic and upstream traffic, which is important in this context. Downstream traffic (toward the user) tends to greatly exceed upstream traffic (from the user) because the downstream traffic includes more video content (including from Netflix and Amazon Prime) and images.

⁴ The Packet Clearing House data cited in OECD (2020b) reflects traffic exchange at public Internet Exchange Points, and thus ignores the traffic that is exchanged via private peering, which is probably the majority of all traffic. The data is nonetheless indicative, and there is no reason to expect that private peering would show a hugely different result. Indeed, it is broadly in line with figures reported in Sandvine (2020) and in OECD (2020b).

⁵ Sandvine is a firm that provides products and services to optimise network quality of service, congestion management and security.

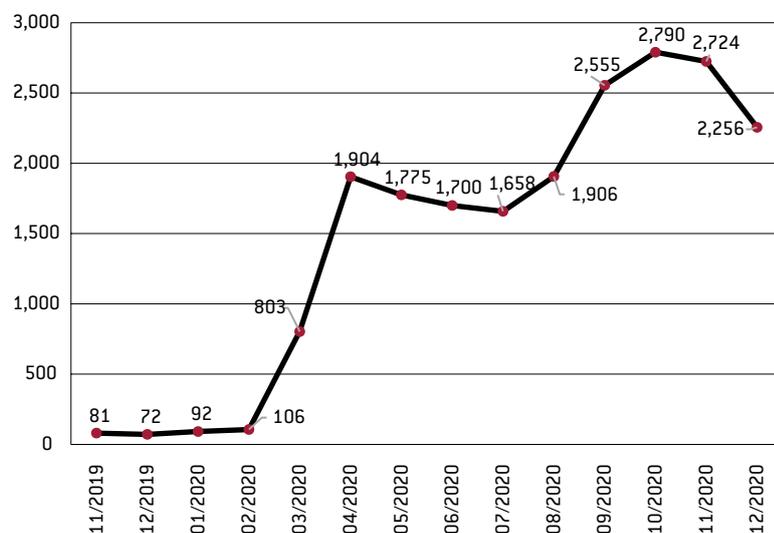
Both the OECD (2020b) and Sandvine (2020) found that networks generally responded well to the huge increase in demand, mainly by optimising the use of existing network capacity, but also in some cases by expanding capacity.

There have been some problems, and there is reason to think, based on anecdotal evidence, that US networks might have performed less well than EU networks. A possible reason for the difference might be Article 4(4) of the European Electronic Communications Code (EECC), which deems any “significant discrepancy, continuous or regularly recurring, between the actual performance of the internet access service regarding speed or other quality of service parameters and the performance indicated by the provider of internet access services” to be actionable under EU member-state consumer protection laws. This effectively obliges network operators in the EU to limit the degree to which they over-subscribe their networks (ie the degree to which the capacity of the network is less than the maximum load that all customers could generate).

In sum, network capacity has generally held up well. Its crucial contribution during the pandemic has been to enable virtual meetings and dialogue. Video calling Skype and WhatsApp has also surged.

Zoom is an online internet conferencing system that has been perhaps the largest beneficiary of these trends. Worldwide traffic to Zoom’s website (the means of launching Zoom from a smart phone, tablet or personal computer), as measured by the SimilarWeb application, increased by a factor of roughly 20 from February to April 2020, moderated slightly as lockdowns eased in July and August, but then increased again in September through November 2020 as a result of the second wave lockdown (Figure 3). Other online teleconferencing platforms, such as Microsoft Teams and Cisco Webex, also experienced huge jumps in utilisation after February 2020.

Figure 6: Monthly number of visits from SimilarWeb users to the Zoom website



Source: Marcus *et al* (2021) based on SimilarWeb (<https://www.similarweb.com/website/zoom.us#overview>).

Even though the internet and a range of relevant online tools were already sufficiently mature to support widespread usage for WFH when the pandemic first reached Europe and North America, workers and firms nonetheless had to invest significant money and effort in deploying the technology and incorporating it into their work processes. A survey of workers in the USA (Barrero *et al*, 2021) found that the average worker invested more than 15 hours and \$561 (about €486) in equipment and infrastructure to enable WFH. Their employers also had to invest in additional equipment and software to enable WFH, and may have reimbursed some of the worker expenses. The investments of time and money have presumably reduced the cost of WFH, and will thus have benefits beyond the pandemic.

The shift to remote work may raise new cybersecurity concerns. Data that historically resided only on computers secured by the employer (in theory, at least) suddenly had to reside on workers' own computer systems, and thus outside firms' security perimeters. Discussions of sensitive business matters took place over online conferencing systems that in many cases were designed with little thought given to cybersecurity. This is likely to become a growing concern over time⁶.

The shift likely also raises concerns over the privacy of workers, and their exposure to surveillance. We discuss this below, in the context of the societal impacts of the growth in remote work.

2.5 The growth of remote work during the pandemic

In many developed countries and regions with significant numbers of knowledge workers, notably including Europe and the US, on-site performance of non-essential jobs was either discouraged or else outright prohibited by law during periods when the pandemic was at its peak. To the extent feasible, many firms instead encouraged work from home. As a result, the levels of remote work in most EU countries and the US spiked upwards in March and April 2020, and continue to be far higher than prior to the pandemic.

The pandemic resulted in significant numbers of workers either losing their jobs or else working fewer hours, with significantly different impacts in the US versus the EU. The shift to remote work helped to reduce the negative impacts of these changes, and needs to be understood with this in mind.

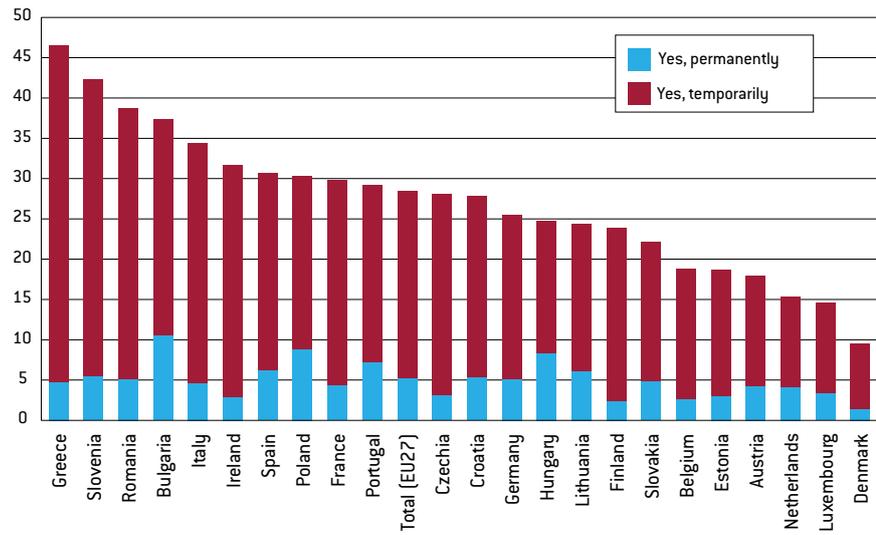
The unemployment caused by the pandemic is not fully reflected in traditional unemployment statistics, because many EU countries treat furloughed workers as employed (since they are not looking for work). However, this unemployment is clear from survey results (Eurofound, 2020; Ahrendt *et al*, 2021). In the EU, innovative measures to keep workers employed, albeit on reduced hours and at reduced wages (as with the German *Kurzbeitergeld*, an approach employed with success during the 2008 financial crisis) have helped to minimise the amount of permanent unemployment to date (Figure 7). Partly as a result, a huge number of EU workers experienced a reduction in the hours worked (Figure 8) in the early months of the pandemic, but did not lose their jobs. Impacts have been different in different EU countries, with losses of jobs and hours in the first wave in 1Q2020 tending to be greater in southern and eastern EU countries than in western and Nordic EU countries, though with some exceptions.

The data in Figures 7 and 8 is based on an April 2020 Eurofound survey. Comparison with subsequent Eurofound surveys from July 2020 and April 2021⁷ makes clear that employment continues to be depressed overall, albeit with differences from sector to sector and from country to country (Figure 9). In April 2021, one year after the initial business lockdowns, 10 percent of respondents who had been employed before the pandemic were unemployed, compared to 8 percent in the July 2020 survey and 5 percent in April 2020 (Ahrendt *et al*, 2021).

6 Elliot Kass, 'Since The Start Of The Pandemic, Business Use Of Collaboration Tools Has Soared — Bringing New Security And Compliance Challenges', 28 May 2021, *Mimecast*, <https://www.mimecast.com/blog/collaboration-tools-many-benefits--and-new-security-risks/>.

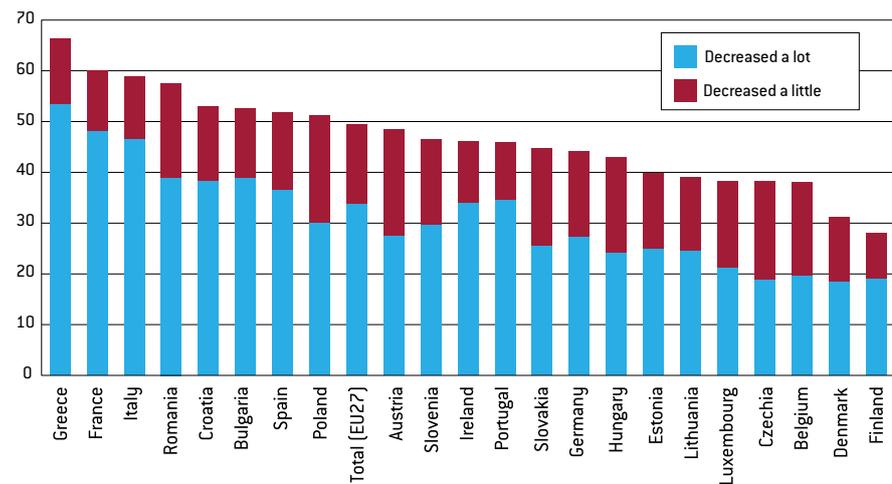
7 For the survey methodology, see <https://www.eurofound.europa.eu/data/covid-19/working-teleworking>.

Figure 7: During the COVID-19 pandemic have you lost your job(s)/contract(s)? (April, 2020, by country, % respondents)



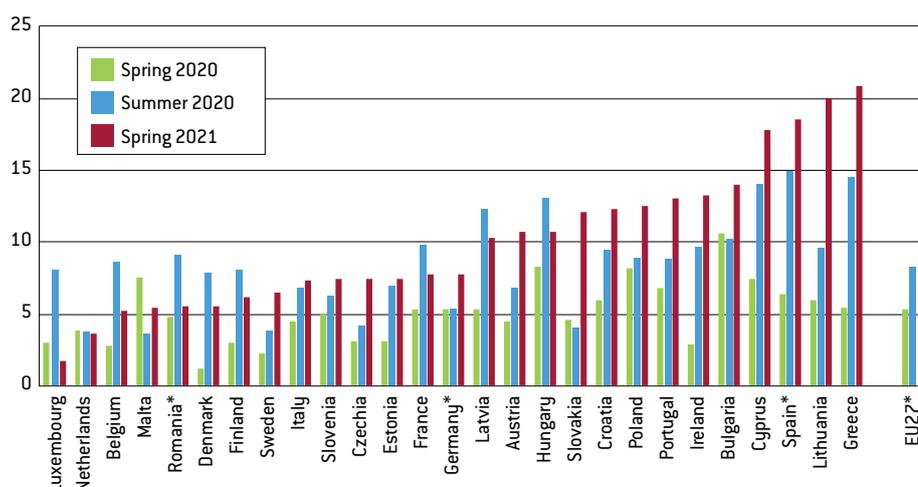
Source: Bruegel based on Eurofound (2020).

Figure 8: Any change in working hours? (April 2020, by country, % respondents)



Source: Bruegel based on Eurofound (2020).

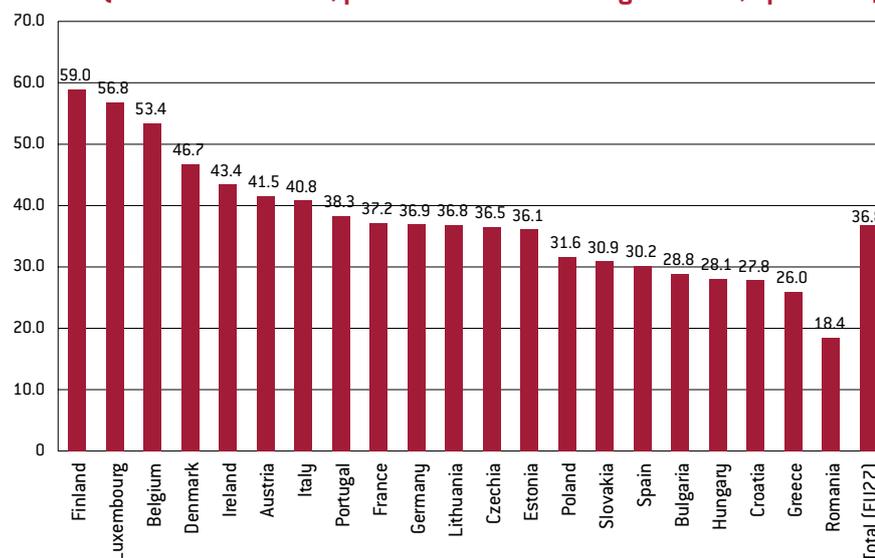
Figure 9: Respondents who lost their job (of those who were employed before the pandemic) by country, EU (%)



Source: Ahrendt *et al* (2021). Note: Ahrendt *et al* (2021) notes that an asterisk denotes a statistically significant difference ($p=0.05$) compared to July 2020. For April 2020, data are based on the question 'During the COVID-19 pandemic have you lost your job(s)/contract(s)?' (answer: Yes, permanently). For July 2020 and April 2021, the data are based on current employment status compared with employment status in the month before the pandemic began.

The ability of workers with suitable jobs (mostly white collar) to work from home has been Europe's salvation. The same survey data demonstrates a huge acceleration in work from home (Figure 10). Unsurprisingly, the jump in remote work tended to be greatest in Nordic and western European EU countries, which already tended to have flexible working hours and significant reliance on remote work. The jump was less in southern and eastern EU countries, but with some exceptions in both directions.

Figure 10: Have you started to work from home as a result of the COVID-19 situation? (selected countries, percent of those working in the EU, April 2020)



Source: Bruegel based on Eurofound (2020). Countries with insufficient sample size are omitted.

These numbers for the EU are more or less in line with survey results for the US, as reported in Barrero *et al* (2021). They estimated that "42 percent of working age persons were working from home in May 2020 at the height of pandemic lockdowns, or 62 percent among

those who were working for pay”. This works out to about half of all paid hours over the period from May to October 2020, which is about ten times as great as before the pandemic.

2.6 Different impacts on different sectors

Different sectors have been impacted by the pandemic in different ways, and these have distinct implications for the prospects of remote work.

Sectors strongly impacted by the pandemic include transportation (especially air travel), tourism, restaurants, lodging and entertainment. Other sectors, such as manufacturing, have not been much impacted at all (Marcus *et al*, 2021).

Longer-term prospects for the various sectors are less clear, but they have important implications for the volume of remote work that will be feasible. Though the pandemic has abated, air travel continues to be significantly depressed as of early 2022, presumably due in part to the willingness of business travellers to accept online meetings and remote participation in conferences to a far greater degree than they did before the pandemic. Tourism has been transformed in ways that might persist – overnight lodging by domestic guests in the summer 2020, in a period when the EU had largely reopened, was nearly at pre-pandemic levels, while overnight lodging by guests from other countries continued to be depressed⁸ and continued to be depressed throughout 2021.

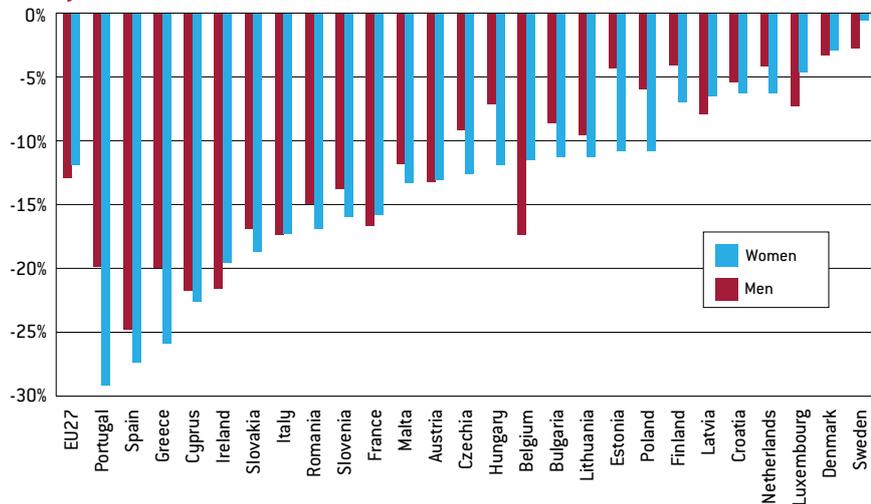
2.7 Different impacts on different population groups

Effects of the pandemic have differed based on gender and age, and these spill over into remote work.

In the April 2021 Eurofound survey, 10 percent of men were still unemployed after losing their jobs during the pandemic, versus 8 percent in July 2020. The overall number of women who had lost their job remained roughly constant across the Eurofound surveys (Ahrendt *et al*, 2021).

Eurostat data provides a granular view of the differences in male versus female hours worked. In most EU countries, the percentage reduction in hours worked in the main job from Q1 to Q2 of 2020 (see Figure 11) was greater for women than for men.

Figure 11: Percentage change in total actual hours worked by males and females in the main job between Q1 and Q2 of 2020 in EU countries



Source: Marcus *et al* (2021)⁹.

8 See Eurostat tourism statistics, available at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Tourism_statistics_-_nights_spent_at_tourist_accommodation_establishments#January_to_September_2020:_Nights_spent_in_EU27_tourist_accommodation_down_by_49.25_compared_with_the_same_period_in_201.

9 Based on Eurostat, online data code: LFSI_AHW_Q. Quarterly data, seasonally adjusted.

The effect of remote work on women's career prospects, especially those who must care for young children, appears mixed. Some of the professions in which women are more likely to be engaged are amenable to remote work, but others are not (such as for instance healthcare workers). That women are able to work from home is generally a positive development, but women may nonetheless be at a disadvantage relative to male colleagues. There appears for instance to be a correlation between remote work by women and a larger gender wage gap (Petropoulos and Schraepen, 2021).

Eurofound surveys in summer 2020 and spring 2021 (Ahrendt *et al*, 2021, p.3) asked parents if they were too tired after work to do household chores. For men, it made little difference whether there were children under 12 or not, and little difference whether they worked only from home or whether they worked from their employer's premises. About a quarter more women than men overall reported, however, that they were too tired after work to do household chores. Substantially more women with children under 12 than comparably situated men complained of being too tired to do household chores after work (44 percent of those who worked from their employer's premises and 39 percent of those who worked only from home, compared to 20 percent and 24 percent for men, respectively, in the spring 2021 survey). The responses to this question reflect career prospects only imperfectly, and the results might look different in a post-pandemic world; nonetheless, these results suggest that women may be at a disadvantage, especially women with young children.

The aforementioned Eurofound surveys also found that 17 percent of young people aged 18–29 had lost their jobs as of the July 2021 EU27 survey, versus 9 percent of those 30 or over (Ahrendt *et al*, 2021, p.9). Similarly, Grzegorzcyk and Wolff (2020) found that young (15 to 24 years old) active jobseekers were two or three times less likely than those aged over 55 to be able to find a job in the EU27 in 2Q2020 (based on labour market slack data, or the shortfall between the work desired by workers and the volume of work available); moreover, their data shows a substantial increase versus the same quarter in 2019 in the proportion of young persons who were not even seeking work, even though they were available to work. The tendency for the pandemic to have caused greater unemployment among the young is also visible in Marcus *et al* (2021).

These differential impacts are a matter of significant policy concern. In the case of females, many different factors combine to accentuate the stresses to which they are subject.

For the young, a substantial body of literature shows that youth unemployment can have lasting negative impact on earnings, coupled with an increased risk of unemployment in later years, and may possibly also lead to emotional scarring and higher rates of divorce (Grzegorzcyk and Wolff, 2020).

3 The likely course ahead

In this section, we begin by considering what we mean when we ask what things might look like 'after' the pandemic. We consider (1) the feasibility of continuing remote work at elevated levels as the pandemic moderates, (2) the wishes of workers and employers, (3) the implications for workers, managers, and trade unions, (4) the societal impacts of the shift to remote work, and (5) public policy measures that may need to be considered.

We assume in the sections that follow that COVID-19 will persist globally for quite some time. Governments have become progressively more adept over time, however, at imposing targeted restrictions in order to slow the spread of COVID-19 (Marcus and Guetta-Jean-renaud, 2021). It therefore seems likely that there will rarely if ever be another need for a full lockdown in developed countries in Europe and North America.

This implies that remote work may continue to offer significant health advantages, but on-site work is likely to be increasingly feasible as time goes on. This further implies that there

is great scope for hybrid models of work, where some work is performed remotely but not all. This has implications for employers, for workers, for social partners such as trade unions, and for policymakers, as we explain in the concluding part of this section.

3.1 Feasibility of continued remote work post pandemic

Remote work has not eliminated work involving physical presence; however, for some jobs, especially white collar jobs, far more remote work is feasible than firms were willing to permit in the past (Joint Research Centre, 2020; Dingel and Neiman, 2020). It is likely that firms were reluctant to trust their employees with full freedom to manage their own time. In reality, however, much of this work is really judged by results, not by the number of hours worked. Physical presence has value for many of these jobs as a means of facilitating informal coordination among workers, but occasional physical presence if well managed might suffice for these jobs¹⁰. In the pandemic, many firms were forced to manage with no face-to-face interaction at all for many months.

For a wide range of office and other creative jobs, remote work is likely to play a much greater role than previously as the pandemic abates. Many jobs appear to depend on physical presence, however, such as retail sales positions, hair stylists, bus drivers, farm workers, healthcare workers and manicurists. Many of these are likely to continue to be conducted much as they were in the past. Many manufacturing jobs that historically were performed by humans are likely to demonstrate a different evolution, with an acceleration of substitution of robots for human labour, but with a partly compensating need for people to maintain the robots and to design new automated tasks.

A study by the European Commission's Joint Research Centre with support from Eurofound (Joint Research Centre, 2020) assessed the degree to which a range of occupations were amenable to remote work, and compared this with the degree to which they were already being conducted remotely (see also Petropoulos and Schraepen, 2021). Unsurprisingly, they identified a huge gap between the potential for remote work and the reality today, which represents a substantial opportunity for the EU.

The gaps prior to the pandemic seem to relate mainly to organisational inertia and resistance. Today, however, many managers have learned how to manage a largely remote workforce, and acceptance of teleconferencing tools such as Zoom has become widespread.

There are, at the same time, limits to the benefits from remote work. Working at home offers gains in efficiency and worker satisfaction, but also some losses in social interaction, which is important for some jobs. Another limiting factor is that most of the self-employed who could potentially work remotely are already doing so.

The JRC (2020, pp. 49-50) found that only 3 percent of jobs in the EU in the lowest income quintile are amenable to remote work, versus 74 percent of jobs in the highest income quintile. This finding is broadly in line with the results from the United States (Dingel and Neiman, 2020).

Those with tertiary education are more likely (more than 60 percent) to be in occupations suitable for remote work than those without (about 12 percent for those with only lower secondary education). This is in line with tendencies in the EU to date (see for instance Figure 1). Furthermore, large firms have more jobs suitable for remote work than small firms.

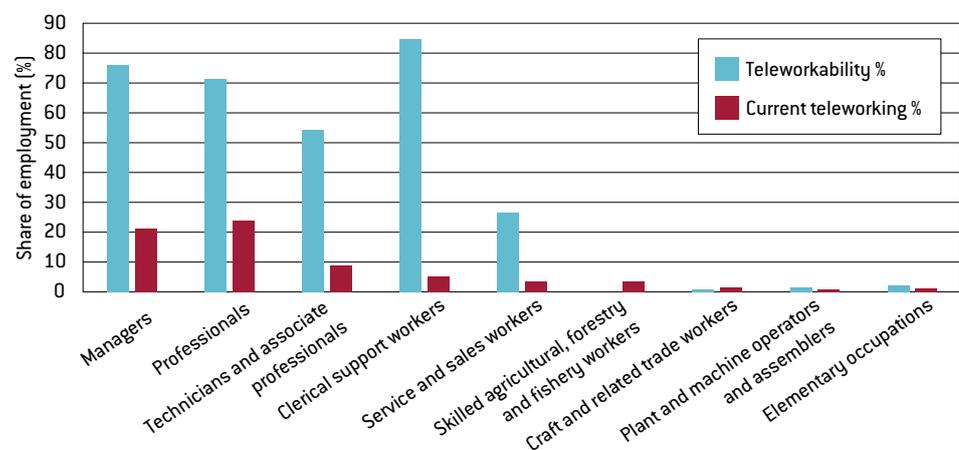
The JRC (2020) also found that females are more likely to be in jobs amenable to remote work than males. A large number of women are in service jobs suitable for remote work. This is a somewhat surprising finding, since many sources see women as disadvantaged during the pandemic, due in no small part to having primary responsibility for the household and for child care (see for instance Ahrendt *et al*, 2021). However, medium to long-term trends might well be different from short-term tendencies. We return to this point later when we consider distributional effects.

10 Claire Cain Miller, 'Do Chance Meetings at the Office Boost Innovation? There's No Evidence of It', 23 June 2021, *The New York Times*, <https://www.nytimes.com/2021/06/23/upshot/remote-work-innovation-office.html>.

Further work by the JRC (Sostero *et al*, 2020) sought to identify the degree to which work in various sectors and jobs was suitable for remote work. Work in agriculture, forestry, fishing, mining, accommodation and food services, and manufacturing tend to be largely unsuitable for work from home, while work in education, information and communications, and financial and insurance services is highly suitable for work from home.

Sostero *et al* (2020) compared the suitability of jobs to remote work to the degree to which they are actually conducted remotely. Some jobs are mostly unsuitable for remote work, as previously noted, including agriculture, fisheries, craft work and plant and machine operation. Among the professions for which more than half of all work could be done remotely, including managers, professionals and associate professionals, and clerical support workers, not more than about 20 percent of the work that could potentially be conducted from home is in fact conducted from home (Figure 12).

Figure 12: Suitability for remote work, currently done by remote work (EU27, percent of dependent employment)



Source: Sostero *et al* (2020).

Based on a task-level analysis reflecting task content, the methods employed, and the tools employed, Sostero *et al* (2020) found that information-processing (or intellectual) tasks that operate on information or ideas are most amenable to WFH; social interaction tasks that operate on social relations are less suitable; and physical tasks that operate on things are least suitable for WFH. This led them to conclude that the proportion of self-employed workers who are doing work potentially amenable to WFH in the EU is approximately the same as the proportion who were in fact doing so before the pandemic, while the proportion of employees who are doing work potentially amenable to WFH (37 percent) is far greater than the proportion who were in fact doing so before the pandemic (15 percent). This once again implies a huge unrealised potential to do more WFH than has historically been done: about 22 percent of EU employees, or about 32 million EU workers (Sostero *et al*, 2020, p.45).

3.2 Worker and employer attitudes toward remote work

Remote work is likely to persist, even when the pandemic no longer makes it a necessity, because workers want it and because managers can accept it.

Workers' preferences on this point are clear. Survey results for the EU (Ahrendt *et al*, 2021) and the US (Barrero *et al*, 2021) indicate that a great many workers will want to continue some degree of remote work after conditions normalise.

A majority of workers will not wish to continue the kind of fully remote work they did during the pandemic. Fully remote work, where the worker rarely if ever is present at the employer's facilities, was never the most common pattern, and as previously noted was not growing much prior to the pandemic. Survey results for the US (Barrero *et al*, 2021) suggest fully remote work

will continue to be the exception rather than the norm when lockdowns are no longer in place.

Survey data suggests instead that the prevalent pattern in the US will be for hybrid work, eg working one, two or three days per week from home (Barrero *et al*, 2021). The same is likely to hold in the EU. Workers appear to value the opportunity to work from home highly. Barrero *et al* (2021) estimated that workers value the ability to work from home at some 8 percent of salary.

Results in Barrero *et al* (2021) likewise seem to suggest that managers have grown much more accepting of hybrid WFH than in the past, but less so of fully remote work.

Some workers welcome the change of returning to the office, while other resent or even resist it¹¹. There is a tendency for older and more senior workers to welcome the return to physical presence, while younger and more junior workers – especially those who joined the workforce during the pandemic – consider WFH to be perfectly natural and see no need to the return to the old norms¹².

In the US, there has been substantial concern over the ‘Great Resignation’¹³. It is claimed that many workers are quitting their jobs, and surprisingly large numbers are choosing not to return to work at all, at least for now. The US is indeed experiencing labour shortages as we write this (late 2021), but the number of individuals quitting in the US is in line with historical trends in light of the large number of job vacancies in the US at present (Furman and Powell, 2021). It is normal at a time when labour is scarce and salaries are rising that more workers quit work and seek better employment, which often means higher-paying employment. The bulk of the current shortage appears to be caused not so much by high rates of resignation, but rather by the fact that the number of individuals accepting new jobs is considerably less than historical experience would lead us to expect (Furman and Powell, 2021).

Interestingly, it has been suggested¹⁴ that the tendency for workers to quit to seek higher-paying work is subject to ‘contagion’ effects. In normal times, workers have little awareness of pay scales from other firms in their sector (Jäger *et al*, 2021), but when large numbers of workers change jobs simultaneously, worker awareness is increased and the information asymmetry may be reduced.

3.3 Distributional effects

It is important to distinguish among distributional effects before, during, and ‘after’ the pandemic.

The effects during the pandemic have been mixed. For those who could, working remotely has reduced or eliminated the risk of unemployment, but there have been large disparities in terms of who is able to conduct remote work (Darvas, 2020). Professionals, managers and those with university educations were far more able to work remotely than others: *“In the United States, in industries heavily exposed to the pandemic, employment fell by a staggering 42% for those who cannot telework, and by 22% for those who can, between February and April 2020. In less-exposed industries, job losses were 15% for those who cannot telework as opposed to a 7% for those who can. ... The pandemic has also accentuated the divide between the young and old. ... the COVID-19 pandemic has increased income inequality between the rich and the poor even in Europe, where governments put in place massive employment protection programmes”* (Darvas, 2020).

Before the pandemic, it was already the case that most WFH was performed by those in higher income quintiles (DeSilver, 2020). As previously noted, survey data suggests that this

11 Noam Schreiber, ‘To Get Ahead at Work, Lawyers Find It Helps to Actually Be at Work’, 22 October 2021, *The New York Times*, <https://www.nytimes.com/2021/10/22/business/economy/law-firm-return-to-office.html>.

12 Nelson D. Schwartz and Coral Murphy Marcos, ‘Return to Office Hits a Snag: Young Resisters’, 26 July 2021, *The New York Times*, <https://www.nytimes.com/2021/07/26/business/economy/return-office-young-workers.html>.

13 Visier.com, ‘Trends in Employee Resignation Rates: Watch Out for Summer 2021’, *Outsmart*, <https://www.visier.com/blog/trends-in-employee-resignation-rates-watch-out-for-summer-2021/>.

14 Paul Krugman, ‘Wonking Out: Is the Great Resignation a Great Rethink?’ 5 November 2021, *The New York Times*, <https://www.nytimes.com/2021/11/05/opinion/great-resignation-quit-job.html>.

continues to be the case (Ahrendt *et al*, 2020; Barrero *et al*, 2021). Furthermore, the shift to WFH might tend to favour those with strong ICT skills. This raises concerns that the growth of remote work might contribute to further income polarisation and inequality.

It has also been argued that the shift to remote work results in workers competing in a larger pool that is no longer constrained by geography, and eliminates the constraint on the number of people with whom a single worker can interact. This, it is claimed, will tend to exacerbate a tendency for wages to spread between the most highly skilled ‘superstar’ workers even within a category of workers, versus less stellar but still highly skilled workers¹⁵. This view seems to be supported by a truly dramatic increase in wage polarisation (expressed as the ratio of 90th-percentile wages to 10th-percentile) in the United States from 1980 to 2015, which was driven mainly by large metropolitan areas such as New York City and San Francisco that tend to be a magnet for very highly skilled workers (Abel and Deitz, 2019).

Abel and Deitz (2019, p.66) identified three main mutually reinforcing factors that contribute to wage inequality across US metropolitan areas: “(1) differences in the local demand for skilled and unskilled workers; (2) urban agglomeration economies, which tend to favor higher-skilled workers; and (3) the migration of skilled workers between locations.” The shift to remote work has profoundly influenced all three. Demand is no longer purely local, since hybrid work can be performed from locations removed from the metropolitan area, and fully remote work can be performed from anywhere.

In the same vein, it has been argued that economic inequality has risen most rapidly in major US metropolitan areas with a large concentration of engineers, lawyers and innovators: New York, Los Angeles, San Francisco, San Jose, Houston and Washington¹⁶. These will tend to be the many of the same individuals who are most suitable for remote work.

There are however many positive aspects. There are for instance indications that workers are more willing to quit a job if they consider the pay and working conditions unsatisfactory¹⁷. Remote work is moreover making it possible for some people who were previously excluded, including those with disabilities or with caregiver responsibilities, to participate in the workforce. To the extent that remote work becomes more widely available as a result of the pandemic, it could thus increase labour participation with positive societal and macroeconomic impact, and thus with benefits for all. In sum, the evidence on wage polarisation and other forms of inequality seems to be mixed.

There are a number of indications that women¹⁸, especially those who must care for young children, have suffered disproportionately during the pandemic, but the results are uneven. In the EU, women were somewhat more likely than men to have lost their jobs as of July 2021 (9 percent versus 8 percent, respectively). In the 18–34 age group, however, women were considerably more likely than men to have lost their jobs as of July 2021 (11 percent versus 9 percent) (Ahrendt *et al*, 2020).

We noted above that women, especially those with children younger than 12, were significantly more likely than men to report that they were too tired to perform household chores after a day of work. Eurofound survey data from April 2020 (Mascherini and Bisello, 2020) also indicated that women with children younger than 11 were significantly more likely than men to feel tense, lonely or depressed; that women were more likely to report that they had difficulty making ends meet; and that women were more likely than men to have no savings or insufficient savings to provide a buffer in case of hardship.

15 Dror Poleg, ‘The Winners of Remote Work: There are already examples of how gains are captured by the few and not the many’, 31 August 2021, *The New York Times*, <https://www.nytimes.com/2021/08/31/upshot/remote-work.html>.

16 Emily Badger and Kevin Quealy, ‘Watch 4 Decades of Inequality Drive American Cities Apart: The biggest metropolitan areas are now the most unequal’, 2 December 2019, *The New York Times*, <https://www.nytimes.com/2019/12/02/upshot/wealth-poverty-divide-american-cities.html>.

17 Paul Krugman, ‘Working Out: Is the Great Resignation a Great Rethink?’ 5 November 2021, *The New York Times*, <https://www.nytimes.com/2021/11/05/opinion/great-resignation-quit-job.html>.

18 We recognise that gender is neither binary nor fixed, but available statistics are in terms of men and women.

As previously noted, women are slightly more likely than men to work in jobs amenable to remote work (Fana *et al*, 2020; Sostero *et al*, 2020). Whether this is to their advantage is unclear. Women may have been disadvantaged in terms of their career prospects by the pandemic – notably, they have often had primary responsibility for caring for children whose schooling took place from home (Ahrendt *et al*, 2021).

The net impact is uncertain. As Eurofound has observed (Jepsen, 2021), there is a risk that “... gender equality will regress as women (mostly low-paid) find it very hard to re-enter the labour market, as sectors reopen in an asymmetric, modified and hesitant manner. Remote work will become a permanent feature, and women will embrace it disproportionately, thereby continuing to assume the lion’s share of unpaid work – as a consequence, they will become invisible in the workplace and lose out on training and promotions. Budget constraints will bring a halt to social investment in childcare and eldercare, and restrictive measures will be introduced with regard to income replacement.” But it is also possible that the pandemic crisis will raise visibility of these risks, and lead to public policy responses that mitigate any negative consequences.

3.4 Changes in the geographical distribution of work

The shift to remote work has the potential to alter significantly the geographical distribution of where work is performed. The shift to WFH might have the potential to hollow out cities in all developed countries, but this concern has been less prominent, and less studied, in developed countries other than the United States. In the early months of the pandemic, there was a widespread expectation in the US that the pandemic would lead to a hollowing out of major metropolitan areas for two main reasons. First, people would shun dense metropolitan reasons for fear of contagion. Second, there would no longer be a need to be located close to work, since everyone would be working from home¹⁹.

Had this in fact happened, it would have had implications for a wide range of infrastructure needs, including schools, transport and healthcare facilities. Many predicted that office buildings in major US cities would need to be converted to cultural or residential use in order to avoid becoming deserted derelicts²⁰.

The implications could be particularly significant for vehicular traffic and mass transit in metropolitan areas, all of which were sharply depressed by the pandemic²¹. The capacity of roads and mass transit systems are typically designed for peak rush-hour needs, which are greatly in excess of the average load on the system. A small change in peak-hour traffic might have a larger-than-linear favourable impact on the wait times that drivers and passengers experience²².

The focus on peak rush-hour load implies that transportation planning places a disproportionate weight on high-income commuters from the suburbs²³. Given that high-income workers are precisely those whose work is typically most amenable to remote work, some reduction in rush-hour traffic in many metropolitan areas indeed seems likely in a post-pandemic world.

19 See for example Emily Badger, ‘Covid Didn’t Kill Cities. Why Was That Prophecy So Alluring?’ 12 July 2021, *The New York Times*, <https://www.nytimes.com/2021/07/12/upshot/covid-cities-predictions-wrong.html>: “From the moment U.S. coronavirus cases emerged in the Seattle area and then devastated New York City last spring, sweeping predictions about the future of city life followed. Density was done for. An exodus to the suburbs and small towns would ensue. Transit would become obsolete. The appeal of a yard and a home office would trump demand for bustling urban spaces. And Zoom would replace the in-person connections that give big cities their economic might.”

20 Geoff McMaster, ‘Repurposing spaces left vacant by COVID-19 could breathe new life into cities, says researcher’, 25 June 2020, *University of Alberta Folio*, <https://www.ualberta.ca/folio/2020/06/repurposing-spaces-left-vacant-by-covid-19-could-breathe-new-life-into-cities-says-researcher.html>.

21 See for instance Veronica Penney, ‘How Coronavirus Has Changed New York City Transit, in One Chart’, 8 March 2021, *The New York Times*, <https://www.nytimes.com/interactive/2021/03/08/climate/nyc-transit-covid.html>.

22 Those with experience of queueing theory, the mathematics of waiting lines, will be familiar with the large impact that a change in load relative to capacity can have on a system that is close to saturation.

23 See Emily Badger, ‘A Little More Remote Work Could Change Rush Hour a Lot’, 11 June 2021, *The New York Times*, <https://www.nytimes.com/2021/06/11/upshot/rush-hour-remote-work.html>.

These are potential impacts of a population shift if remote work were to lead to a major shift in geographic residence patterns; a threshold question, however, is whether a major shift has in fact taken place, or whether it should even be expected.

Preliminary findings indicate that US cities that had been losing population before the pandemic continued to lose population during the pandemic²⁴. There has indeed been some migration, accelerated by the pandemic, out of major US cities, notably New York City and San Francisco, but even for those cities the numbers involved are far less than had been feared.

Confirmation of net migration away from major US cities comes, for example, from a review of Federal Reserve Bank of New York/Equifax Consumer Credit Panel (CCP) data²⁵ by Whitaker (2021). The net flow of people out of US urban neighbourhoods averaged nearly 28,000 people per month from March to September from 2017 to 2019, versus 56,000 people per month in 2020 after the pandemic hit. This is a huge change in percentage terms, a doubling; however, in a country of 330 million people, the shift can hardly be said to be earth-shattering. Furthermore, the shift in net migration was, in almost all cases, driven more by a decrease in in-migration than an increase in out-migration. In other words, “*hundreds of thousands of people who would have moved into an urban neighborhood in a typical year were unwilling or unable to do so in 2020*” (Whitaker, 2021, p.8).

The moves in 2020 typically involved short distances. Data from the US Postal Service on changes of address showed that the great majority of moves out of US cities were within the same US state or county²⁶. This is consistent with the observation that the continuing shift is likely to largely be to hybrid remote work rather than fully remote work – workers need to still be close enough to their employers’ facilities to be able to commute two or three times per week.

Interestingly, two large US cities where Abel and Deitz (2019) identified a particularly dramatic increase in wage inequality from 1980 to 2015 (New York and San Francisco) are also the cities that appear to have seen the greatest out-migration in the course of the pandemic. Given that wage inequality in the US appears to be largely driven by the wages of highly skilled workers, and that highly skilled workers are also much more likely to have jobs that are suitable for partly or fully remote work, this is not surprising.

One might well wonder why inflated expectations of deserted cities were so prominent in the US in the early days of the pandemic, and likewise why they have been so much less prominent in Europe. It has been suggested in the *New York Times* that claims of urban decline aligned with a long-standing anti-urban myth in the US²⁷. The article cited Ingrid Gould Ellen, a professor of urban policy and planning at NYU, as observing that an anti-urban ideological strand “*is particularly American and goes all the way back to Thomas Jefferson. Cities have been associated with corruption and [are] inseparable from stereotypes about immigrants and African Americans. They’ve been viewed as unhealthy places to live, particularly for families*”. It quoted David Schleicher, a Yale Law School professor, as saying: “*It would be weird in fact if people responded to this the same way that French people did. No one in France is running around going, ‘Paris is over!’*”

In sum, the pandemic-driven shift from urban areas to suburban areas in the US has been much smaller than expected to date. The same is probably true for other developed countries, but there appears to be little hard data on this outside of the US. For the US, the shift to

24 Jed Kolko, Emily Badger and Quoc Trung Bui, ‘How the Pandemic Did, and Didn’t, Change Where Americans Move’, 19 April 2021, *The New York Times*, <https://www.nytimes.com/interactive/2021/04/19/upshot/how-the-pandemic-did-and-didnt-change-moves.html>.

25 This is a nationally representative anonymous random sample of 5 percent of US consumers with a credit file, resulting in a sample of more than 10 million adults.

26 Zach Wichter, ‘Pandemic movers sought affordability, but not too far away, USPS data shows’, 15 March 2021, *Bankrate*, <https://www.bankrate.com/real-estate/2020-pandemic-moving-trends-usps-data/>.

27 Emily Badger, ‘Covid Didn’t Kill Cities. Why Was That Prophecy So Alluring?’ 12 July 2021, *The New York Times*, <https://www.nytimes.com/2021/07/12/upshot/covid-cities-predictions-wrong.html>

the suburbs might prove to be important if it grows or is sustained over time. There could be significant implications for municipal and regional planning in terms of the availability of schools, health services, transport and other public services. Even a small shift might have large impact on vehicular traffic in some US urban areas.

4 Concluding observations and implications for public policy

Many things will have been lost, but other things have been gained, during the COVID-19 pandemic. Lives have been lost, the economic cost has been enormous, mental health appears to have suffered (Ahrendt *et al*, 2021), and a generation of young people are probably less well socialised and less well educated than they otherwise might have been. On the other side of the ledger, society has been forced to modernise in important ways, the transformation of the workplace and the take-up of technologies that make remote collaboration possible being among the most conspicuous.

COVID-19 is likely to have greatly accelerated the shift to fully remote work by knowledge workers. However, remote work in the future might be based on hybrid models where many knowledge workers are expected to appear at least occasionally in the office. In parallel with this, the shift away from traditional employment, and toward self-employment and various non-traditional forms of employment, will likely have also been accelerated. More generally, the long-standing trend toward growing labour flexibility will have been accelerated (Petropoulos *et al*, 2019).

Public policymakers should welcome these trends, and not resist them. Many workers will welcome and appreciate the chance to work from home. Businesses will profit from the flexibility that they gain, once they have fully mastered the management of a largely remote work force.

There are numerous implications for individual workers, for employers and managers, for social partners such as trade unions, and education and training, and for public policy in general.

For workers in job categories amenable to remote work, the shift to remote work potentially opens doors. Individual workers would be well advised to remain flexible, to ensure that they are adequately trained, including where relevant in digital skills that enable remote work, and that they keep an eye on a job market that is changing more rapidly and more dramatically than in the past (Abel and Deitz, 2019).

For employers and managers, the shift to remote work likely requires a shift in how they manage those of their employees who can potentially work remotely and who wish to do so (Nurski, 2021). Many firms have already altered their practices to deal with a changed reality. Even more so than in the recent past, firms will have to manage knowledge workers based on their results, and not on the number of hours that they have worked. Maintaining a high level of motivation for workers who are only occasionally present is likely to also require some basic re-thinking. Some key suggestions from Gascoigne (2020) are:

- Be aware of the differences between ‘standard’ and COVID-enforced homeworking;
- Employee demand for homeworking has increased, so it’s here to stay: design your working practices to suit both home-based and conventionally sited employees;
- Concentrate on partial, voluntary homeworking to create high-quality jobs.

Social partners such as trade unions will need to re-think both how they engage with their members, and how they protect them. Historically, the strength of the union often reflected the sense of camaraderie of workers who feared exploitation by their employers. This may have

already been breaking down somewhat for gig workers in for instance ride-hailing services, because they do not have contact with one another and in practice compete with one another (Petropoulos *et al*, 2019). In any case, the shift to remote work together with the decline in traditional employment (as compared to self-employment and non-traditional employment) is likely to accelerate these trends. Organised labour will likely need to re-think how they recruit, and more generally how they operate, in this new age.

Institutions that provide education and training will surely need to evolve to meet the needs of the rapidly changing workplace. This was already necessary in light of digitalisation and globalisation, but the shift to remote work further accentuates the need for workers who are able to work remotely to acquire the requisite skills. This likely implies, moreover, increased emphasis on a shift from traditional education to lifelong learning – a shift that has been long in coming²⁸. One mechanism being discussed, and which exists to some degree in some EU countries, would be to create public individual learning accounts (ILAs) that could fund training independent of whether the worker is currently employed.

Policymakers must consider a large number of issues. These can broadly be classified into (1) dealing with distributional effects, (2) protecting the work-life balance, and (3) ensuring that the shift to remote work does not erode social protection. We identify the challenges here, but in many cases it is not yet clear how best to address them.

As we have seen, distributional effects are important. The shift to remote work favours those with high skills in general, and those with tertiary education, and may thus increase social polarisation.

Women appear to have suffered from the pandemic because the need to manage the household and to care for children has disproportionately fallen on them. The burden of childcare while working from home during the day may be mitigated over time if and when conditions return to something approaching normality, but continued attention from policymakers will surely be called for.

Protecting the work-life balance is only one of many aspects of the emotional and mental wellbeing of remote workers that is likely to require policymakers' attention. As noted earlier, remote work tends to be associated with more hours of work per day; moreover, it can lead to difficulty in distinguishing between work time and private time, which can in turn lead to overwork and stress. Public policy will need to help workers to set boundaries. There are for instance serious calls in Europe to implement a 'right to disconnect'. France has already enacted rules, and the European Parliament has called on the European Commission to propose legislation to this effect²⁹. The degree to which this should be a regulatory mandate versus a recommended business practice is not yet clear.

Social protection is sure to need a great deal of re-thinking. This was already the case because of the shift away from traditional employment and the growth of the gig economy, but all of these challenges have been accelerated. Non-traditional employees and the self-employed, including remote knowledge workers and gig workers, have social protection needs, even those who are classified as self-employed. A 2019 Council of the EU Recommendation on social protection for non-traditional employees and the self-employed already seeks to protect non-traditional employees and the self-employed in appropriate ways, but the degree to which it may need re-thinking to reflect the shift to remote work has not yet received much attention. For that matter, there has been only limited implementation of the Council Recommendation in EU countries to date.

28 Janos Ammann, 'Large discrepancies in lifelong learning across EU member states', 5 November 2021, *Euractiv*, <https://www.euractiv.com/section/economy-jobs/news/large-discrepancies-in-lifelong-learning-across-eu-member-states/>.

29 Peter Yeung, "If you switch off, people will think you're lazy": demands grow for a right to disconnect from work, 10 February 2021, *The Guardian*, <https://www.theguardian.com/world/2021/feb/10/if-you-switch-off-people-think-youre-lazy-demands-grow-for-a-right-to-disconnect-from-work>.

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