

Policy highlights

• **Implications of remote working adoption on place based policies:**

A focus on G7 countries



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About this Policy Highlights

This booklet reproduces highlights from the *Implications of remote working adoption on place based policies: A focus on G7 countries* report, which provides a number of policy takeaways to guide short- and long-term policy making to better prepare regions for what may be a 'new normal'. This report was prepared with support of the Ministry of Land, Infrastructure, Transport and Tourism of Japan. To access the full report please visit <https://www.oecd.org/regional/rural-development/>

Introduction: the impact of COVID-19 on place-based policies

COVID-19 has accelerated the digitalisation of working and social interactions. Global lockdowns to contain the pandemic have forced firms and workers to perform a wide range of daily functions through virtual means, and, in turn, have accelerated the uptake and acceptance of remote working, which will likely remain in place after the pandemic. National and sub-national governments can play a decisive role in supporting the right conditions for workers and firms aiming to adopt remote working, while improving quality of life in all regions.

Remote working has already revealed a number of benefits to our lives including reduced transport-related greenhouse gas emissions, greater flexibility of working and potential cost savings for firms. Yet, not everybody has been able to benefit from the virtual forms of interaction due to gaps in digital infrastructure and digital skills across places, workers and firms. Since a hybrid form of remote working is likely to be one of the lasting legacies of the pandemic, and potentially further accelerated by technological progress and investments, governments need to facilitate and enable this transition.

In recent decades, rural regions have faced lower growth in living standards as well as higher population decline and ageing than cities, fuelling urban-rural divides. Remote working provides new opportunities for regions outside large cities to mitigate or reverse these structural trends by attracting new residents, through more affordable housing, lower costs of living and better environmental amenities, to boost economic activities and revitalize communities. Similarly firms could also be motivated to change their real estate strategies either by downscaling or by relocating part or indeed all of their headquarters.

Cities can also capitalise and be ready to adapt to these trends. Although a large exodus from cities is not envisioned, in large part because cities are likely to continue to attract the bulk of workers and firms due to the benefits associated with economies of agglomeration, hybrid models of remote working will have spatial impacts, for example on office space, public transport, local services and infrastructure. National policies have a strong role to play therefore in ensuring that regional competition to attract workers and firms leads to win-win scenarios.

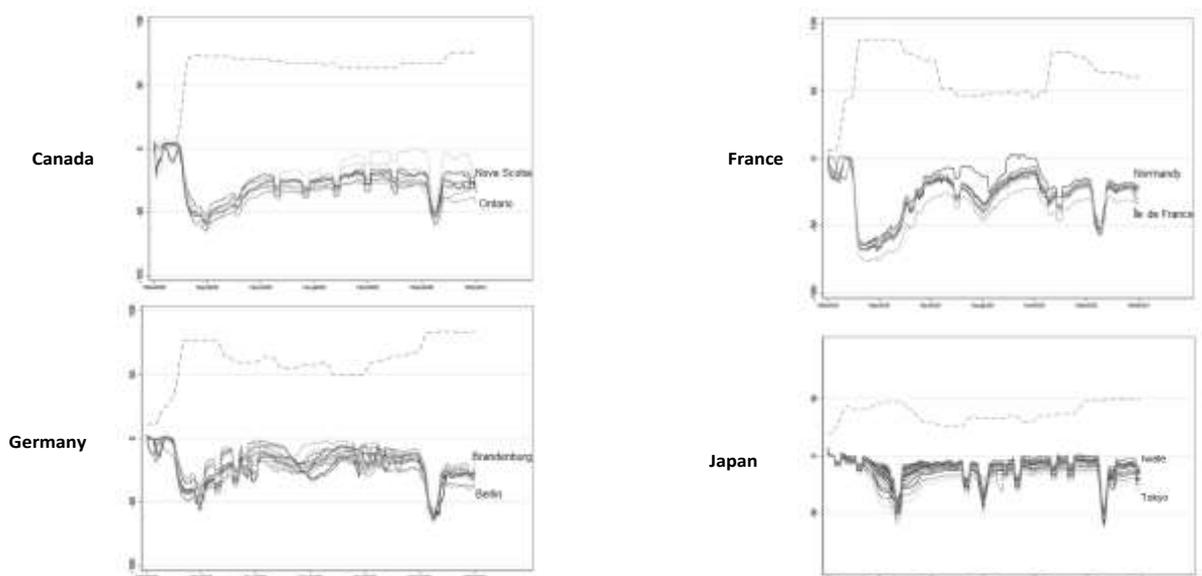
This report provides a number of policy takeaways to guide short- and long-term policy making to better prepare regions in shaping the new normality. The report relies on real-time subnational data and national statistical surveys to analyse changes in people's mobility patterns and the determinants of remote working adoption across types of workers and places. It also identifies different scenarios of settlement patterns that could emerge post-COVID-19, highlighting how changing patterns of work could impact regional development in a range of policy areas, including infrastructure, healthcare and the environment.

A granular view of mobility patterns during the pandemic

Identifying the impacts of COVID-19 on the daily mobility of people caused by confinement measures can help to identify whether temporary or more permanent trends are emerging in the location decisions of people and firms across different types of regions. Real-time data, such as Mapbox and Google mobility, help track people's mobility at the local and regional level and the degree of change across time during the first phases of the pandemic.

Data and analyses focus on daily mobility patterns during 2020 and early 2021 and reveal that the COVID-19 pandemic had a sustained impact on mobility, with some relief during the summer months of 2020. Looking for example at mobility patterns related to commuters, **the impact was stronger in regions with large cities such as Tokyo and Ile de France during the first and second waves, which, in turn, displayed the highest level of mobility before the pandemic (Figure.1)¹.**

Figure.1. Mobility to workplaces in TL2 regions and strictness of lockdown policies in selected G7 countries



Note: Mobility = percentage change in mobility to Workplaces (from the median value for the corresponding day of the week during January 3 and February 3 2020) within the TL2 region. The stringency index (dosh line) approximates the strictness of the “lockdown style” policies that (primarily) restrict people’s behaviour.

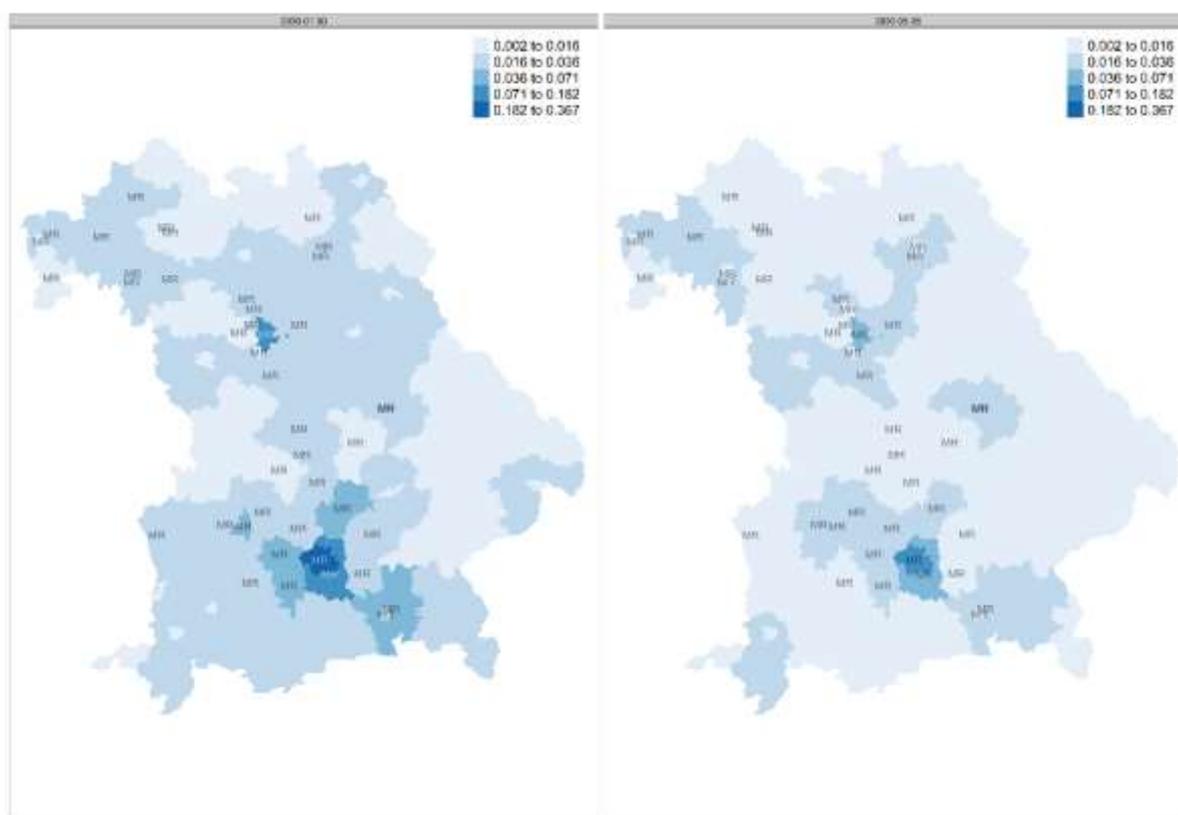
Source: Authors elaboration based on (Google LLC, 2021[3]) and (Hale, T., S. Webster, A. Petherick, T. Phillips, and B. Kira, 2020a[4]).

¹ As the Google data suggests, this could be mostly linked to reduced work-related mobility

Even so, available Mapbox mobility data for rural areas in the United States and non-metropolitan regions in Germany lends little to support to a clear increase in activity in rural places as activity in cities slowed. Instead, the data suggests that **by February 2021 mobility levels were still far from normal everywhere and mobility in rural and urban places mostly correlated and not substituted each other.**

For instance, in Bavaria and the Ruhr valley in North Rhine-Westphalia (Germany), the fall in activity in large metropolitan regions such as Munich and Düsseldorf following the first wave coincided with falls in activity in larger industrial clusters in surrounding non-metropolitan regions (Figure 2). Other non-metropolitan regions further away from large cities had low mobility levels before and after the shock.

Figure 2. Activity index in TL3 regions in Bavaria (Germany), January and May 2020



Note: M indicates Metropolitan Region. Regions with no label are non-metropolitan regions.

Source: Author's elaboration using (Mapbox, 2021^[8]).

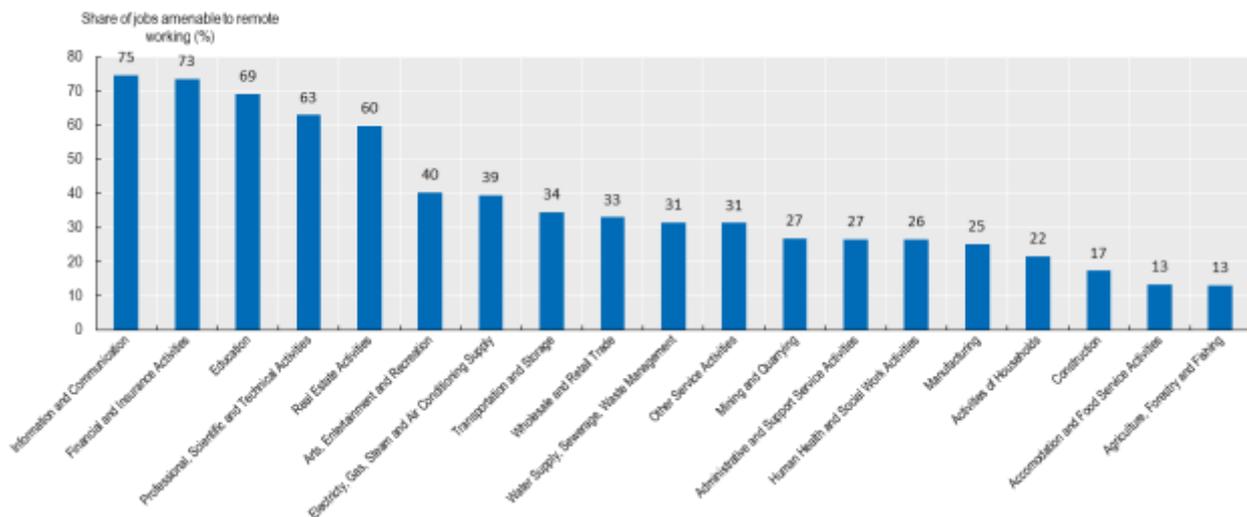
At the same time, both mobility trends and regional variation within countries do not seem to be explained by containment policies alone. Indeed, the evidence shows that the ranking of regions with respect to their mobility levels in the initial wave stayed relatively stable throughout the year in each country, including during the second wave. This implies that the weight of structural factors on mobility may be difficult to overcome through differentiated policies at least while the pandemic continues to unfold.

Determinants of remote working across regions

Remote working capacity varies significantly across industries and occupations, and since each region tends to specialise in different economic activities, these capacities will also differ across places. For instance, amenability to remote working is as high as 70% for managers and professionals but less than 10% for skilled agricultural, forestry and fishery workers, and craft and related tradespeople. On average, workers earning higher wages and with higher education levels are in occupations that are amenable to remote work. In turn, industries' remote working potential depends on the occupational composition of their workers (Figure 3). While most workers employed in the information and communication sector can work from home (75%) for example, less than 20% can do so in construction, agriculture, accommodation and food services activities.

Figure 3. Some industries are more suitable than others for remote work

% of jobs that can be performed remotely by industry, 2019



Note: The number of workers who can work remotely as the percentage of total workers in the industry.

Source: OECD calculations based on European Labour Force Survey (2019), American Community Survey (2019), Canadian Labour Force Survey (2019) and Occupational Information Network data (accessed in March 2021).

The distribution of remote work occupations varies across regions

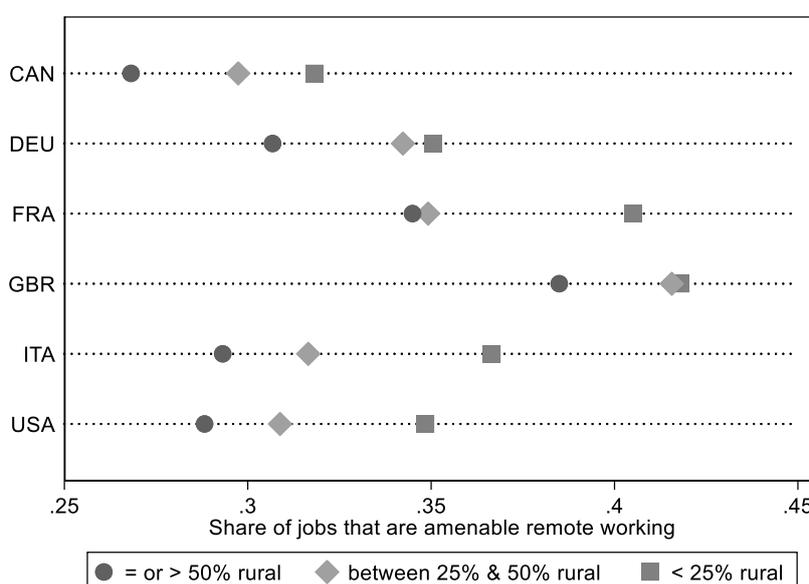
The territorial distribution of occupations and sectors is an important determinant of how well regions can adapt to the new normality. There are fewer jobs amenable to remote work in regions that are characterised

by higher levels of rurality. Most G-7 countries have close to one-third of occupations that are considered easily compatible with remote working. Places with higher shares of occupations amenable to remote working in regions tend to have more urban characteristics. Among G-7 countries with available data, the United Kingdom (UK) has the highest share of remote work occupations, while Canada has the lowest share, followed closely by the US (Figure 4).

When looking at a more granular level, the remote working potential is higher in more densely populated areas across all G-7 countries. Applying the European Commissions' "Degree of Urbanisation" to distinguish different types of settlement for European countries (OECD, 2020^[2]), cities (above 50 000 inhabitants) have a 13-percentage point higher share of jobs amenable to remote working than rural areas. Furthermore, the potential for remote working in towns and semi-dense areas are similar that in rural areas.

Figure 4. Remote working in G-7 Countries (2019)

Share of occupations amenable to remote work in TL2 regions, with varying degrees of rurality



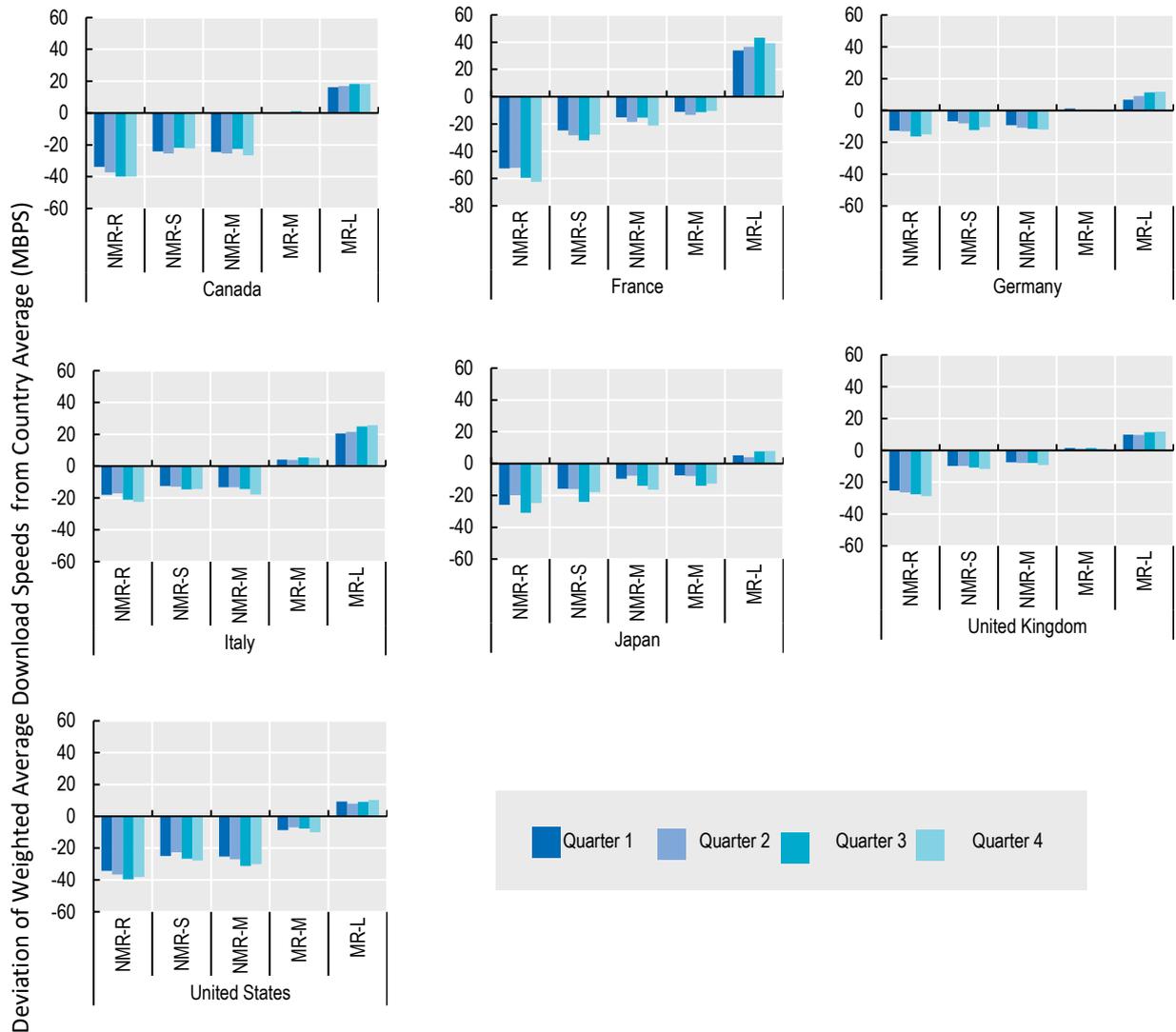
Source: European Labour Forces Survey; American Community Survey; Canadian Labour Force Survey; OECD Regional Database

Accessibility to quality broadband and women's labour participation in regions enable remote working

A critical enabling factor to remote working is to have quality telecommunications infrastructure, which is typically lower in non-metropolitan regions, in terms of coverage and speed (Figure 5). In particular, the lack of quality broadband is likely to limit remote work opportunities in rural regions, where proxies for internet quality systematically lag behind non-metropolitan regions. In fact, in countries where there is a more equitable distribution (low variance) of fixed broadband speeds between territories, there is also a more equitable distribution in the shares of remote working jobs (for example, UK and Germany).

Figure 5. Fixed Broadband Download Speeds (2020, Q1-Q4)

Deviation of average download speed in fixed broadband mbps from country average (weighted mean), 2020



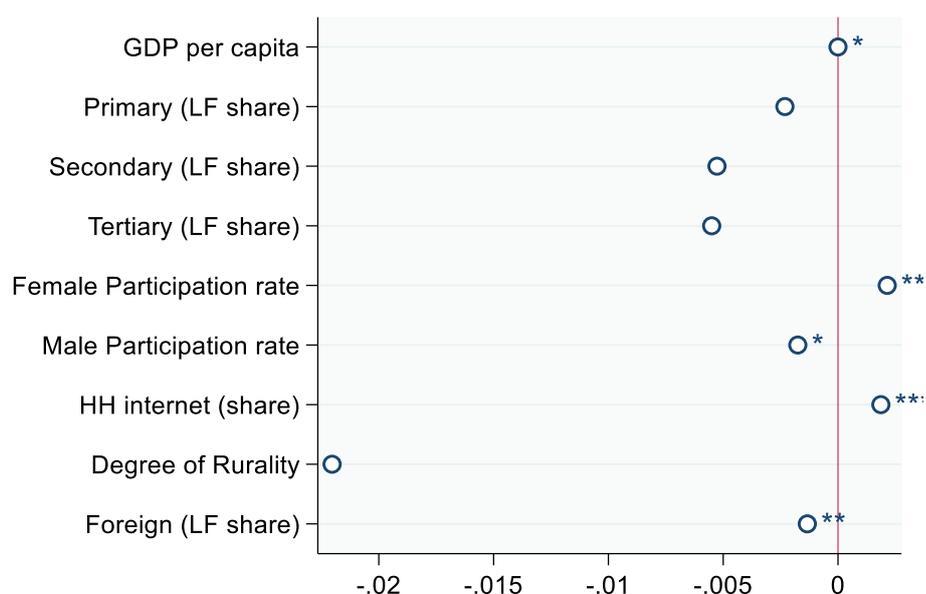
Source: OECD calculations based on Speedtest® by Ookla® Global Fixed and Mobile Network Performance Maps. Based on analysis by Ookla of Speedtest Intelligence® data for 2020Q1-Q4. Provided by Ookla and accessed 2021-01-27. Ookla trademarks used under license and reprinted with permission.

The analysis finds that the share of women in the labour force is also an important determinant of the regional potential for remote working (Figure 6). Women are more likely to have jobs amenable to remote work. Concurrently, in non-metropolitan (rural) regions there is a lower female participation rate than in metropolitan regions. Given the fact that women tend to have jobs that are better suited to remote work

than men, and accounting for the lower rate of female participation in rural areas, more **generalised remote work-place arrangements could create opportunities for rural recovery through female employment**. Yet, if not well-managed, a more wide-spread transition to remote work may also have adverse effects on intra-household decision-making (for example, on childcare and housework) depending on the level of support available for working women and families.

Figure 6. Remote working in G-7 Countries (2019)

Determinants of the regional shares of occupations amenable to remote work in TL2 regions



Source: European Labour Forces Survey; American Community Survey; Canadian Labour Force Survey; OECD Regional Database

COVID-19 could lead to deepening divides within labour markets at the national and local level: evidence from the US

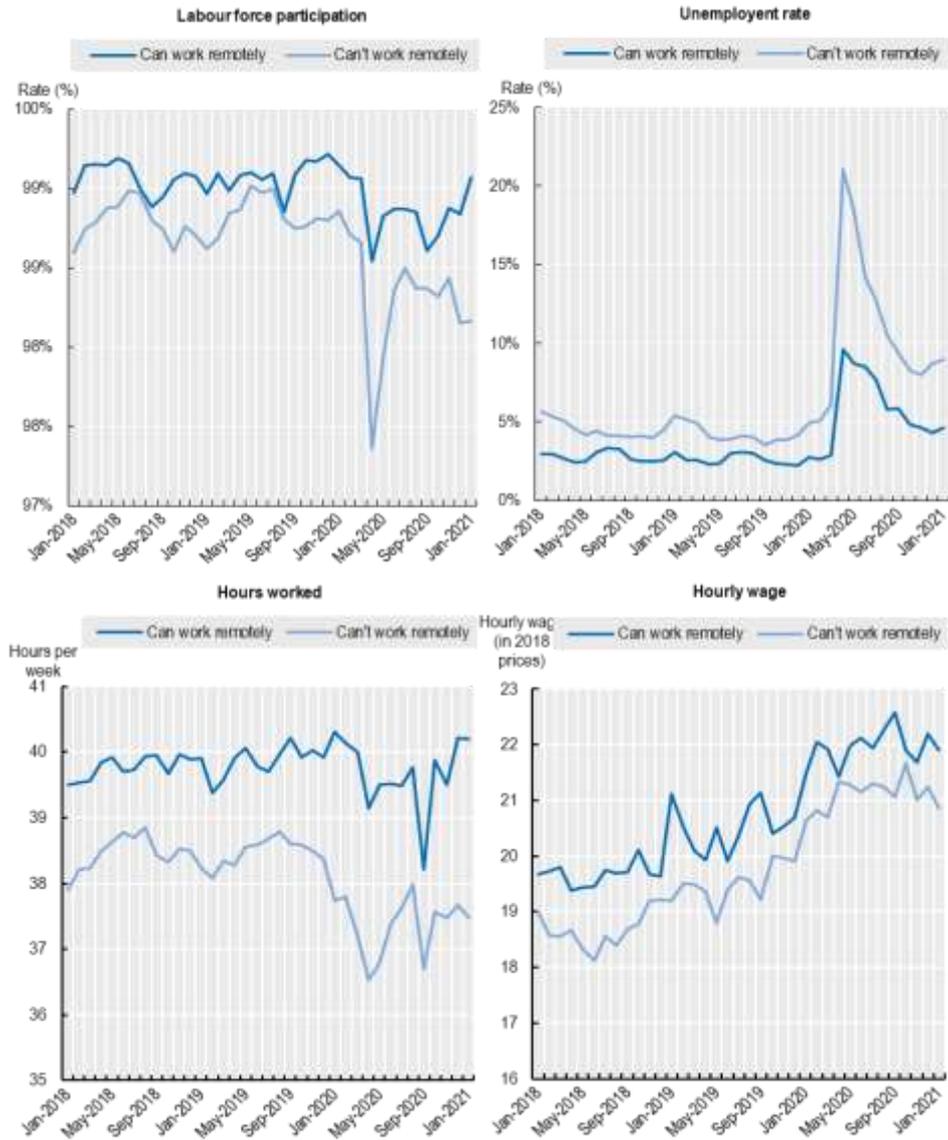
In the US, the labour market impact of the Covid-19 pandemic was distributed unequally across the population:

- Workers who were able to work remotely were affected less severely by the negative labour market effects. Workers with high remote work potential were less likely to drop out of the labour force or face unemployment during the crisis than those with low remote work potential (Figure 7).
- Already disadvantaged groups suffered the brunt of the crisis. Based on labour market data from the US, young (aged 16 to 34), old (55 and above), low-skilled, and migrant workers suffered the sharpest increase in their unemployment rates during the crisis.

Workers that are more vulnerable to the adverse impacts of the crisis are typically overrepresented outside metropolitan areas. Workers located in non-metropolitan areas were more than twice as likely to face unemployment as those located in metropolitan areas in the US.

Figure 7. Labour market outcomes by remote working potential among workers with high- and low-remote working potential in the US

Hourly wage (\$), hours worked per week, labour force participation rate (%) and unemployment rate (%), by remote working potential



Note: Panels plot the evolution of labour market indicators separately for workers who can work remotely vs. those who cannot. Workers are categorised according to the occupational classification of Dingel and Neiman (2020^[2]).

Source: OECD calculations based on the Current Population Survey (CPS)

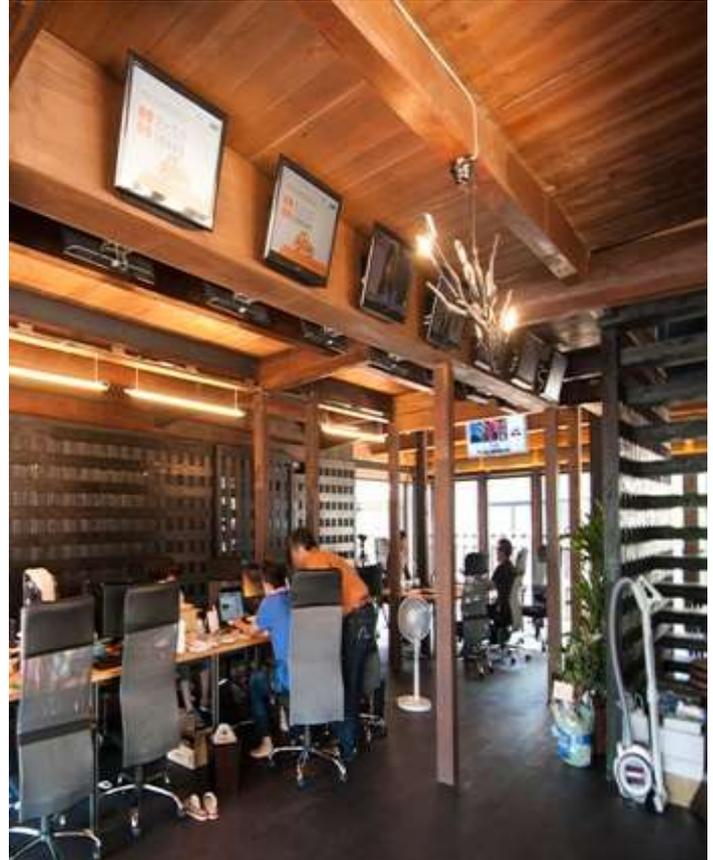


Photo: *Renovation of Japanese traditional house into satellite office (Kamiyama-cho, Tokushima prefecture)*
Source: *MLIT Japan*

Looking forward towards the new normality

Increased remote working is likely to be a lasting legacy of the crisis

Although the transition towards virtual working was a forced experiment for many, it has produced a number of positive results including the temporary reduction of greenhouse gas emissions, greater potential for improved work-life balance and cost savings. Remote working may also create new job opportunities for people that would not have otherwise been able to join the labour market, particularly women and people with certain disabilities. These positive aspects, and evidence that remote working can work, are likely to mean that remote working arrangements, at least in a hybrid form, are here to stay.

But the transition will require support to mitigate some of the costs

Despite the many positive aspects of remote working, the transition will require careful management by governments, firms and indeed workers. The pandemic has also revealed a number of challenges related, for example, to gaps in digital infrastructure, digital skills and differences in the adoption capacity for some workers and firms. These challenges risk increasing digital divides, especially for smaller firms, the low-skilled, and regions with poor digital infrastructure. In addition, remote working has also generated, for many, negative social side-effects such as isolation or hidden overtime (some are partly associated with the effects of containment measurements).

The possibility to work remotely opens up new opportunities for places outside large cities to reach new markets and attract new residents and firms

Greater adoption of virtual working methods and social interactions offer incentives for some workers to relocate outside large cities (either partially or full time). The possibility to work virtually coupled with a greater availability of suitable housing, lower costs of living and greater environmental amenities outside large cities can attract workers. For firms, the pandemic has increased the number of companies considering a change in their real estate strategy, either by downscaling or relocating part of their office space. For example, a recent survey of the Japanese government revealed that 14% of companies with headquarters in Tokyo considered changing their real estate strategy as a result of the pandemic. Most of them expect to downscale their office (48%), while the rest expect to relocate part (17%) or the entire (35%) office.

Box 1. Possible changes to firms' real estate strategies in Japan: survey evidence

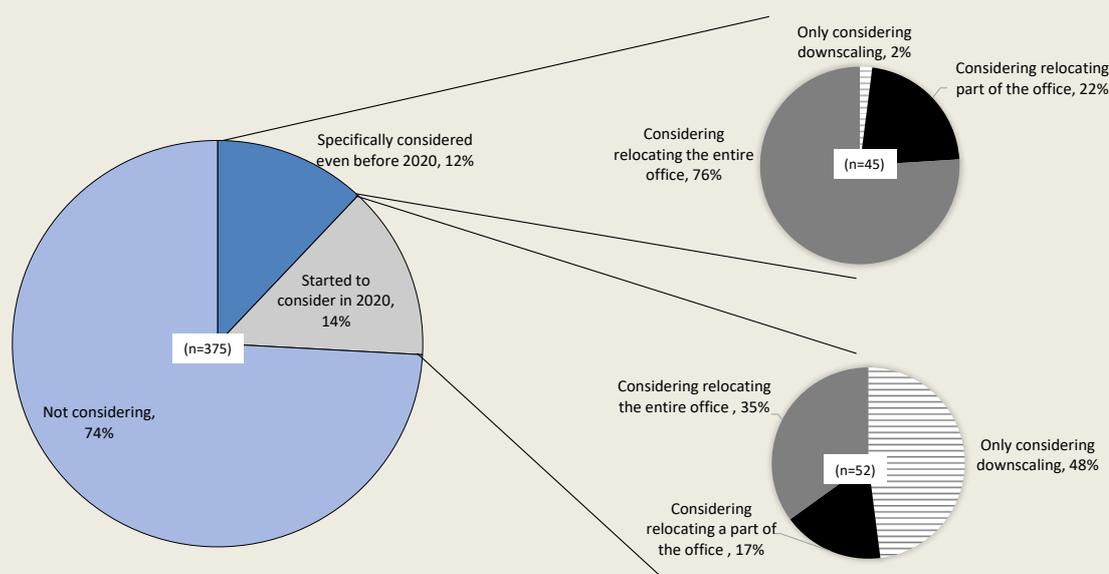
In April 2020, Japan's government (like numerous other governments) announced a state of emergency due to COVID-19 infections and gave governors greater legal authority to urge people to stay indoors and businesses to close. Unlike in many Western countries, enforcement relies more on peer pressure and Japan's deep-rooted tradition of respect for authority, rather than imposing fines.

The Ministry of Land, Infrastructure, Transport and Tourism conducted a survey in the summer of 2020 of 375 companies with headquarters in Tokyo to assess companies' plans for remote working after COVID-19. Some 53% of respondents said remote working will continue, while 18% said it will increase.

The survey also sought to identify companies' plans for offshoring as a result of COVID-19. Based on this feedback, 26% of companies are considering offshoring or relocating their headquarters (Figure 8). Some of these companies had considered a relocation even before the pandemic (12%), whilst others started to consider it with the onset of COVID-19 (14%). Most of the changes in real estate strategies of the latter group of companies are in the form of downscaling the headquarters (48%), while an important number of firms consider relocating the entire office (35%).

Figure 8. Headquarters' relocation plans from enterprises based in Tokyo.

Relocation of the entire office or part of the office, or downscaling



Note: The figure on the left depicts responses from 375 enterprises headquartered in Tokyo regarding their willingness to relocate a specific department/division or the entire headquarters. The figures on the right highlight the type of change in headquarters' strategies from the enterprises considering relocating out of Tokyo.

Source: Questionnaires conducted by MLIT in August 2020 to listed enterprises that have their headquarters in Tokyo

Yet a big exodus from cities is not envisioned

Large cities may continue to concentrate most of the skilled workers and firms through ongoing policies to transform themselves and improve quality of life (e.g. 15-minute cities). For example, a temporary or full

relocation of a number of high-skilled workers outside large cities and changes in real estate strategies of firms could ease housing availability for low-skilled workers or promote reconversion of buildings into green areas in some areas of the city.

As both metropolitan and non-metropolitan regions are conducting strategies to become more attractive for remote workers, if not well managed and co-ordinated, greater regional competition based on short term and temporary measures could result in a “race to the bottom” scenario. Policy measures and competition to attract workers and firms should instead aim at improving the enabling conditions, their attractiveness and their ability to take advantage of digitalisation and technological change in the future.

Various settlement patterns could emerge in the post-COVID-19 normality due to the increased adoption of remote working

There are a number of possible future settlement pattern scenarios that could emerge in the new normality as workers and firms increasingly embrace remote working. They include the following four scenarios:

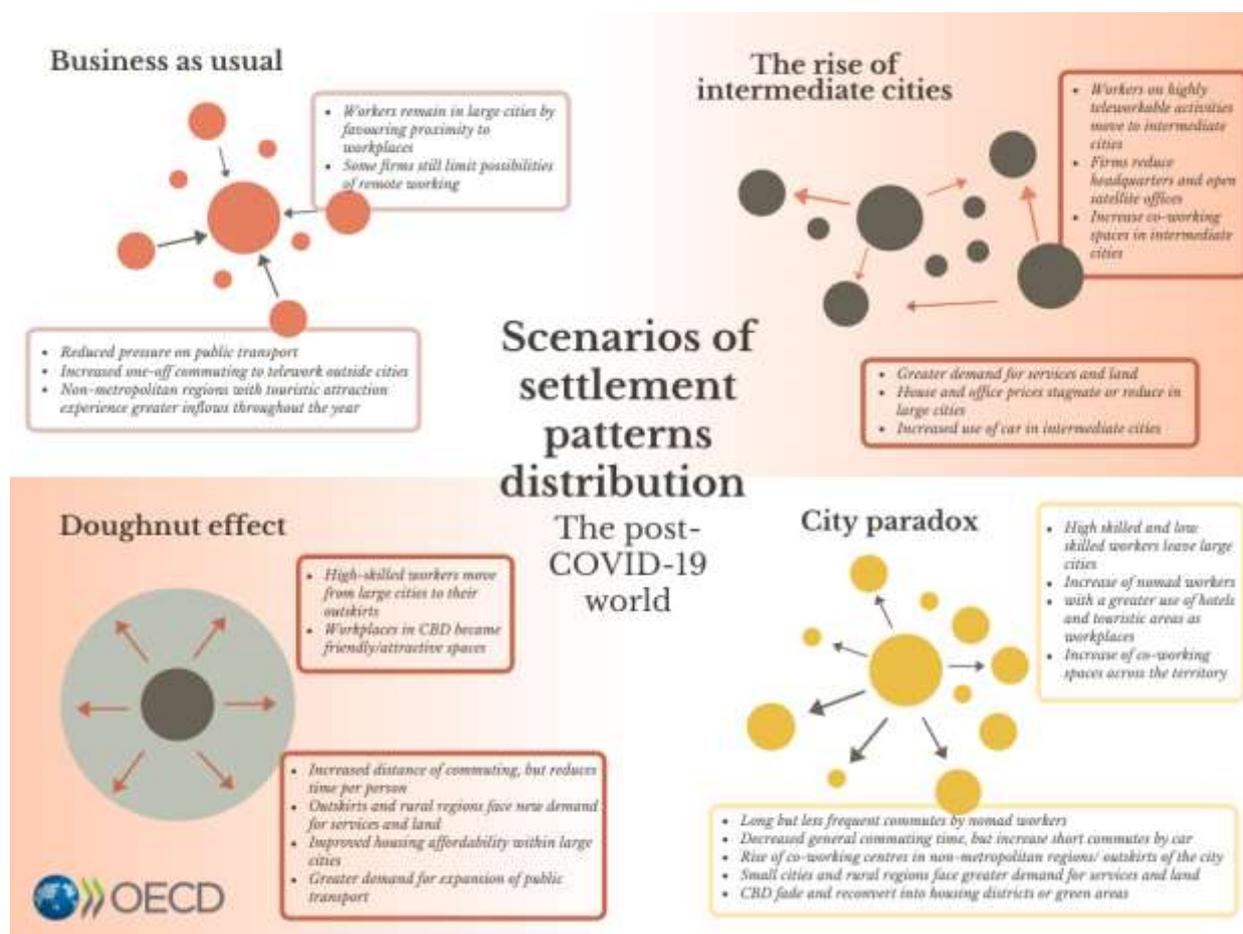
1. structural changes from a permanent movement of high-skilled workers outside city centres,
2. expansion of commuting zones around cities as a doughnut effect,
3. a greater attraction of intermediate cities, and
4. business as usual but with greater adoption of remote working

These scenarios are not necessarily comprehensive and might not occur in mutually exclusive forms with differences across countries and places. Whether the post-pandemic world would be closer to one of those scenarios, to a combination of some or to none, one thing is likely: the acceptance and adoption of virtual working methods and social interactions will likely increase. Any greater magnitude of remote working adoption would imply an increase in consumption of resources at home and new commuting patterns for some workers. In some cities, a relocation of workers would lead to new demand for transport connections or longer distances commuted by car.

If not well-managed, these changes in mobility patterns could have an impact on a number of areas, including the environment (land use pressures or inefficiencies with regard to resource management-water, electricity or waste at home) and public service delivery (education and health in regions with new permanent or temporary residents).

Regardless of how the post-pandemic world eventually unfolds, technology will continue to disrupt the benefits of physical proximity and the way people and firms interact. For example, virtual and augmented reality, drones or automotive vehicles can add new incentives for workers and firms to relocate to new places.

Infographic 4.1. Distribution of settlement patterns: 4 scenarios for the post-COVID-19 world



Note: These four scenarios are built based on relevant articles available at the moment of this publication. The Doughnut effect scenario is inspired by (Ramani and Bloom, 2021^[23]), The rise of intermediate cities scenario is inspired on work in progress of Philip McCann; the City Paradox is based on (Althoff et al., 2020^[33]), while the Business as usual with more remote working world was built from internal discussions at the OECD. CBD refers to Central Business Districts

Technological change and other megatrends (demographic and climate change) can shape the scenarios of settlement patterns after the pandemic. Emerging technologies coupled with a greater adoption of remote working will likely lead to new forms of commuting (e.g. longer and less frequent commutes for a share of the workforce), which will have economic, social and environmental effects, and central and local governments have a strong role to play in managing these and potential trade offs.

Policy Takeaways

Irrespective of the post-pandemic scenario, policies need to be forward-looking and proactive to seize the potential benefits that remote working and other technologies can create. Ultimately, people's and business' decisions to relocate, full time or partially, will involve a cost-benefit analysis in which national and subnational government actions can play a decisive role. Changing patterns of work has implications across regional development and a range of policy areas, including infrastructure, business support, healthcare and the environment.

Therefore, governments at national and subnational level should support the right conditions for those workers and firms aiming to adopt hybrid remote working, while improving people's quality of life in all regions. To this end, policy responses from different levels of government should focus on three main areas, as follows.

I. Reduce digital divides and facilitate the adoption of remote working across regions, workers and firms by:

- **Making high quality communication services accessible and affordable in all regions.** This involves implementing holistic policies to foster competition in telecommunication markets, simplifying procedures for broadband deployment and creating funding methods to increase connectivity (e.g. demand aggregation models, public-private partnerships, public funding to expand connectivity, coverage obligations in spectrum auctions, bottom-up approaches, and addressing the last mile).
- **Investing in digital skills for workers and ICT capacity for firms, especially SMEs.** This includes implementing training on basic use of ICT technologies and computing, and capacity building on software and ICT maintenance in rural economies.
- **Helping overcome cultural and legal barriers for remote working.** This includes promoting a 'right to telework' and to 'disconnect', conduct information campaigns and guidelines to best deal with remote working, and adapting tax regimes and regulatory frameworks to conduct virtual activities.

II. Improve the attractiveness and accessibility to quality services particularly in non-metropolitan regions by:

- **Adapting support services to enhance conditions for remote working to all population groups, particularly women and youth.** Regardless of the extent to which remote working is adopted, policies to ensuring adequate provision of key support services, such as childcare or work-life balance measures will continue to be important. The COVID-19 crisis also revealed the importance of physical interactions. Governments can help by supporting co-working spaces that can offer network opportunities and quality work conditions for those lacking them. A focus on

policies to boost the labour market participation of older workers and women (either virtually or physically) is relevant to revitalise non-metropolitan regions.

- **Enhancing the provision of quality education and health** outside large cities by addressing gaps in provision that lower the attractiveness of some non-metropolitan regions. Whilst a potential increase in population and consequent demand for services can ease the challenges of small-scale provision in non-metropolitan regions, there are a number of direct actions that should be taken to improve quality of education and health, irrespective of the future scenario of remote working adoption, which include:
 - regarding education: developing school clusters or networks in which schools formally co-operate under a single leadership to allocate resources more flexibly and efficiently. This could be further supported through more flexible approaches to considering class sizes and other relevant regulations.
 - regarding health: providing incentives for the establishment of multi-disciplinary health centres and reinforcing primary and integrated care provision (which is generally the first contact point for the majority of patients' needs outside large cities). Policies to attract, retain and empower health workers should also be bolstered.
- **Adapting the provision of services to population changes** resulting from greater adoption of remote working.
- **Promoting a greater use of digitalisation to provide services** in all regions (e.g. online education and health). This includes enhancing co-operation with information and telecommunications firms (e.g. real time and big data) to improve the efficiency in the provision of local services.
- **Co-ordinating regional attraction policies**, while discouraging regional strategies to attract economic actors that are based on tax incentives and subsidies. Place-based policies to boost regional attractiveness should focus on improving quality of life (e.g. transport networks and affordable housing) and business environment (e.g. quality and affordable ICT infrastructure, skills, entrepreneurship and quality governance and regulation).

III. Ensure the outcomes from remote working are efficient and environmentally sustainable by:

- **Developing policies on land use, housing and transportation that are forward-looking and well-co-ordinated.** Policies should adapt to different forms of commuting and working styles after COVID-19 (including permanent relocation or dual residency). For example, authorities should ensure that public transport projects are aligned with new co-working and housing projects in non-metropolitan regions, particularly in areas close to large cities.
- **Adapting environmental policies to the effects of greater dispersion of economic actors.** This includes adjusting energy efficiency policies in housing and resource management (water and waste) to changes in population, while avoiding urban sprawl effects and adapting public transport to new forms of commuting.

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