



Regions in a time of pandemic

David Bailey , Jennifer Clark , Alessandra Colombelli , Carlo Corradini , Lisa De Propriis , Ben Derudder , Ugo Fratesi , Michael Fritsch , John Harrison , Madeleine Hatfield , Tom Kemeny , Dieter F. Kogler , Arnoud Lagendijk , Philip Lawton , Raquel Ortega-Argilés , Carolina Iglesias Otero & Stefano Usai

To cite this article: David Bailey , Jennifer Clark , Alessandra Colombelli , Carlo Corradini , Lisa De Propriis , Ben Derudder , Ugo Fratesi , Michael Fritsch , John Harrison , Madeleine Hatfield , Tom Kemeny , Dieter F. Kogler , Arnoud Lagendijk , Philip Lawton , Raquel Ortega-Argilés , Carolina Iglesias Otero & Stefano Usai (2020) Regions in a time of pandemic, *Regional Studies*, 54:9, 1163-1174, DOI: [10.1080/00343404.2020.1798611](https://doi.org/10.1080/00343404.2020.1798611)

To link to this article: <https://doi.org/10.1080/00343404.2020.1798611>



Published online: 10 Aug 2020.



Submit your article to this journal [↗](#)



Article views: 5175



View related articles [↗](#)



View Crossmark data [↗](#)




Citing articles: 2 View citing articles [↗](#)

EDITORIAL



Regions in a time of pandemic

David Bailey , Jennifer Clark , Alessandra Colombelli , Carlo Corradini , Lisa De Propriis , Ben Derudder , Ugo Fratesi , Michael Fritsch , John Harrison , Madeleine Hatfield , Tom Kemeny , Dieter F. Kogler , Arnoud Lagendijk , Philip Lawton , Raquel Ortega-Argilés , Carolina Iglesias Otero  and Stefano Usai 

INTRODUCTION

'Rethinking Regions in Turbulent Times' was the title of our editorial at the start of this volume (54) of *Regional Studies* (Bailey et al., 2020a). Back in January we had not foreseen quite how prescient that statement would look just a few months on. Climate and migration crises have been met by a rise in populism, which have in turn been most recently overshadowed by the Covid-19 pandemic and Black Lives Matter movement. The impacts of the current Covid-19 crisis alone will be vast as well as spatially uneven. Comparisons have been drawn between this global pandemic and the global financial crisis of 2008–09, although the impact of the former is likely to be much more profound and pervasive (Turok et al., 2017). As with the financial crisis (Lago et al., 2020), although most comparisons in the media have been at the country level, the spread and impact of the Covid-19 pandemic has been regional rather than national. The virus's impact has been unevenly distributed geographically, sometimes with greater variation within countries than between them. In Europe, a small fraction of the 500 NUTS-3 regions account for a majority of Covid-19 deaths (Guibourg, 2020). In Italy, for example, at the time of writing, the number of fatalities in Lombardy has been much higher than in any other region, reaching almost 50% of the national total cases affecting just 16% of the population (Ministero della Salute, 2020). In the United States, the spread of the virus has been extremely uneven. The statistics are continually evolving but have ranged from 2000 deaths per 100,000 inhabitants in New York and New Jersey down to slightly more than 60 in Hawai'i (Coronavirus Research Centre, 2020). The economic impacts are also unfolding unevenly at the regional level (KPMG, 2020). There is a concomitant call from regions for tailored responses at the city and regional level (Bailey & Tomlinson, 2020; Parkinson, 2020).

The current crisis, then, is undoubtedly a regional one, with important consequences for economies, well-being, transportation, everyday life, and even the practice and


publication of regional studies research itself. A regional analysis is essential to fully understand and manage the unequal impacts of the current pandemic, not least because Covid-19 is unlikely to be the last of its kind. This editorial considers some relevant regional dimensions to set an agenda for the kinds of research the journal hopes to see in future, and also with the hope that this academic perspective can be of assistance if/when another pandemic shock takes place.

UNEVEN REGIONAL IMPACTS

The economic impact of the pandemic will unfold over a longer time frame than many recognize at the time of writing. Comparisons with the global financial crisis may go some way to convey the seriousness of the pandemic, but that crisis will undoubtedly pale in comparison (Organisation for Economic Co-operation and Development (OECD), 2020a; World Bank, 2020). It is clear that a significant proportion of active businesses will fail, but this failure has – in many countries – been delayed by government policies and subsidies. The conditions shaping resilience during and after the financial crisis were similar in many ways to the factors seen as driving regional growth and competitiveness in ordinary times. The current crisis, however, will undoubtedly result in some long-standing changes in the ways people and firms move and operate. This could mean that factors which were clear advantages in the past (such as agglomeration and the possibility of unplanned interactions) might operate differently in the context and aftermath of Covid-19.

The development of the Covid-19 pandemic also challenges prevailing economic thought. Among others, Mansfield's (1977) 'infection theory' on the diffusion of technologies suggests that the virus would first arrive and spread in the largest cities and then trickle down the spatial hierarchy. In many countries (particularly in Europe),

CONTACT

 D.G.BAILEY@bham.ac.uk
Editors of *Regional Studies*

however, it is not large, densely populated cities that have experienced the highest numbers of Covid-19 cases per capita, but smaller cities in a rural environment where a 'superspreading' event occurred (Kuebart & Stabler, 2020). At the same time, New York has so far experienced the highest excess mortality rate (+251%) of any Western global city (*Financial Times*, 2020). It will take some time to untangle these apparently contradictory spatialities.

Differences in the intensity of the impacts of Covid-19 are evident across regions. These differences are partly due to the timing of policy responses, and the length and intensity of lockdown and of mobility restrictions (e.g., closing borders). The OECD has so far produced six comprehensive briefings on policy responses on the topics of cities, small and medium-sized enterprises (SMEs), tourism, rural development, and the territorial and multilevel governance impacts and challenges of Covid-19 (OECD, 2020b, 2020c, 2020d, 2020e, 2020f, 2020g). However, the economic problems caused by the current pandemic tend to be region specific. Economic impacts will vary with the local industry base and general regional conditions – as shown by Ascani et al. (2020) in relation to the role of economic activities acting as vehicles of disease transmission in Italy. This variety is interesting to analyse. How do regions cope with these problems and why? What makes regions more or less resilient (Bailey & Turok, 2016)? National policies will be insufficient to account for these differences, so a region-specific policy approach is essential in understanding such issues.

The medium and long-term impacts of this diversified pattern may be even more dispersed, as the influence of the pandemic will depend not only on the spread of the disease but also on its impact on the structure of the economy. Moreover, the ability to reduce the amplitude and the economic costs of recession associated with the pandemic will depend on the availability of policy and financial tools to implement and support the necessary actions. Of course, the global economic impact of the pandemic is due to the combination of an economic and a health cost. These two costs may be orthogonal, such as when a region with limited Covid-19 diffusion is heavily reliant on tourism, the most affected sector of the current pandemic (Djankov & Panizza, 2020).

With international travel bans affecting over 90% of the world's population and widespread restrictions on public gatherings and community mobility, tourism has become the industry most symbolic of the crisis. Even within the sector, further analysis is needed because some remote areas may have experienced additional visitor numbers because they have been perceived as facilitating social distancing and can be reached by car rather than public transportation. However, according to the United Nations' specialized agency, Covid-19 could lead to an annual decline in tourism of between 60% and 80% when compared with 2019 figures (United Nations World Tourism Organization (UNWTO), 2020). This dramatic decline will imply that millions of firms and workers will be at risk in one of the most labour-intensive sectors of the global economy. Most importantly, the Covid-19 crisis is bound

to have a devastating and lasting impact especially in those regions and small countries characterized by a sort of monoculture of tourism. In this regard, Mooney and Zagarra (2020), by means of a tourism dependence index, show that the most tourism-dependent countries have low or middle income. In other words, these are the most fragile and vulnerable regions due to pre-existing high levels of poverty and inequality and large fractions of informal workers and micro-firms. Moreover, these regions feature a relatively small public sector and tax revenue base with limited fiscal space and relatively poor institutional settings.

This situation threatens to roll back progress made in advancing Sustainable Development Goals (SDGs). Within this scenario, some scholars argue that the global tourism system should not return to business as usual when the crisis is over (Gössling et al., 2020; Hall et al., 2020). Rather, there is an opportunity to reconsider a transformation of such countries and regions through planned diversification and a redesign of the tourism system, globally and locally, to become more resilient and better aligned with the SDGs. According to Gössling et al. (2020, p. 15), this 'raises a considerable number of related questions and research needs' for the tourist industry, policy-makers at the regional, national and supranational levels, and not least for researchers in regional studies. Analyses have already begun to appear of the current state of affairs and the medium and long-run consequences in both advanced and developing countries and regions (Boumahdi et al., 2020; Coke Hamilton, 2020; Del Chiappa, 2020).

It will be longer still until the global evidence base is sufficient to untangle all the regional impacts. As of July 2020, Latin America was the global centre of the pandemic, accounting for 51% of daily global deaths (*Financial Times*, 2020) and the excess deaths recorded in many Latin American regions are among the highest in the world, especially in Guayas in Ecuador (+276%), Manaus in Brazil (+152%) and Lima in Peru (+289%). The number of deaths in Asia and Africa is still relatively very low, but the reliability of data from many countries is very limited and there is evidence that many African countries are struggling to keep up with testing (*The Economist*, 2020).

In a wide range of countries, interpersonal and interregional inequality has risen over the past 40 years (Autor et al., 2008; Kemeny & Storper, 2020; Rosés & Wolf, 2018). Many are arguing that the pandemic has, and will continue to, exacerbated these trends. At the interpersonal level, evidence suggests that the virus has disproportionately affected the lives of people living in disadvantaged locations (Williamson et al., 2020), especially minorities. And assuming the pandemic will unleash a severe and long-lasting negative economic shock, it will sorely tax the capabilities of the least resilient people and places. Here again the regional studies community must leverage its unique lens on ideas of resilience, carefully considering the intersection of individual, neighbourhood, sectoral and regional dimensions of the problem (Boschma, 2015; Doran & Fingleton, 2016; Fastenrath & Coenen, 2020; Martin et al., 2016).

The challenges of inclusion and exclusion are also divergent across different industries. While, to a certain degree, those in knowledge-based activities can work from home, those working in more service-based industries or manufacturing do not have such opportunities, again with regional impacts. Meanwhile, those working in smaller industries that were forced to close during lockdowns in different countries have been subject to the stresses and strains of unemployment at one of the most challenging times in recent decades.

NEW SPATIALITIES OF SUPPLY

For readers of this journal, a fundamental question is how the pandemic will impact upon the spatial-industrial organization of value chains. If national and regional economies seek to streamline the delivery of particular elements in supply chains, there is the possibility of new manufacturing emerging at the regional scale, and perhaps becoming most apparent at the urban-regional scale – due to proximity to markets and labour pools. In short, locations that have been predominantly the focal point of logistics/distribution, such as suburban locations, may once again come under pressure to be transformed into new locations of localized manufacturing.

Over the years, economic geography and regional studies have developed a rich perspective on value chain choreography, in which the business approach of commodity and supply chain has become part of geographical theories on global production networks (Neilson et al., 2014) and ‘strategic coupling’ (Yeung, 2015). A key theme in the debate is the role of proximity versus distance, from two perspectives. First, from a trade perspective, proximity enables value chain flexibility, reliability and authentication, advantages offset by cost and specialization benefits accruing from distant sourcing (Wang et al., 2019). Accordingly, the world has witnessed recent trends both towards localisation (e.g., reshoring, short-food supply chains, the maker movement) and globalization (e.g., further outsourcing, advanced supply chain management) (e.g., Rasel et al., 2020; Suire, 2019). Second, from an innovation perspective, proximity has proven particularly valuable to enable optimal alignment between all the stages from research and development (R&D) to marketing. Especially in the latter case, however, proximity can also take the form of a temporary encounter, assisted by advanced communication infrastructures (Rychen & Zimmermann, 2008). While localized clusters and districts continue to lead in innovation, they do so increasingly as specific nodes in advanced knowledge and value chains spanning the globe, resulting in ever-more intricate configurations and pathways (Martin & Sunley, 2011, 2015).

A subsequent question is to what extent value-chain spatialities manifest patterns and transformation (localisation, globalization and variants) traceable to certain invariants. Such invariants refer to factors such as buzz versus pipelines, (related) variety, diversification, absorptive capacity, etc. The systemic search for invariants is juxtaposed to the search for particularization of underlying

causal factors and systems of innovation (Rutten, 2019). Taking a more qualitative stance, such perspectives root regional economic performance in deeper layers of institutions, governance and culture, conditioning the role and meaning of proximity and other geographical factors. As discussed further below, *Regional Studies* embraces the contribution of both perspectives. While quantitative sophistication frequently retrieves, but also nuances, systemic patterns, more qualitative work bears out the differential and impactful roles of how institutional change and new forms of governance bring about new forms of value chain organization (Harrison, 2013; Neilson et al., 2014; Yeung, 2015).

Against this background, what will be the effect of the Covid-19 pandemic? At what level will it act and reshape value chain spatialities? Concerning proximity, Covid-19 has had the immediate effect of seriously hampering the global circulation of people and inhibiting local encounter and ‘buzz’. This has exposed the vulnerability of global, highly specialized value chains such as in the automotive industry, while it has had less effect on more diverse global value chains (Ivanov & Dolgui, 2020). Similarly, the need for social distancing has emptied the meeting places of science campuses and industrial districts while engendering a much more lively and effective exchange through online, digital means. Many of these effects will reduce as the threat recedes. Nevertheless, two important questions remain. First, to what extent will value chains turn to more reshoring and local sourcing now that the risks of logistical interruption have become more apparent and real? More specifically, what will Covid-19 mean for current trends towards the localisation of food and ‘makers’ chains prompted by aspirations of authenticity and sustainability (Suire, 2019)? Second, to what extent will the online push triggered by the pandemic irrevocably transform the role and meaning of proximity and the way value chains are spatially embedded? In other words, to what extent can we expect a revolutionary change in the spatial practices underpinning value chain choreographies – especially ‘Industry 4.0’ technologies part of the Fourth Industrial Revolution – countering decades of standardizing and globalizing value chains (De Propris & Bailey, 2020)?

Two further issues bear on these questions, namely knowledge and governance. Knowledge processes have undoubtedly become the main drivers of value chain transformations. Knowledge not only underpins the position of (clusters of) businesses within value chains; it also affects the nature of value chains themselves. In a digital age, value chains increasingly evolve as ‘knowledge platforms’, manifesting both standardization and differentiation (Yoo et al., 2012). Here, the rise of online communication can work two ways. On the one hand, easy, interactive participation in global meetings, networks and encounters may increase access to knowledge and open up peripheral access to value chains. The further proliferation of short food supply chains presents a case in point, as well as, more broadly, moves towards ‘open innovation’, ‘open science’ and ‘open strategy’ (e.g., McAdam et al., 2016). Proximity may thus become more virtual, temporary and network

based. On the other hand, enhanced competition may intensify tendencies and tactics to protect knowledge and reap monopoly benefits from platform dominance. Existing spatial divides may thus harden. An interesting research question hence is whether heightened digitalization will primarily strengthen current tendencies regarding reshoring, access and inequality, or whether the impact will go further.

Governance, finally, may give rise to expectations and issues of a more radical nature. In an unprecedented way, the pandemic has shown the capacity of political, administrative and business powers to work according to new conditions, missions and perspectives. At a stroke, many 'invariants' tumbled and real alternatives abounded. This brings a message of hope as well as concern. A core question is to what extent the governance of value chains and clusters can be further attuned to a post-neoliberal, mission-oriented economic perspective (Mazzucato, 2016), also benefiting from new technology (see below). On the other hand, a major worry is that these emergency transformations may not be sufficient to break the shackles of today's 'late capitalist', strongly divided, global political economy or that they will be overtaken by other, more destructive tendencies. Besides positive action, the pandemic has also shown how rapidly cross-border relations can be cut, national protectionism can rise and hence how fragile the conditions are for the 'strategic coupling' of territories to wider value chains. Governance issues, from global regulation to local collaboration and capacity-building, may therefore present the biggest challenge for research and action.

THE FOURTH INDUSTRIAL REVOLUTION

Technological progress has shaped our economy and society since the invention of power in the form of water in mills and steam leading to mechanization and then automation. A recent lively debate on a wave of new technologies has started exploring the range of impacts that the Fourth Industrial Revolution may have on our economy and society. These new technologies include biotech, nanotech, neuro-technologies, green and renewables, information and communication technology (ICT) and mobile communications, 3D, artificial intelligence (AI), robotics, sensoring, space technology, and drones. The OECD (2017), for example, points to the revolutionary change that these new 'Industry 4.0' technologies will have on production, namely the organization, location and form of production (De Propriis & Bailey, 2020).

The efficiency gains of such changes were already being weighed against possible costs in terms of jobs. There were also reservations about the advent of AI and digitally enabled technologies in our daily life. For example, being waited on by a robot or working side by side with a co-bot could be both threatening and disturbing. Such scenarios seemed far distant in the future, but both the perception and the adoption of technologies may have been turned upside down by the Covid-19 pandemic. The OECD (2020a) found that gross domestic product

(GDP) dropped between 2019-Q4 and 2020-Q2 by as much as 23% in Spain, and 21% in the UK, 15% in the euro area and by 11% in China, 10% in Japan and 6% in Korea. This was addressed by governments with unprecedented income substitution packages and business support measures that have pushed governments to slip back into public deficits. At the same time, with many economic activities closed for at least three months in the first and second quarters of 2020, businesses in the manufacturing and service sectors have struggled to remain viable, with the tourism and hospitality sectors being the hardest hit as noted.

If 2020 started with a sense of opportunity and optimism, what might be the impact of Covid-19 on public and private investment in new technologies? On the one hand, Covid-19 might accelerate the take up of Industry 4.0 technologies such as the use of automation, AI, sensors and drones so as to minimize risks from Covid-19 and to localize value chains. On the other hand, the priority to adopt such new technologies might slip down the list of priorities for firms which have spent significant resources just staying afloat. They might now lack the finance and the drive to take up new technologies as the immediate economic outlook is so uncertain, with firms struggling to recover in the context of tepid demand while painfully aware of the risk of a second lockdown (see OECD, 2020a, for outlook projections with single and double-hit scenarios).

According to the International Federation of Robotics (IFR), 2018 was a record year for investment in robots and it expected an annual increase of 12% between 2020 and 2022 (IFR, 2019). The level of investment in 2020 is likely to be very different from the one predicted. Delaying capital investment in automation and AI, however, might have significant implications for the long-term competitiveness of, for example, European industries. China, Japan and Korea already accounted for half of robot installation in 2018, followed by the United States and Germany. Stalling the technological upgrading of the European manufacturing base will not only have a significant impact on its efficiency, but more critically on its ability to transform the associated business model – see the growing interest in servitization (Bellandi & Santini, 2019; Lafuente et al., 2019) and customization – and to redesign the value chain; see for instance the use of additive manufacturing for the making of components at the point of use (De Propriis & Storai, 2019). The ups and downs of industries mirror the fate of regions where such industries are located, so there may be longer term effects of Covid-19 on investment in new technologies and how industries are reshaped in the future, which again has implications for regions.

KNOWLEDGE PRODUCTION AND INNOVATION

The innovative performance of a regional economy, among other things, is determined by the existing stock of

knowledge, the rate of knowledge production, and the extent of knowledge spillovers (Caballero & Jaffe, 1993). The current crisis is expected to have a profound impact on the latter two, albeit not to the same extent in all localities.

In times of crises the rate of knowledge production often slows down significantly. This is mainly a result of underinvestment in R&D activities, which are generally high-risk investments associated with potentially uncertain outcomes (Hardy & Sever, 2020). Paired with a lack of confidence in future market potential and the need to shift limited resources to more essential and existing production tasks, this leads to a much lower rate of knowledge production. The global financial crisis of a decade ago demonstrated that this is a global phenomenon – e.g., as measured by the production of novel products and processes with economic value (i.e., patents) – although it is also observable that it has a varying degree of impact based on a specific region's economic structure, which results in locally unique knowledge spaces (Bathelt et al., 2013; Filippetti & Archibugi, 2011). In this context, the technological coherence and resilience of a place does to a certain extent determine the severity of shocks to a local system, and also how long it would take a regional economy to bounce back to previous levels of innovation, employment and prosperity (Rocchetta & Mina, 2019; Rocchetta et al., 2019).

For example, in the present crisis there is a realization that there has been a chronic underinvestment in the development of new vaccines, mainly due to the public good character of such products that might make it difficult to reap returns from R&D investments (Abi Younes et al., 2020). A shift towards increased funding in this R&D area – most likely at the expense of other sectors – might benefit some regions over others. In this scenario, regions composed of a knowledge space (i.e., the relational composition of the existing stock of knowledge; Kogler et al., 2013; Whittle & Kogler, 2020) dominated by expertise in pharmaceutical and biotechnology R&D would benefit, while regions more heavily invested in other knowledge domains might see a significant decline in funding towards knowledge producing activities. Considering that regions that are heavily dominated by such more advanced innovative activities, such as pharmaceuticals or information and communication technology (ICT), are also the ones that are the more well-off compared with other jurisdictions, these tendencies might result in further patterns of regional inequalities than observed previously (Rodríguez-Pose, 2018).

The impact of the current crisis on knowledge spillovers might also be profound, resulting in a significant shift in the evolutionary trajectories of regional economic development pathways (Kogler, 2016; Kogler et al., 2017; Rodríguez-Pose & Crescenzi, 2008). Non-pecuniary knowledge spillovers, commonly also referred to as knowledge externalities, provide a rationale for constant or increasing productivity and sustained economic growth (Griliches, 1979). They are facilitated via various mechanisms, but for simplicity let us say they are either non-

pecuniary externalities (where one individual/firm benefits from the R&D undertaken by another person/entity) or they are planned and directed (e.g., via collaborative efforts such as co-invention). If knowledge production slows down on a global scale, *ceteris paribus*, so should universal opportunities to take advantage of non-pecuniary, or pure, knowledge spillovers.

The current crisis might also have an unprecedented impact on the context of more planned and directed knowledge spillovers because such activities usually thrive in an environment characterized by frequent face-to-face interactions (Gertler, 2003). Furthermore, a significant share of scientific and technological inputs that serve the development of innovations is derived from extra-local sources (Gui et al., 2018). In more recent times, the embeddedness and reliance of regional knowledge spaces on a wider inter-regional, national and global innovation system has become more prevalent, for example, as measured by the significant increase in international scientific and inventor collaborations (Lee et al., 2019). Thus, if the current crisis requires social distancing at the local scale, as well as significantly restricting international travel that usually facilitate temporary but much needed face-to-face interactions between knowledge-producing individuals, opportunities for pure knowledge spillovers to occur will be considerably interrupted. Whether less innovative regional economies may suffer disproportionately from these developments (as they are most likely to rely on knowledge spillovers from outside their respective territories) will be an interesting research question.

CLIMATE CHANGE

The Covid-19 emergency has brought some positive effects on the environment so far. The lockdown measures imposed around the world to limit the spread of the virus have reduced mobility, economic activities and consumption and, in turn, have reduced energy demand, the use of fossil fuels and CO₂ emissions. Global energy demand declined by 3.8% in the first quarter of 2020, with the largest fall in March when countries in full lockdown experienced an average 25% decline in energy demand per week (International Energy Agency (IEA), 2020). Yet, while global demand for coal, oil and natural gas have fallen by 8%, 5% and 2%, respectively, in the first quarter of 2020 renewables have registered a growth in demand of 1.5% relative to the first quarter of 2019. This has led to a decrease in global CO₂ emissions of 5% in the same period (IEA, 2020). These positive environmental effects are unevenly distributed across space. Emissions have declined the most in the regions where restrictive measures have been adopted the earliest and in the most industrialized and densely populated regions. Of course, these positive effects are just short term.

The long-term effects of the Covid-19 pandemic on the environment are far more unclear. Before the pandemic, the climate emergency was a high priority on policy agendas around the world. For example, in December 2019, the European Commission outlined the Green

Deal with the ambitious aim to make the European Union climate neutral by 2050. Yet, in the aftermath of Covid-19 public priorities have shifted towards the health emergency and the resulting economic crisis. The long-term effects on the environment and climate change depend, therefore, on how long-lasting and deep are the shifts in individual behaviours, business practices and government actions occurring during and after the pandemic. Positively, the European Commission has proposed a recovery package that aims at relaunching economies while maintaining the Green Deal at its core. Nevertheless, Hepburn et al. (2020), in their survey involving 231 experts from G20 countries, find that across all the rescue and recovery measures undertaken in G20 countries, only 4% of such policies are 'green', with the potential to actually reduce long-run greenhouse gas (GHG) emissions, 4% are seen as 'brown' and likely to increase net GHG emissions beyond the base case, with 92% 'colourless', meaning that they maintain the status quo.

In this scenario, the role of regions appears pivotal. Changes in work, business and mobility practices can have heterogeneous environmental effects on different regions, where most urbanized and industrialized regions can gain the most. While coordinated policy actions at the supra-national and national levels are essential to cope with health, economic and environmental challenges, region-specific policies also need to be implemented to take into consideration regional heterogeneity and the uneven spatial effects of Covid-19.

RECONCEPTUALIZING THE URBAN

The idea of dense cities as a virtuous form of social and economic order is a central idea in the broad field of regional studies, which has been featured, debated and challenged during the Covid-19 pandemic. Under normal circumstances, cities' human density and diversity means they are considered nurseries for innovations that power economic growth. As noted, repeated face-to-face contact is held up as a superior means to share new and hard-to-codify ideas, which acts in part as a counterweight to high living costs. At face value, at least, Covid-19 has challenged this logic, with some of the densest world cities seeing high numbers of cases of the virus. As Nathan (2020) suggests, we now inhabit 'the upside down'. Regardless of whether the high levels of infections in cities are due to urban form – including population density, their role as global transport nodes, their specialization in service-oriented work (Economics Observatory, 2020) – or other factors, questions have been raised about how we value our present highly urbanized way of life. This has implications too for the conceptualization of city-regions, which are increasingly recognized as an important scale for planning and development (Axinte et al., 2019).

This is made even more complex by the forced changes in how city work gets conducted. At the time of writing, public life is slowly reawakening in some places – though this process is highly uncertain and geographically uneven. Yet, our shared global experiment in telecommuting will

surely have some effect on our urbanized world. While the extremes yield both cries of 'the end of cities' and assurances of a complete return to normal, the truth will likely be found somewhere in a middle ground. Employers have new insights into the transaction costs involved in remote working. To begin to answer the question of what will continue to be done in person in a post-vaccine world, we might spatially reinterpret Coase (1937): only those activities for which the benefits of face-to-face contact outweigh the costs may continue to be face to face. Benefits and costs are hard to measure here – they surely stretch beyond firms' short-term bottom lines and may well involve much experimentation by employers. This could mean a world that looks quite similar to the one we lived in during 2019 – or it might mean something vastly different. This uncertainty is fertile terrain for the regional studies community to explore in the coming years.

The short-term impact of Covid-19 has seen the rolling out of what are, at face-value, temporary infrastructural transformations throughout cities, and particularly in Europe and North America. Many of these transformations revolve around the insertion of temporary bike lanes and additional pedestrian space, and switches away from mass public transport. A major question here is the degree to which Covid-19 can be seen as a key moment or juncture in a long-game of urban policy-making that stretches at least back to the 1970s. Not only are these insertions reflective of the battles over space that have taken place in recent decades, but also it is possible that many of them may become permanent, or at least may change the ways in which space is distributed within the public domain of cities. This raises some interesting questions about the politics of place. Not least of these is the relationship between these interventions and the economic dynamics of contemporary cities, with the promotion of bike-lane infrastructure and the development of pedestrian spaces reflections of the promotion of image-making strategies revolving around creativity and innovation from the early 2000s onwards. In short, while seemingly short-term and emergent overnight, Covid-19 has acted as a catalyst to promote ideals that have long been desired among specific groups of policy-makers and urban residents.

In as much as the aforementioned development of bike-lanes and pedestrian spaces is focused upon central spaces, and particularly spaces of consumption in central areas, there are also several contradictions around central spaces that have emerged through Covid-19. One of the most striking of these is the emergence of working from home as an option among technology companies such as Facebook and Twitter (as well as many universities). That these arrangements are now being prolonged into the future raises several interesting potential outcomes. While, for example, the promotion of density and associated forms of interaction has been a key attribute of the contemporary knowledge-based economy (Wang et al., 2019), the encouragement of working from home presents significant challenges to it. What, for example, now becomes of central spaces as focal points in an economy that promoted face-to-face engagement as a key element

in the development of innovative outputs? Here, questions emerge as to how individuals, companies and other organizations can mimic face-to-face engagement at a distance and ensure productivity is maintained. Questions also emerge as to the socio-spatial implications of such a shift. While gentrification has been long associated with an emergent 'creative class', the increased potential of working from home may present new forms of socio-spatial arrangements that challenge existing arrangements in neighbourhoods across the urban region. This also has significant implications for the use and provision of office space, with a consequential knock-on effect on the real estate industry in different locations.

RESEARCH PRACTICE

As a community, there is also a need to expand our understanding of the potential long-run consequences of the impact and spread of Covid-19. Recent studies have offered new evidence of the lasting effects of historical pandemics on economic growth (Carillo & Jappelli, 2020; Jordà et al., 2020), while regional perspectives have shown that localized historical and health shocks may reveal persisting effects for human capital as well as institutions (Fritsch et al., 2019; Percoco, 2016; Voigtländer & Voth, 2013). In this sense, data from previous pandemics and comparative studies may offer complementary insights on potential structural changes and localized sectoral trajectories beyond short-run effects of the current crisis.

Likewise, evidence from novel sources of quantitative micro and big data may provide a more nuanced and granular view of spatial dynamics as represented by established measures of economic activity. To this end, Chetty et al. (2020) have offered interesting insights on the opportunities offered by high-frequency anonymised data from private companies to track real-time changes in business activity, employment and local demand at different geographical levels. Data from social media have been used to explore separately the role of social networks and population density on the diffusion of Covid-19 (Kuchler et al., 2020), while mobility data have allowed researchers to model international (Wu et al., 2020) or interregional transmissibility of the virus as well as capture changes in urban behavioural patterns (Morita et al., 2020). More broadly, new sources of data might improve regional nowcasting methods in the context of Covid-19 and provide additional tools to disentangle its impact on interregional connectivity as well as intra-region agglomeration effects across heterogeneous sectors as opposed to generalized density at the local level.

The effects of the arrival of Covid-19 on the research process of scholars who study cities and regions will reverberate for years. Much work in regional studies involves, in part or in its entirety, methods and approaches that directly engage people in the places where they live and work. It studies the operations of firms, institutions and networks as they conduct business and engage in the complex processes of innovation and governance (Christopherson & Clark, 2007). It measures and analyses the ways in which

they maintain continuity and also subtly change (Clark & Bailey, 2018; Clark et al., 2018).

There is nothing subtle about how Covid-19 has arrested such research. In-person interviews, site visits and fieldwork were all unceremoniously suspended when the lockdowns and quarantines began. And, even in the moments of 'phased recovery' or 'staged re-openings' the cross-border travel and international collaboration that characterizes the work of comparative regional studies remains limited or entirely suspended. Universities and other research institutions have issued guidance that recommends alternative modes of enquiry even if all methods of primary data collection are not completely restricted. All of which pose important questions for how we conduct regional studies research while equally reminding us of the need as regional researchers to ask questions of the institutions and the sector in which we work as we do of other sectors of the economy, and society and politics more generally (Harrison & Turok, 2017).

And so, in these times, it becomes crucial that researchers both think and talk about how they conduct urban and regional research in an age of social distancing and face masks and in which the exceptional is now ordinary. It is not only that how researchers conduct research is changing but also what they are observing, and analysing, is changing.

One alternative is to revert to quantitative work, relying on data sets collected and generated at a safe distance, analysing what was measured before Covid-19. Indeed, tracking the magnitude of the impacts of Covid-19 and the measures taken to combat and contain it is important. And, in some cases, the direction of the change is not entirely known or understood, for example, the unexpected rise of telecommunications stocks and remote technology platforms contrasted against the volatility of oil futures and erratic pricing of food and paper goods. The extent of distributed global supply chains and the return to localized production networks might disrupt sectors from manufacturing to farming.

Regional studies has never been a discipline with a single methodological hammer viewing every research question as a nail (Lagendijk, 2006; Markusen, 1999). The regional world is bigger than that (Harrison, 2013; Macleod & Jones, 2007; Storper, 1997). Although for regional studies, as with its cognate disciplines, long-standing methodological debates rarely reach consensus, there is some clarity that methods should be tailored to the research question and that different questions benefit from different approaches (Hudson, 2003; Lagendijk, 2003; Markusen, 2003; Peck, 2003). We study variation, and we expect to see variation in the modes of analysis selected (Harrison et al., 2020).

In these times, the qualitative work of regional studies will take longer as projects are delayed and deferred. The temptation, especially for early-career scholars and students, to pivot away from primary data collection and towards existing data sets will be significant. This drive towards existing data series will privilege particular modes of analysis. The ability to see what the shock of Covid-19

reveals about our world and its varied impacts among and between places and industries will require all of the methodological tools that have taken decades to debate and develop. This is not the time to pull back from that project but to push forward.

Nothing is easy about a global pandemic. The research of regional studies will not be easy either – but it is important. Regional studies in particular has a set of tools tailored to understanding the spatial (re)distribution of economic activities when exposed to significant shocks (Lovering, 2001; Martin & Sunley, 2015; Pike, 2009) and responses, and critically encompasses place leadership (Beer et al., 2019; Sotarauta, 2018; Vallance et al., 2019). Those tools are needed to tell this story and identify what matters for the recovery from the pandemic and the regional policies required to bridge the gaps in regional systems, networks, institutions and governance revealed by Covid-19.

There are also calls for policy responses to the impact of Covid-19 to ‘build back better’, and the regional studies community will have much to contribute in terms of debates over, for example, green new deals, climate change, sustainable transitions (Gibbs, 2018), governance (Dodds et al., 2020; Fastenrath & Coenen, 2020), the role of state intervention and place-based industrial strategy (Bailey et al., 2020a), as well as regional inequalities and ‘leveling up’ in the context of the ‘geography of discontent’ (McCann, 2020) – this not least because of the importance of place-based regional policies rather than ‘one-size-fits-all’ approaches to regional planning (Morrison & Doussineau, 2019). The drive for universities to contribute to their regional economies places higher education institutions in an important position in these debates (Benneworth & Fitjar, 2019) as anchor institutions (Bailey et al., 2020b).

PUBLISHING REGIONAL STUDIES

The scholarly publishing industry has been affected by the Covid-19 pandemic in many of the same ways as other industries. Publishers as well as their suppliers around the world, such as typesetters, moved their operations to home working. The dispatch and delivery of printed publications became difficult when some countries suspended their postal services and impractical when higher education institutions temporarily closed. These factors taken together led large publishers to pause their printing operations, most of which are again operational at the time of writing. This may accelerate and complete a long-anticipated move away from printed journals in favour of online-only publications.

On the editorial side, the editors, reviewers and authors of journal manuscripts became additionally pressed for time due to caring and schooling responsibilities, personal health matters, and the challenge of moving teaching and examination materials online at short notice. The pandemic only serves to highlight the interdependence of scholarly publications and the higher education community: submissions across many journals spiked in the second quarter of 2020; queries increased from authors wishing to know the status

of their manuscripts; and editors, reviewers and journal administrators worked hard to keep the peer-review process moving while balancing other increasing demands on their time.

The pattern of submissions to journals has also been rightly subject to attention. At the same time as identifying increasing submissions, some journals and repositories have noted that there has been a shift away from submissions led by female authors who are understood as shouldering a disproportionate share of personal caring and pedagogical responsibilities at home and work (Amano-Patiño et al., 2020; Institute for Fiscal Studies (IFS), 2020; Scott, 2020). Graduate student and early-career parents with impending revision deadlines have similarly been disproportionately affected by the difficulties of coordinating academic responsibilities and childcare as schools closed around the globe. The Regional Studies Association and Taylor & Francis will be helping the journal’s editors to monitor these potentially uneven impacts on *Regional Studies*.

The geographical impact of the virus has been uneven across the world, and in the Global North is understood to have impacted Black, Asian and Minority Ethnic (BAME) communities more than their White counterparts (e.g., Women’s Budget Group, 2020). Reductions in university budgets are further likely to impact female and BAME scholars since they are also overrepresented in precarious work. In particular, those junior researchers who depend on new publications and research to secure employment have to bear the extraordinary brunt of the impact. Not only are writing and publishing made more difficult by lockdown or ‘shelter-in-place’ orders, but for some, research has been completely upended by the impossibility to conduct studies that rely on travel, field data or qualitative work with human subjects. These dimensions have the potential to exacerbate existing inequalities in higher education and in scholarly publishing. The Black Lives Matter movement has reminded the world about persistent, systemic inequality in government, society and workplaces.

Journals and their communities therefore need to be alert to the challenges of improving representation in their pages, not least since publishing continues to be tied to academic career progression. Remaining alert also entails recognizing that journals can have a crucial – if circumscribed – role in mitigating the negative impacts on research caused by the pandemic, particularly for those more vulnerable to its effects. This can entail prioritizing support over productivity in the publishing process, and consequently altering our expectations from all parties involved.

Regional Studies welcomes research from all of its community as our shared world faces the collective challenges brought by Covid-19, so that we can address not just the current crisis but those that we will face in future. At this time, it would also like to thank all its editors, reviewers and authors for their continuing support, patience and commitment at this time. The journal is here to support its community and also recognizes that it is reliant on the time and collaborative effort of so many people around the world.

ORCID

- David Bailey  <http://orcid.org/0000-0002-1956-0556>
 Jennifer Clark  <http://orcid.org/0000-0001-7908-032X>
 Alessandra Colombelli  <http://orcid.org/0000-0003-4513-8612>
 Carlo Corradini  <http://orcid.org/0000-0001-9164-4108>
 Lisa De Propriis  <http://orcid.org/0000-0001-6208-3014>
 Ben Derudder  <http://orcid.org/0000-0001-6195-8544>
 Ugo Fratesi  <http://orcid.org/0000-0002-0755-460X>
 Michael Fritsch  <http://orcid.org/0000-0003-0337-4182>
 John Harrison  <http://orcid.org/0000-0002-6434-5142>
 Madeleine Hatfield  <http://orcid.org/0000-0002-6299-8174>
 Tom Kemeny  <http://orcid.org/0000-0003-4984-9104>
 Dieter F. Kogler  <http://orcid.org/0000-0002-6744-5632>
 Arnoud Lagendijk  <http://orcid.org/0000-0003-2540-5875>
 Philip Lawton  <http://orcid.org/0000-0003-4833-4520>
 Raquel Ortega-Argilés  <http://orcid.org/0000-0002-7783-2230>
 Carolina Iglesias Otero  <http://orcid.org/0000-0002-8446-0447>
 Stefano Usai  <http://orcid.org/0000-0001-5619-1350>

REFERENCES

- Abi Younes, G., Ayoubi, C., Ballester, O., Cristelli, G., de Rassenfossé, G., Foray, D., Gaulé, P., Pellegrino, G., van den Heuvel, M., Webster, E., & Zhou, L. (2020). COVID-19: Insights from innovation economists. *Science and Public Policy*, paa036. <https://doi.org/10.1093/scipol/scaa028>
- Amano-Patiño, N., Faraglia, E., Giannitsarou, C., & Hasna, Z. (2020). Who is doing new research in the time of COVID-19? Not the female economists. *VoxEU & CEPR blog*. Retrieved July 9, 2020, from <https://voxeu.org/article/who-doing-new-research-time-covid-19-not-female-economists>
- Ascani, A., Faggian, A., & Montresor, S. (2020). *The geography of COVID-19 and the structure of local economies: The case of Italy* (GSSI Discussion Paper Series in Regional Science & Economic Geography No. 2020-01, April).
- Author, D. H., Katz, L. F., & Kearney, M. S. (2008). Trends in U.S. wage inequality: Revising the revisionists. *Review of Economics and Statistics*, 90(2), 300–323. <https://doi.org/10.1162/rest.90.2.300>
- Axinte, L. F., Mehmood, A., Marsden, T., & Roep, D. (2019). Regenerative city-regions: A new conceptual framework. *Regional Studies, Regional Science*, 6(1), 117–129. <https://doi.org/10.1080/21681376.2019.1584542>
- Bailey, D., Clark, J., Colombelli, A., Corradini, C., De Propriis, L., Derudder, B., Fratesi, U., Fritsch, M., Harrison, J., Hatfield, M., Kemeny, T., Kogler, D., Lagendijk, A., Lawton, P., Ortega-Argilés, R., & Usai, S. (2020a). Rethinking regions in turbulent times. *Regional Studies*, 54(1), 1–4. <https://doi.org/10.1080/00343404.2019.1698837>
- Bailey, D., Pitelis, C., & Tomlinson, P. R. (2020b). Strategic management and regional industrial strategy: Cross-fertilization to mutual advantage. *Regional Studies*, 54(5), 647–659. <https://doi.org/10.1080/00343404.2019.1619927>
- Bailey, D., & Tomlinson, P. (2020). Covid-19, the economy and the West Midlands' recovery: A regional perspective. In J. Mair (Ed.), *The pandemic; where did we go wrong? A very public inquiry* (pp. 154–159). Bite-Sized.
- Bailey, D., & Turok, I. (2016). Editorial: Resilience revisited. *Regional Studies*, 50(4), 557–560. <https://doi.org/10.1080/00343404.2016.1146478>
- Bathelt, H., Munro, A. K., & Spiegel, B. (2013). Challenges of transformation: Innovation, rebundling and traditional manufacturing in Canada's technology triangle. *Regional Studies*, 47(7), 1111–1130. <https://doi.org/10.1080/00343404.2011.602058>
- Beer, A., Ayres, S., Clower, T., Faller, F., Sancino, A., & Sotara, M. (2019). Place leadership and regional economic development: A framework for cross-regional analysis. *Regional Studies*, 53(2), 171–182. <https://doi.org/10.1080/00343404.2018.1447662>
- Bellandi, M., & Santini, E. (2019). Territorial servitization and new local productive configurations: The case of the textile industrial district of Prato. *Regional Studies*, 53(3), 356–365. <https://doi.org/10.1080/00343404.2018.1474193>
- Benneworth, P., & Fitjar, R. D. (2019). Contextualizing the role of universities to regional development: introduction to the special issue. *Regional Studies, Regional Science*, 6(1), 331–338. <https://doi.org/10.1080/21681376.2019.1601593>
- Boschma, R. (2015). Towards an evolutionary perspective on regional resilience. *Regional Studies*, 49(5), 733–751. <https://doi.org/10.1080/00343404.2014.959481>
- Boumahdi, I., Zaouaj, N., & Fadlallah, A. (2020). *Differentiated territorial effect of Covid-19 on the tourism sector in Morocco* (RSPP Working Paper No. 2020.001).
- Caballero, R. J., & Jaffe, A. B. (1993). How high are the giants' shoulders?: An empirical assessment of knowledge spillovers and creative destruction in a model of economic growth. *NBER Macroeconomics Annual*, 8, 15–74. <https://doi.org/10.1086/654207>
- Carillo, M., & Jappelli, T. (2020). *Pandemics and local economic growth: Evidence from the Great Influenza in Italy* (CSEF Working Paper No. 568). Retrieved July 30, 2020, from <http://www.csef.it/WP/wp568.pdf>
- Chetty, R., Friedman, J. N., Hendren, N., & Stepner, M. (2020). *How did Covid-19 and stabilization policies affect spending and employment? A new real-time economic tracker based on private sector data* (No. w27431). National Bureau of Economic Research (NBER).
- Christopherson, S., & Clark, J. (2007). *Remaking regional economies: Power, labor, and firm strategies in the knowledge economy* (Routledge Studies in Economic Geography). Routledge.
- Clark, J., & Bailey, D. (2018). Labour, work and regional resilience. *Regional Studies*, 52(6), 741–744. <https://doi.org/10.1080/00343404.2018.1448621>
- Clark, J., Harrison, J., & Miguelez, E. (2018). Connecting cities, revitalizing regions: The centrality of cities to regional development. *Regional Studies*, 52(8), 1025–1028. <https://doi.org/10.1080/00343404.2018.1453691>
- Coase, (1937). The nature of the firm. *Economica*, n.s., 4(1937), 386–405.
- Coke Hamilton, P. (2020). *Impact of COVID-19 on tourism in small island developing states*. Retrieved from <https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2341>
- Coronavirus Research Centre. (2020). John Hopkins University, University and Medicine. Retrieved July 15, 2020, from <https://coronavirus.jhu.edu/>
- De Propriis, L., & Bailey, D. (2020). *Industry 4.0 and regional transformations*. Routledge.
- De Propriis, L., & Storai, D. (2019). Servitizing industrial regions. *Regional Studies*, 53(3), 388–397. <https://doi.org/10.1080/00343404.2018.1538553>
- Del Chiappa, G. (2020). *Come cambierà il modo di viaggiare degli Italiani dopo l'emergenza COVID-19*. CRENoS and University of Sassari.

- Djankov S. and Panizza U. (Eds.) (2020) *COVID-19 in developing economies*. CEPR Press.
- Dodds, K., Castan Broto, V., Detterbeck, K., Jones, M., Mamadouh, V., Ramutsindela, M., Varsanyi, M., Wachsmuth, D., & Yuan Woon, C. (2020). The COVID-19 pandemic: Territorial, political and governance dimensions of the crisis. *Territory, Politics, Governance*, 8(3), 289–298. <https://doi.org/10.1080/21622671.2020.1771022>
- Doran, J., & Fingleton, B. (2016). Employment resilience in Europe and the 2008 economic crisis: Insights from micro-level data. *Regional Studies*, 50(4), 644–656. <https://doi.org/10.1080/00343404.2015.1088642>
- Economics Observatory. (2020). *Why has coronavirus affected cities more than rural areas?* Retrieved July 16, 2020, from <https://www.coronavirusandtheeconomy.com/question/why-has-coronavirus-affected-cities-more-rural-areas>
- Fastenrath, S., & Coenen, L. (2020). Future-proof cities through governance experiments? Insights from the Resilient Melbourne Strategy (RMS). *Regional Studies*. <https://doi.org/10.1080/00343404.2020.1744551>
- Filippetti, A., & Archibugi, D. (2011). Innovation in times of crisis: National systems of innovation, structure, and demand. *Research Policy*, 40(2011), 179–192. <https://doi.org/10.1016/j.respol.2010.09.001>
- Financial Times. (2020). Coronavirus tracked: The latest figures as countries start to reopen. *Financial Times*, 6 July. <https://www.ft.com/content/a26bf7e-48f8-11ea-aeb3-955839e06441>
- Fritsch, M., Sorgner, A., Wyrwich, M., & Zazdravnykh, E. (2019). Historical shocks and persistence of economic activity: Evidence on self-employment from a unique natural experiment. *Regional Studies*, 53(6), 790–802. <https://doi.org/10.1080/00343404.2018.1492112>
- Gertler, M. S. (2003). Tacit knowledge and the economic geography of context, or the undefinable tacitness of being (there). *Journal of Economic Geography*, 3(1), 75–99. <https://doi.org/10.1093/jeg/3.1.75>
- Gibbs, D. (2018). Sustainability transitions and green regional economies. *Regions*. <https://doi.org/10.1080/13673882.2018.00001004>
- Gössling, S., Scott, D., & Hall, C. M. (2020). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 1–20. <https://doi.org/10.1080/09669582.2020.1758708>
- Griliches, Z. (1979). Issues in assessing the contribution of research and development to productivity growth. *Bell Journal of Economics*, 10(1), 92–116. <https://doi.org/10.2307/3003321>
- Gui, Q., Liu, C., & Du, D. (2018). International knowledge flows and the role of proximity. *Growth and Change*, 49(3), 532–547. <https://doi.org/10.1111/grow.12245>
- Guibourg, C. (2020). *A fraction of European regions account for a majority of COVID-19 deaths*. EDJNet – The European Data Journalism Network.
- Hall, M. C., Scott, D., & Gössling, S. (2020). Pandemics, transformations and tourism: be careful what you wish for. *Tourism Geographies*. <https://doi.org/10.1080/14616688.2020.1759131>
- Hardy, B., & Sever, C. (2020). *Financial crises and innovation* (BIS Working Paper No. 846). Retrieved from <https://ssrn.com/abstract=3549545>
- Harrison, J., Delgado, M., Derudder, B., Anguelovski, I., Montero, S., Bailey, D., & De Propriis, L. (2020). Pushing regional studies beyond its borders. *Regional Studies*, 54(1), 129–139. <https://doi.org/10.1080/00343404.2019.1672146>
- Harrison, J. (2013). Configuring the new ‘regional world’: On being caught between territory and networks. *Regional Studies*, 47(1), 55–74. <https://doi.org/10.1080/00343404.2011.644239>
- Harrison, J., & Turok, I. (2017). Universities, knowledge and regional development. *Regional Studies*, 51(7), 977–981. <https://doi.org/10.1080/00343404.2017.1328189>
- Hepburn, C., O’Callaghan, B., Stern, N., Stiglitz, J., & Zenghelis, D. (2020). Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change? *Oxford Review of Economic Policy*. <https://doi.org/10.1093/oxrep/graa015>
- Hudson, R. (2003). Fuzzy concepts and sloppy thinking: Reflections on recent developments in critical regional studies. *Regional Studies*, 37(6–7), 741–746. <https://doi.org/10.1080/0034340032000108822>
- Institute for Fiscal Studies (IFS). (2020). *Parents, especially mothers, paying heavy price for lockdown*. IFS.
- International Energy Agency (IEA). (2020). *Global energy review 2020. Flagship Report*. IEA.
- International Federation of Robotics (IFR). (2019). *2019 World robotics report*. Retrieved July 6, 2020, from <https://ifr.org/ifr-press-releases/news/robot-investment-reaches-record-16.5-billion-usd>
- Ivanov, D., & Dolgui, A. (2020). Viability of intertwined supply networks: Extending the supply chain resilience angles towards survivability. A position paper motivated by COVID-19 outbreak. *International Journal of Production Research*, 58(10), 2904–2915. <https://doi.org/10.1080/00207543.2020.1750727>
- Jordà, Ò., Singh, S. R., & Taylor, A. M. (2020). *Longer-run economic consequences of pandemics* (No. w26934). National Bureau of Economic Research (NBER).
- Kemeny, T., & Storper, M. (2020). The fall and rise of interregional inequality: Explaining shifts from convergence to divergence. *Scienze Regionali*, 19(2), 175–198. doi:10.14650/97084
- Kogler, D. F. (2016). *Evolutionary economic geography: Methodological and empirical progress*. Routledge.
- Kogler, D. F., Rigby, D. L., & Essletzbichler, J. (2017). The evolution of specialization in the EU15 knowledge space. *Journal of Economic Geography*, 17, 345–373. <https://doi.org/10.1093/jeg/lbw024>
- Kogler, D. F., Rigby, D. L., & Tucker, I. (2013). Mapping knowledge space and technological relatedness in US cities. *European Planning Studies*, 21(9), 1374–1391. <https://doi.org/10.1080/09654313.2012.755832>
- KPMG. (2020). *Chief economist’s note: Covid-19’s regional jigsaw*. Retrieved July 8, 2020, from <https://home.kpmg/uk/en/home/insights/2020/05/chief-economist-note-new.html>
- Kuchler, T., Russel, D., & Stroebe, J. (2020). *The geographic spread of COVID-19 correlates with structure of social networks as measured by Facebook* (No. w26990). National Bureau of Economic Research (NBER).
- Kuebart, A., & Stabler, M. (2020). Infectious diseases as socio-spatial processes: The COVID-19 outbreak in Germany. *Tijdschrift voor Economische en Sociale Geografie*. <https://doi.org/10.1111/tesg.12429>
- Lafuente, E., Vaillant, Y., & Vendrell-Herrero, F. (2019). Territorial servitization and the manufacturing renaissance in knowledge-based economies. *Regional Studies*, 53(3), 313–319. <https://doi.org/10.1080/00343404.2018.1542670>
- Legendijk, A. (2003). Towards conceptual quality in regional studies: The need for subtle critique – A response to Markusen. *Regional Studies*, 37(6–7), 719–727. <https://doi.org/10.1080/0034340032000108804>
- Legendijk, A. (2006). Learning from conceptual flow in regional studies: Framing present debates, unbracketing past debates. *Regional Studies*, 40(4), 385–399. <https://doi.org/10.1080/00343400600725202>
- Lago, I., Lago-Peñas, S., & Martínez-Vázquez, J. (2020). Decentralization after the great recession: Fine-tuning or paradigm change? *Regional Studies*, 54(7), 877–880. <https://doi.org/10.1080/00343404.2020.1711878>
- Lee, C., Kogler, D. F., & Lee, D. (2019). Capturing information on technology convergence, international collaboration, and knowledge flow from patent documents: A case of information

- and communication technology. *Information Processing and Management*, 56(4), 1576–1591. <https://doi.org/10.1016/j.ipm.2018.09.007>
- Lovering, J. (2001). The coming regional crisis (and how to avoid it). *Regional Studies*, 35(4), 349–354. <https://doi.org/10.1080/00343400124009>
- Macleod, G., & Jones, M. (2007). Territorial, scalar, networked, connected: In what sense a 'regional world'? *Regional Studies*, 41(9), 1177–1191. <https://doi.org/10.1080/00343400701646182>
- Mansfield, E. (1977). Determinants of the speed and the application of new technology. In E. Mansfield et al. (Eds.), *The production and application of new technology* (pp. 108–125).
- Markusen, A. (1999). Fuzzy concepts, scanty evidence, policy distance: The case for rigour and policy relevance in critical regional studies. *Regional Studies*, 33(9), 869–884. <https://doi.org/10.1080/00343409950075506>
- Markusen, A. (2003). On conceptualization, evidence and impact: A response to Hudson, Lagendijk and Peck. *Regional Studies*, 37(6–7), 747–751. <https://doi.org/10.1080/0034340032000108831>
- Martin, R., & Sunley, P. (2011). Conceptualizing cluster evolution: Beyond the life cycle model? *Regional Studies*, 45(10), 1299–1318. <https://doi.org/10.1080/00343404.2011.622263>
- Martin, R., & Sunley, P. (2015). Towards a developmental turn in evolutionary economic geography? *Regional Studies*, 49(5), 712–732. <https://doi.org/10.1080/00343404.2014.899431>
- Martin, R., Sunley, P., Gardiner, B., & Tyler, P. (2016). How regions react to recessions: Resilience and the role of economic structure. *Regional Studies*, 50(4), 561–585. <https://doi.org/10.1080/00343404.2015.1136410>
- Mazzucato, M. (2016). From market fixing to market-creating: A new framework for innovation policy. *Industry and Innovation*, 23(2), 140–156. <https://doi.org/10.1080/13662716.2016.1146124>
- McAdam, M., McAdam, R., Dunn, A., & McCall, C. (2016). Regional horizontal networks within the SME agri-food sector: An innovation and social network perspective. *Regional Studies*, 50(8), 1316–1329. <https://doi.org/10.1080/00343404.2015.1007935>
- McCann, P. (2020). Perceptions of regional inequality and the geography of discontent: Insights from the UK. *Regional Studies*, 54(2), 256–267. <https://doi.org/10.1080/00343404.2019.1619928>
- Ministero della Salute. (2020). *Covid-19 – Situazione in Italia*. Retrieved July 15, 2020, from <http://www.salute.gov.it/portale/nuovocoronavirus>
- Mooney, H., & Zegarra, M. A. (2020). Extreme outlier: The pandemic's unprecedented shock to tourism in Latin America and the Caribbean. In Djankov S. and Panizza U. (Eds.), *COVID-19 in developing economies*. CEPR Press.
- Morita, H., Nakamura, S., & Hayashi, Y. (2020). *Changes of urban activities and behaviors due to COVID-19 in Japan*. SSRN 3594054.
- Morrison, A., & Doussineau, M. (2019). Regional innovation governance and place-based policies: Design, implementation and implications. *Regional Studies, Regional Science*, 6(1), 101–116. <https://doi.org/10.1080/21681376.2019.1578257>
- Nathan, M. (2020). *The city and the virus*. Medium.com. Retrieved June 26, 2020, from <https://medium.com/@maxnathan/the-city-and-the-virus-db8f4a68e404>
- Neilson, J., Pritchard, B., & Yeung, H. W. C. (2014). Global value chains and global production networks in the changing international political economy: An introduction. *Review of International Political Economy*, 21(1), 1–8. <https://doi.org/10.1080/09692290.2013.873369>
- Organisation for Economic Co-operation and Development (OECD). (2017). *The next production revolution: Implications for governments and business*. OECD Publ.
- Organisation for Economic Co-operation and Development (OECD). (2020a). *OECD economic outlook, June 2020 – The world economy on a tightrope*. Retrieved July 7, 2020, from <https://www.oecd.org/economic-outlook/>
- Organisation for Economic Co-operation and Development (OECD). (2020b). *Cities policy responses*, 13 May. Retrieved from <http://www.oecd.org/coronavirus/policy-responses/cities-policy-responses-fd1053ff/>
- Organisation for Economic Co-operation and Development (OECD). (2020c). *Coronavirus (Covid-19): SME policy responses*, 19 May. Retrieved from <http://www.oecd.org/coronavirus/policy-responses/coronavirus-covid-19-sme-policy-responses-04440101/>
- Organisation for Economic Co-operation and Development (OECD). (2020d). *Tourism policy responses to the coronavirus (COVID-19)*, 2 June. Retrieved from <https://www.oecd.org/coronavirus/policy-responses/tourism-policy-responses-to-the-coronavirus-covid-19-6466aa20/>
- Organisation for Economic Co-operation and Development (OECD). (2020e). *Policy implications of coronavirus crisis for rural development*, 16 June. Retrieved from https://read.oecd-ilibrary.org/view/?ref=134_134479-8kq0i6epcq&title=Policy-Implications-of-Coronavirus-Crisis-for-Rural-Development
- Organisation for Economic Co-operation and Development (OECD). (2020f). *The territorial impact of COVID-19: Managing the crisis across levels of government*, 16 June. Retrieved from <http://www.oecd.org/coronavirus/policy-responses/the-territorial-impact-of-covid-19-managing-the-crisis-across-levels-of-government-d3e314e1/>
- Organisation for Economic Co-operation and Development (OECD). (2020g). *Coronavirus (COVID-19): SME policy responses*. Retrieved July 8, 2020, from <http://www.oecd.org/coronavirus/policy-responses/coronavirus-covid-19-sme-policy-responses-04440101/>
- Parkinson, M. (2020). *After COVID-19: Is Liverpool still beyond or back on the brink?* Heseltine Institute for Public Policy, Practice and Place.
- Peck, J. (2003). Fuzzy old world: A response to Markusen. *Regional Studies*, 37(6–7), 729–740. <https://doi.org/10.1080/0034340032000108813>
- Percoco, M. (2016). Health shocks and human capital accumulation: The case of Spanish flu in Italian regions. *Regional Studies*, 50(9), 1496–1508. <https://doi.org/10.1080/00343404.2015.1039975>
- Pike, A. (Ed.). (2009). *Whither regional studies?* Routledge.
- Rasel, S., Abdulhak, I., Kalfadellis, P., & Heyden, M. L. (2020). Coming home and (not) moving in? Examining reshoring firms' subnational location choices in the United States. *Regional Studies*, 54(5), 704–718. <https://doi.org/10.1080/00343404.2019.1669784>
- Rocchetta, S., & Mina, A. (2019). Technological coherence and the adaptive resilience of regional economies. *Regional Studies*, 53(10), 1421–1434. <https://doi.org/10.1080/00343404.2019.1577552>
- Rocchetta, S., Mina, A., Lee, C., & Kogler, D. F. (2019). *Technological knowledge spaces and the resilience of European regions* (DRUID Conference Paper). Retrieved from https://conference.druid.dk/acc_papers/i181bcm5aoae1zq244gqvo5uz1q7tk.pdf
- Rodríguez-Pose, A. (2018). The revenge of the places that don't matter (and what to do about it). *Cambridge Journal of Regions, Economy and Society*, 11(1), 189–209. <https://doi.org/10.1093/cjres/rsx024>
- Rodríguez-Pose, A., & Crescenzi, R. (2008). Research and development, spillovers, innovation systems, and the genesis of regional growth in Europe. *Regional Studies*, 42(1), 51–67. <https://doi.org/10.1080/00343400701654186>
- Rosés, J., & Wolf, N. (2018). *Regional economic development in Europe, 1900–2010: A description of the patterns* (CEPR Discussion Paper No. DP12749).

- Rutten, R. (2019). Openness values and regional innovation: A set-analysis. *Journal of Economic Geography*, 19(6), 1211–1232. <https://doi.org/10.1093/jeg/lby061>
- Rychen, F., & Zimmermann, J. B. (2008). Clusters in the global knowledge-based economy: Knowledge gatekeepers and temporary proximity. *Regional Studies*, 42(6), 767–776. <https://doi.org/10.1080/00343400802088300>
- Scott, M. (2020). Covid-19, place-making and health. *Planning Theory and Practice*, 21(3). <https://doi.org/10.1080/14649357.2020.1781445>
- Sotarauta, M. (2018). Smart specialization and place leadership: Dreaming about shared visions, falling into policy traps? *Regional Studies, Regional Science*, 5(1), 190–203. <https://doi.org/10.1080/21681376.2018.1480902>
- Storper, M. (1997). *The regional world: Territorial development in a global economy. Perspectives on economic change*. Guilford.
- Suire, R. (2019). Innovating by bricolage: How do firms diversify through knowledge interactions with FabLabs? *Regional Studies*, 53(7), 939–950. <https://doi.org/10.1080/00343404.2018.1522431>
- The Economist*. (2020). Testing times: African countries are struggling to keep track of Covid-19. *The Economist*, 20 June. https://www.economist.com/middle-east-and-africa/2020/06/20/african-countries-are-struggling-to-keep-track-of-covid-19?utm_campaign=coronavirus-special-edition&utm_medium=newsletter&utm_source=salesforce-marketing-cloud&utm_term=2020-06-20&utm_content=article-link-4
- Turok, I., Bailey, D., Clark, J., Du, J., Fratesi, U., Fritsch, M., Harrison, J., Kemeny, T., Kogler, D., Lagendijk, A., & Mickiewicz, T. (2017). Global reversal, regional revival? *Regional Studies*, 51(1), 1–8. <https://doi.org/10.1080/00343404.2016.1255720>
- United Nations World Tourism Organization (UNWTO). (2020). *International tourist numbers could fall 60–80% in 2020* (Report). Retrieved July 30, 2020, from <https://www.unwto.org/news/covid-19-international-tourist-numbers-could-fall-60-80-in-2020>
- Vallance, P., Tewdwr-Jones, M., & Kempton, L. (2019). Facilitating spaces for place-based leadership in centralized governance systems: The case of Newcastle City futures. *Regional Studies*, 53(12), 1723–1733. <https://doi.org/10.1080/00343404.2019.1598620>
- Voigtländer, N., & Voth, H. J. (2013). The three horse men of riches: Plague, war, and urbanization in Early Modern Europe. *Review of Economic Studies*, 80(2), 774–811. <https://doi.org/10.1093/restud/rds034>
- Wang, M., Derudder, B., & Liu, X. (2019). Polycentric urban development and economic productivity in China: A multiscalar analysis. *Environment and Planning A: Economy and Space*, 51(8), 1622–1643. <https://doi.org/10.1177/0308518X19866836>
- Whittle, A., & Kogler, D. F. (2020). Related to what? Reviewing the literature on technological relatedness: Where we are now and where can we go? *Papers in Regional Science*, 99(1), 97–113. <https://doi.org/10.1111/pirs.12481>
- Williamson, E., Walker, A. J., Bhaskaran, K. J., Bacon, S., Bates, C., Morton, C. E., & Cockburn, J. (2020). OpenSAFELY: Factors associated with COVID-19-related hospital death in the linked electronic health records of 17 million adult NHS patients. *MedRxiv*.
- Women's Budget Group. (2020). New data reveals 'crisis of support' for BAME women. Retrieved July 9, 2020, from <https://wbg.org.uk/media/new-data-reveals-crisis-of-support-for-bame-women/>
- World Bank. (2020). The global economic outlook during the COVID-19 Pandemic: A changed world. Retrieved July 7, 2020, from <https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world>
- Wu, J. T., Leung, K., & Leung, G. M. (2020). Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: A modelling study. *Lancet*, 395(10225), 689–697. [https://doi.org/10.1016/S0140-6736\(20\)30260-9](https://doi.org/10.1016/S0140-6736(20)30260-9)
- Yeung, H. W. C. (2015). Regional development in the global economy: A dynamic perspective of strategic coupling in global production networks. *Regional Science Policy and Practice*, 7(1), 1–23. <https://doi.org/10.1111/rsp3.12055>
- Yoo, Y., Boland, R. J. Jr., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization Science*, 23(5), 1398–1408. <https://doi.org/10.1287/orsc.1120.0771>