Regional Studies

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/cres20

# Regions in Covid-19 recovery

David Bailey, Riccardo Crescenzi, Elisa Roller, Isabelle Anguelovski, Ayona Datta & John Harrison

**To cite this article:** David Bailey, Riccardo Crescenzi, Elisa Roller, Isabelle Anguelovski, Ayona Datta & John Harrison (2021) Regions in Covid-19 recovery, Regional Studies, 55:12, 1955-1965, DOI: 10.1080/00343404.2021.2003768

**To link to this article:** https://doi.org/10.1080/00343404.2021.2003768



Published online: 01 Dec 2021.

REGIONAL STUDIES
2021, VOL. 55, NO. 12, 1955–1965
https://doi.org/10.1080/00343404.2021.2003768

Routledge Taylor & Francis Group
RSA Regional Studies Association

URBAN AND REGIONAL HORIZONS



# Regions in Covid-19 recovery

David Bailey[a], Riccardo Crescenzi[b], Elisa Roller[c], Isabelle Anguelovski[d], Ayona Datta[e] and John Harrison[f]

**ABSTRACT**

Covid-19 is undoubtedly a regional crisis, spatially uneven in its impacts. While it is too soon to talk about a transition 'from pandemic to recovery', with attention switching to regional development priorities and the implications of Covid-19 on regional policy, planning and development, increasingly we will need to focus on regions in their recovery phase. In this article we ask four leading researchers what this recovery phase will mean for regions. Opening the way for future discussion perspectives on regional economic recovery, resilience planning, building healthy and just places, and overcoming the 'shadow' pandemic indicate how this recovery phase is unfolding and what we would benefit from doing differently to 'build back better' and overcome 'wicked problems' preventing more inclusive, just and sustainable regional futures.

**KEYWORDS**

Covid-19; pandemic; crisis; regional policy; build back better; regional futures

**JEL** R11, R58

**HISTORY** Received 21 September 2021; in revised form 28 October 2021

## INTRODUCTION: REGIONS IN CRISIS TO REGIONS IN RECOVERY

As we write (September 2021), the cumulative number of Covid-19 cases reported globally has exceeded 228 million, with the number of recorded deaths already approaching 4.7 million. The global number of new weekly Covid cases reported is some 3.8 million in mid-September (World Health Organization (WHO), 2021). What is clear is that the Covid-19 pandemic is not going away, certainly not anytime soon, which makes the increasing use of the 'post-Covid' phrasing appear somewhat premature. This said, there has been a noteworthy and important shift during 2021 towards the question of recovery. And while it is far too simple to talk about a transition 'from pandemic to recovery', there is a pressing need to understand what recovery should look like for people and places immediately, as well as in some specified short-, medium- and long-term scenarios. This is because while the seeds of recovery are already being sown, any post-Covid hopes are also tempered by claims of a here-to-stay global 'infectious disease problem'. It is a recognition that for decades, rapidly developing and urbanizing regions have been creating more opportunities for outbreaks to occur, their increasing global connectivity has then been contributing to the spread of infectious diseases, and – without the right social, political and technical infrastructures being in place – they often stifle attempts at containment (Connolly et al., 2021). A regional recovery *from* Covid-19 will therefore likely need to be a regional recovery *with* Covid or other infectious diseases, and where the relationship between public health infrastructure and

**CONTACT**

[a] d.g.bailey@bham.ac.uk
Birmingham Business School, University of Birmingham, Birmingham, UK.
[b] r.crescenzi@lse.ac.uk
Department of Geography and Environment, London School of Economics, London, UK.
[c] elisa.roller@ec.europa.eu
Recovery and Resilience Task Force, European Commission, Brussels, Belgium.
[d] isabelle.anguelovski@uab.cat
ICREA (Institució Catalana de Recerca i Estudis Avançats), Universitat Autònoma de Barcelona (UAB), Barcelona, Spain.
[e] a.datta@ucl.ac.uk
Department of Geography, University College London, London, UK.
[f] **(Corresponding author)** j.harrison4@lboro.ac.uk
Geography and Environment, Loughborough University, Loughborough, UK.

urban and regional infrastructure is absolutely critical (Addie et al., 2020; Connolly et al., 2021).

As reported one year ago (Bailey et al., 2020; Organisation for Economic Co-operation and Development (OECD), 2020), the crisis remains a regional one, spatially uneven in its impacts. A little over 18 months since the first case of Covid-19 was recorded in Wuhan – one of the world's sprawling megaregions – 57% of confirmed cases in China remain registered to a single region, Hubei (Statista, 2021). In Brazil, São Paolo continues to account for 25% of deaths in Brazil.[1] However, whereas a year ago we were highlighting how in Italy, Lombardy was registering the highest number of cases (16% of the population, but 47% of cases) (Bailey et al., 2020) the situation today demonstrates the dynamic regional geographies of the pandemic: the number of cases in Lombardy has continued to increase (now 850,000); however, as the Covid virus spread to other regions, Lombardy retains the highest number of cases but this now represents a smaller share (20%) of the total cases since the start of the pandemic.[2]

For the most part, research has focused on the unfolding regional geographies of the crisis and the spatial factors that help explain why some regions have been affected more than others (Bourdin et al., 2021; OECD, 2020). This has been aided and abetted by one of the standout features of the Covid-19 crisis, which has been the amount of open access regional 'big data' published online via country-level dashboards tracing the crisis as it unfolded in real time (Dodds et al., 2020). Research has therefore been quick to consider the impact of factors such as density (of people, housing, international links), deprivation, housing conditions, health system capacity, pre-existing health conditions, political leadership, crisis preparedness, lockdowns, and so on, on the spread of the virus (McCann et al., 2021b; Rodríguez-Pose & Burlina, 2021). Research has also been quick to start documenting the impacts on individual regions and the spatially uneven impacts both economically (e.g., for business models, employment, sectors) and politically (e.g., rescue and recovery packages, trust in government, vaccine rollouts) as well as implications for the nature of globalization (Vlados & Chatzinikolaou, 2021).

This is important work and will continue to be so, in large part because the data on which decisions are being based are imperfect and incomplete. We know that problems around data availability, access and standardization exist across space and time, and they are of political, technical and administrative making (Alan Turing Institute, 2021). As a research community we must be vigilant, questioning the reliability of the available data, especially when it comes to comparisons across regions. Moreover, there is an important question as we move forward into the recovery phase about whether, and to what extent, data variability of this magnitude can be tolerated – are coordinated regional, national and international responses even possible if there are issues of trust and truth in the accuracy of data reporting? With attention switching to the regional development priorities and implications of Covid-19 on regional policy, regional planning and regional development (McCann et al., 2021a), it is vital that we are critically examining these and other pressing questions.

In this article we asked four leading researchers in their respective fields to reflect on what this recovery phase will be for regions. The overarching aim is to stimulate debate around what recovery is likely to mean for regions. This is obviously a highly selective exercise given the considerable breadth and depth of regional research, but it does point towards the plurality of regional studies and the multiple regional futures being imagined. To this end, we present four perspectives reflecting prominent topics in regional studies: regional economies, trade, investment and digital futures (Riccardo Crescenzi); resilience, regional policy and European Union (EU) recovery plans (Elisa Roller); social and environmental justice, housing, transport and public space (Isabelle Anguelovski); and gender, inequalities, livelihoods and marginalization in the Global South (Ayona Datta). Each contribution approaches the idea of 'regions in recovery' with a threefold agenda: to document the knowledge we currently have about the regional impacts of the Covid-19 pandemic and if/how regions are beginning to recover; to outline what is expected, and being planned for, in the recovery phase; and finally, more critically, what would we benefit from doing differently in order to 'build back better' and overcome those 'wicked problems' standing in the way of more inclusive, just and sustainable regional futures.

## THE PATH TO ECONOMIC RECOVERY

In the economic crisis induced by Covid-19, public policies face new and fundamentally different challenges in their aim to promote recovery. Framework conditions are different from those of the past. Also new are the overarching policy targets, with digital and green transitions being top priorities. In this renewed policy context, regional policies for recovery need to be thought out creatively and seek new pathways for regional development and recovery at the intersection between global opportunities and local recovery. Research can play a fundamental role by offering policymakers tools that work in practice, by delivering concrete evidence-based answers to the pressing needs of people on the ground, and by supporting the generation of new economic opportunities. Impactful local policies matter well beyond the economy, given their impacts on political behaviour and support for international cooperation and integration.

### *What we know*

This economic crisis induced by Covid-19 is fundamentally different from the Great Recession. The latter crisis hit the economy when the process of global economic integration was at its peak with, for example, record-level global foreign direct investment (FDI) flows. Conversely, FDI flows had been in stagnation well before Covid-19, and geopolitical fragmentation was already a dominant feature of the global economy. The pattern of winners

and losers is also different. In 2009, a generalized contraction of economic activity and employment was recorded in virtually all sectors and regions. The economic crisis triggered by Covid-19 is unprecedented in terms of the heterogeneity of its impacts across sectors (some hugely damaged such as tourism, others booming such as pharmaceutical), territories (see the highly heterogeneous patterns in the adoption of work-from-home, for example) and skills and income groups. But what differs the most is the public policy response. Austerity was the cornerstone of the public policy response to the Great Recession, with significant cuts in public expenditure in virtually all areas of public intervention. Conversely, the Covid-19 economic crisis is being addressed by means of an unprecedented boost in public spending coupled by a fundamental shift in the policy paradigm and the re-definition of the boundaries of industrial policies. This fundamental shift in the public policy paradigm is a landmark feature of the public policy response to Covid-19. The EU Recovery Plan is mobilizing €750 billion through *NextGenerationEU*, together with a reinforced long-term EU budget (2021–27) of €1100 billion. In the United States the federal fiscal response has been estimated to be a record US $5.2 trillion.

This scenario changes in several fundamental ways the role and scope of regional policies. During the Great Recession regional policies were called in to compensate for radical cuts in national public expenditure and to address basic needs on a local level. In response to the pandemic, regional policies have been asked to deal with a different set of problems and have been offered new financial resources. A new generation of regional policies has been given the arduous task of dealing with multilayered inequalities in socio-economic opportunities, while also supporting inclusive digital and green transitions in all territories. Also, in the case of the EU Cohesion Policy, regional policies have been given a new explicit target to deal with internationalization, global value chains (GVCs) and their evolution. With this new set of objectives, resources and tools, regional policies (in all their forms) are asked to contribute to a green and digital future for all territories.

## Where we are heading

In both Europe and the United States we are headed towards a green and digital recovery. The EU and United States are convergent in their recovery plans: sustainability and digitalization should take centre stage in the process of 'building back better' after Covid-19. However, new empirical evidence – based on the analysis of decades of experience under EU Cohesion Policy – suggests that digital and green policies are also inherently more difficult to design and implement vis-à-vis more traditional interventions (e.g., existing infrastructural projects) (Crescenzi et al., 2021b). Consequently, they might be more prone to implementation delays. Slower implementation clearly stands in opposition to the need of a timely response to the labour market 'scar' of the pandemic. In addition, delays and implementation difficulties are more common in less developed regions, where public governance and managerial practices are often weaker. This suggests that digital and green opportunities might come with new challenges for territorial inclusiveness and regional policies.

## Where should we be headed

If the opportunities offered by a digital and green recovery might not easily reach the areas that need them the most, how should we approach regional policies for recovery? We need to think about internationally open policies that target – at the local level – new opportunities offered by a changing global economic landscape. GVCs and global investment flows (GIFs) in all forms are evolving in response to Covid-19. Well before the Covid-19 shock, regions needed to link to GVCs and GIFs in new ways to seek new developmental pathways (Crescenzi et al., 2018). Covid-19 has produced an unprecedented 'globalization shock', accelerating several pre-existing trends. Regions need tools that work in practice to support their search for new markets, innovation opportunities and upgrading patterns. As an example, the development of new linkages between local competitive advantage and the global economy is made possible by the activity of regional investment promotion agencies (IPAs). They have been shown to work remarkably well in attracting FDI (in particular knowledge-intensive investment) towards less developed regions (Crescenzi et al., 2021a). Here impact comes from regional IPAs that act as localized institutional plumbers that support the development of supportive ecosystems at the local level. However, many advanced and emerging economies only deal with investment promotion at the national level, often overlooking the coordination between national and regional IPAs and their industrial policies and recovery packages. This is just one example of how public policies and regional policies need to think out of the box by leveraging well-tested tools to adapt to a changing global landscape.

Unfortunately, very sophisticated diagnoses of the functioning of regions are not matched by well-tested medications. Regions have been told by scholars, and very rightly so, to invest more in innovation, to increase and improve their human capital, and to reinforce their institutions. However, if all regions were adept at following such recommendations, these problems would not exist today. The key question for regional economies in the face of the crisis triggered by the Covid-19 pandemic is how to achieve these goals in practice. To achieve higher growth, more sustained job creation and, ultimately, higher resilience, more research is needed precisely on how regional policies work in practice. Research needs to explore what works, when, where, for whom and under what conditions – what I would call the 'five W's' of regional policy for recovery. What regions need is gradual, transparent, evidence-based policy learning, to guide regional recovery through actions for digital and green transitions.

Regional policies that work matter, and not solely in terms of economic outcomes. The ability to design and implement policies that generate tangible impacts is of

crucial importance for the sustainability of the process of global economic integration in Europe and beyond, bringing socio-economic benefits to more and more people across the globe (Crescenzi et al., 2020). But this also matters to keep discontent and populism at bay. It is not really about the money. It is not the magnitude of public expenditure triggered by recovery actions that will matter for political cohesion. It is impact that matters. It is what people see and perceive in terms of economic opportunities made available to them. And this becomes even more important in a time of unprecedented crisis and growing inequalities. This is one more reason why research on tools that maximize impacts should be a key component of an ambitious agenda for regions in recovery.

## EU RECOVERY AND RESILIENCE PLANNING

The Covid-19 crisis has had an unprecedented impact on the EU economy. In contrast to previous global economic crises, the Covid-19 crisis has hit regions in different ways. It has presented policymakers with unprecedented challenges but also unique opportunities. As we enter the 'new normal', whatever that might mean in the post-pandemic phase, and while regions and member states slowly emerge from successive intense periods of lockdown, this next period of challenges and opportunities pose a turning point for regional economic development policies throughout the EU.

### *What we know*

The EU's Recovery and Resilience Facility, endorsed by the July 2020 European Council, is the centrepiece of *NextGenerationEU* and will make available €672.5 billion in loans and grants to support reforms and investments undertaken by member states. It will help Europe in recovering from the adverse effects of the Covid-19 crisis on its economies and contribute to achieving climate, environmental and social sustainability goals.

The facility will support both reforms and investments as a comprehensive package. By providing large-scale financial support, it offers an unprecedented opportunity to speed up the recovery and helps prepare the grounds for the twin transitions. National recovery and resilience plans will have to meet binding climate (37%) and digital targets (20%). The Recovery and Resilience Facility works through grants and loans, with member states required to reach specific milestones and targets (set out in their plans) to receive payments from the facility.

Each member state's maximum financial contribution is calculated based on population, gross domestic product (GDP) per capita, relative unemployment rate, as well as changes in GDP during the Covid-19 crisis (2020, 2020–21). Member states are also encouraged to seize the opportunity by implementing reforms and investments that address their country-specific recommendations.

### *Where we are heading*

The EU's Recovery and Resilience Facility can help different types of regions hit by the Covid-19 pandemic in different ways. For example, *regions with high level of micro-enterprises and self-employed*, in particular in the Mediterranean and Southeast Europe, face particular difficulties as a result of the Covid-19 crisis. The support given by member state governments to the different economic sectors has tended to focus on large businesses (e.g., the airline sector) with less direct support for small and medium-sized enterprises (SMEs) and the self-employed. Micro-enterprises have less capacity and financial means to absorb the shock, with fewer cash reserves, less access to finance and with less possibility for small business owners to diversify quickly or find alternative forms of employment. With its 20% digital target, with the Recovery and Resilience Facility member states can focus on digitalization for SMEs, such as improving digital skills for workers in the tourism sector (Croatia) or horizontal support schemes through digitization packages for technical innovation and business process for SMEs (Spain, Greece or Portugal). With more and more customers turning to online shopping, small businesses have been obliged to adopt new digital solutions to keep customers purchasing goods and services.

The Covid-19 crisis has also coincided with growing political consensus about the need for a profound energy transition, and this has been particularly felt by *regions faced with the challenge of the energy transition*, in Central and Eastern Europe (CEE) in particular. Europe's vulnerability to energy crises has prompted significant action in the period since the World Energy Council (2008, p. 2) declared, 'The growing dependency of Europe as a whole on energy imports and anticipated further increases in energy prices reinforce the concerns about meeting the energy demand in the future.' As part of the European Green Deal, the European Commission proposed in September 2020 to raise the 2030 greenhouse gas emission reduction target, including emissions and removals, to at least 55% compared with 1990 (European Commission, 2020). This will enable the EU to move towards a climate-neutral economy and implement its commitments under the Paris Agreement. For some member states and regions, the Covid-19 crisis has coincided with important challenges in the energy transition, whether the transition away from fossil fuels, the uptake of renewables or the reduction of emissions. This has been felt acutely, because of the Covid-19 crisis, with rising energy prices reaching as much as by 30% in many regions (Eurostat, 2020).

For regions facing particular challenges in the energy transition, the Recovery and Resilience Facility is able to provide support in fostering energy efficiency, heat and renewable energy to decarbonize the energy sector as well as to increase energy efficiency in industrial production processes of energy-intensive manufacturing industry (Poland, Croatia and Romania). Major investments in Italy (hydrogen, biomethane, offshore renewables and smart grids) or Spain (on renewables,

including on islands, storage and renewable hydrogen) will help facilitate the energy transition. These investments and reforms can help spur on Europe's ambitions for carbon neutrality and secure energy supply.

For *regions with high reliance on tourism* (e.g., Mediterranean and Alpine areas) tourism has been one of the hardest hit industries throughout the Covid-19 pandemic. The tourism sector, according to estimates by the United Nations World Tourism Organization (UNWTO), suffered losses of around €1 billion per month in the EU alone (European Parliament, 2020). Images of closed travel agencies, deserted airports, empty hotel infrastructure on the Canary Islands, or tourist attractions impacted by Covid-19 in Strasbourg, Rome, Barcelona and Prague were seen across the world. The road to recovery will differ in speed and extent between areas with major regional and national recreation compared with those with a strong focus on international tourism. The type of tourism (event, mass, relaxation and nature), accessibility to the area (which travel routes are open and what capacity there is), overall reliance on tourism (major or minor part of the economic mix) and consumer choice (destinations that are seen as safe or risky) will all play a role in the recovery as well (European Committee of the Regions, 2020). For example, there could be a shift by Southern Mediterranean countries to move into more lucrative tourist activities as doubts increase about the sustainability of the mass market. Opposition by locals to mass tourism has led local authorities in cities such as Venice and Barcelona to consider scaling back the reliance of their local economies on tourism. In this respect, the Recovery and Resilience Facility can support this transition towards greater sustainability by developing new models of tourism that offer more diversified tourism products.

*Regions with a high reliance on international trade and supply chains* (e.g., large parts of CEE, but also other regions) have been most heavily affected by lockdowns and restrictions in other parts of Europe or the world. Regions with a high proportion of businesses that are highly dependent on importing certain essential components and/or exports to international markets (e.g., the automotive industry) have been impacted most, particularly with the additional impact from disrupted transport connections (European Committee of the Regions, 2020). The more a region's economic fabric relies on international trade for goods, the more its industry suffered from restrictions resulting from the outbreak of Covid-19. The EU automotive industry suffered production losses of 3.6 million vehicles during the first six months of 2020 due to the Covid-19-enforced shutdown of factories, which amounted to a reported loss of €100 billion. By September 2020 production losses had increased to over 4 million vehicles; or to put it another way, nearly one-quarter of total EU production in 2020. For the labour force employed by the EU automotive industry, the shutdown of factories between March and May 2020 affected more than 1.1 million jobs (de Vet et al., 2021).

These types of regions are particularly susceptible to disruptions in trade between different EU regions. For these regions, the Recovery and Resilience Facility provides the possibility to boost competitiveness and industrial sustainability by promoting the transformation of strategic sectors that are key for the industrial transition, such as automotive or technological sectors (Spain and Germany).

The different typology of regional impacts outlined above is certainly not intended to be exhaustive but serves simply to demonstrate the differentiated impacts that the Covid-19 pandemic has had. To be effective, policy responses must take into account not just how regions have responded to the crisis, but also set in motion the right mix of policy choices, both in terms of reforms and investments, to develop more sustainable models of regional economic development.

## Where should we be headed

Policymakers – be they national governments, local and regional authorities, EU institutions – need input by the research community to continue to identify the factors that determine regional responses to the effects of the Covid-19 pandemic. These include the regional responses to economic insecurities such as job losses, poverty and social inclusion. This also includes research into economic resilience, and why some regions bounce back from a 'shock' and others do not, with a particular focus on the green and digital transitions. It will also need to include research into infrastructure, and a focus on emerging and rapidly changing challenges of housing supply and transportation, with a particular focus on fast-growing urban areas. Immigration also plays a role with a particular focus on discovering what contributes to successful immigrant integration and what increases conflict. Last but not least, governance will have to focus on policymaking and how regional governance influences a region's resilience.

For the Recovery and Resilience Facility implementation to be successful, broad ownership and support will be crucial. The active involvement of local and regional authorities will be vital throughout all the stages of the implementation process, with the submission and approval of the national recovery plans only being the first step.

Since its inception with the European Council conclusions of July 2020, policy debates have focused on the extent to which local and regional authorities can play a role in the preparation and implementation of the different national recovery plans. Unlike EU Cohesion Policy, with a well-enshrined partnership principle, the Recovery and Resilience Facility is not subject to the same formal requirements of consultation. Nonetheless, implementing the Recovery and Resilience Facility will require member states to set up a strong governance structure, recognizing it will be vital to involve local and regional authorities, social partners, and civil society in putting the plans into practice in the years ahead. Only in this way will the plans be able to translate ambitious objectives into concrete policy initiatives that will benefit people and businesses on the ground.

## BUILDING BACK BETTER WITH HEALTHY AND JUST CITIES AND REGIONS

Cumulative social and environmental vulnerabilities combined with the Covid-19 virus have dramatically increased the risk of infection, mortality and overall poor health for working class residents, racialized minorities and immigrants. While much is being said about increasing cities' resilience to future outbreaks through measures including density reduction, pedestrianization and urban greening, more research needs to analyse how inequalities shape (1) the exposure, vulnerability, and eventually the risk and outcome of infectious diseases and (2) the potential for equitable recovery from Covid-19 and other related global changes, including climate change. Overall, the pandemic is an opportunity for cities to dramatically rethink use of housing, transport and public spaces in ways that would serve all citizens, especially the socially vulnerable.

### Housing

#### *What we know*

Despite lingering narratives that urban density aggravates outbreaks like Covid-19, home overcrowding and unsafe housing conditions have emerged as the real public health problem, coupled with socio-spatial inequalities (Cole et al., 2020; Mikolai et al., 2020). In spring 2020, the UK's five most crowded areas saw 70% more coronavirus cases than the five least crowded, where richer homeowners live in larger houses with extra bedrooms and bathrooms, reducing the risk of family infection. Furthermore, research has found that financial and housing precarity is also most prevalent among single-parent homes, while working-age adult homes with children are primarily confronted with employment and financial insecurities (Mikolai et al., 2020). At the same time, the pandemic has brought to light the intersectional vulnerabilities of essential workers – from fragile working conditions, precarious salaries and benefits, increased exposure to infections, and poor-quality housing (Cole et al., 2020). From a housing justice perspective, and to address both the spread of pandemics and climate change impacts (i.e., heat islands and flooding), cities and regions need affordable, adequate, secure and accessible housing that meets the needs of the most vulnerable.

#### *Where we are heading*

In view of the current health and economic crisis, cities and regions have rightfully declared a moratorium and/or a relief on rents, mortgages and evictions for vulnerable groups. Housing should also be more greatly decommodified, as in Vienna, where it is considered a basic human right. Recent progressive policies also include a minimal guaranteed income, as in Spain or the Netherlands. Another priority is for national governments to reverse decade-long cuts to housing infrastructure, especially public housing, as seen in the UK or the United States.

Cities with high levels of tourism- and expat-induced gentrification (Cocola-Gant & Lopez-Gay, 2020), such as Barcelona, Lisbon or Venice, face the compounded challenge of unsustainable economic model and inflated housing prices. Municipal and metropolitan governments should thus use the crisis as an opportunity to promote a renewed economic base while increasing housing justice. In Barcelona, the city council is already taking measures in that direction. In July 2020, Mayor Ada Colau announced payments of up to €1200 per month to landlords who agree to house vulnerable families. A few months later, in May 2021, Colau confirmed that 2329 social housing apartments were being built in the city (80% as rental units, across 34 buildings) to be completed by 2025.

### Transport

#### *What we know*

Public transit systems have been widely regarded as transmission hotspots and perceived as the riskiest transport modes (Barbieri et al., 2021). During the pandemic, many professional workers have been able to work remotely, while the wealthier of those who could not work remotely turned to private modes of transport during the height of the pandemic. Low-income workers are those who have no option but to use public transport – and have continued to resort to public transit systems – while being most exposed to infections, especially so in places with little or unregulated mask-wearing practices (Hu & Chen, 2021).

#### *Where we are heading*

As urban commuters travelling on public transport dropped significantly (e.g., by 88% in Paris between January and April 2020) and transit systems have far from regained pre-pandemic ridership levels, who will pay for the greater number of subway, tramway, and bus carriages and lines needed to improve the efficiency and safety of those systems? Many mass transport systems already have crumbling infrastructure: pre-Covid-19, transit agencies such as the MBTA in Boston were already suffering from acute budget constraints and losses, as illustrated by the US$36.5 million of budget deficit. Safe, efficient, just and affordable post-Covid mass transit requires investment in the construction of new cars and lines – a highly uncertain commitment unless national and regional departments of transportation heavily redirect funding to public transit.

To avoid public transport, more workers have already shifted much of their commute to foot, bike or electric scooters, taking advantage of the many extensions of sustainable mobility infrastructure built or reconfigured by cities (Nikitas et al., 2021). However, these new practices invite another environmental justice question: Who benefits from the types of short commute (up to 10 km) that make biking or walking feasible? Most of those commuters are workers living close to their workplace who can afford city living; middle- and upper-class residents are those enjoying the new bike and other active transport

infrastructure that cities such as Milan or Paris have built in their city centres. Paris, for example, has built a further 50 km of new bike lanes since the pandemic. In contrast, those living on the peripheries do not have the luxury to commute by bike or on foot, which calls for heavy investments in multimodal transit systems.

### Public space

#### *What we know*

Covid-19 has presented the opportunities for cities to take back public space from cars – with broader pavements, cycle lanes and less-congested roads – and to rethink its multiple benefits for residents (Honey-Rosés et al., 2020). But the car lobby and industry are a powerful force in setting political agendas and, in addition, public decision-makers are aware that in the EU alone, for instance, Covid-19 has put 1.1 million automobile manufacturing jobs at risk. To avoid losing short-termed political opportunities, some cities have moved quickly to reconfigure the use of streets as public spaces and, most recently, to convert temporary tactical urbanism interventions into more permanent solutions. Places such as Barcelona are taking advantage of the crisis to accelerate the decongestion of streets via Superblock and Green Axes plans, regain pedestrian rights, and push for safer post-Covid cities in terms of both infection and accident. Those municipal governments are thus tackling two simultaneous urban health crises: the Covid-19 pandemic and the increased in chronic heart and respiratory disease caused by air pollution.

#### *Where we are heading*

The move toward healthy cities and healthier public spaces is likely to be accompanied by a more serious effort to make cities greener – and equitably green. In Valencia and Nantes, decentralized networks of small green spaces are providing residents with easy access to nature for all residents without compromising access to larger parks. Many cities are also considering extended use of vacant spaces such as flat rooftops to be converted into community gardens and green space. While greening is an important measure to address environmental challenges, provide new health and social benefits, and help revitalize neighbourhoods, it can also be a vector of urban inequalities through processes of green gentrification and green privilege (Anguelovski & Connolly, 2022; Gould & Lewis, 2017). Greening should thus be accompanied – or pre-empted – by policy and planning interventions that combine anti-displacement measures and inclusive greening practices.

#### *Where should we be headed*

Housing, transport and public space are just three domains of urban infrastructure where changes to the urban environment could both address urban challenges linked to the pandemic while slowing widening inequalities. After decades of social injustices, discrimination and segregation placing working-class and racialized communities at greater health risk and economic disadvantage, those now face the further burden of the Covid-19 pandemic and its economic consequences. The urgency for change in these three domains is even greater in the Global South; the environmental justice principles are valid there too, although responses must be rooted in local context and priorities.

We need to avoid the emergence and spread of pandemics as much as we need to transform our societies and cities and their underpinning unequal economic structures. Are our cities and regions of the future landscapes of grandiose Leadership in Energy and Environmental Design (LEED)-certified and climate-resilient buildings and privatized parks serving the elite's interests? Or do we ensure that the existing infrastructure is repaired, strengthened and improved to serve all residents, especially the socially vulnerable?

In addressing those combined health and environmental challenges, research plays an essential role. First, researchers in urban and regional planning must highlight and actively communicate that some of the political and economic drivers behind urban and health injustice remain the same as before the pandemic, and must be targeted: speculative land-use practices, concentration of capital in the hands of elites, extreme housing commodification (versus housing as a social good and human right), structural racism and socio-spatial segregation. Research could also play a greater role in providing an intersectional justice-driven evaluation of new policy impact studies. Science has an important responsibility to illuminate the multiple vulnerabilities and risks those urban residents are facing, considering both pandemic and climate change impacts and focusing on historically marginalized groups. Last, research can contribute to building sustainable and alternative urban futures by uncovering innovative practices in care, health and well-being as well as alternative development models and community wealth creation.

## THE 'SHADOW' PANDEMIC

We are now expecting a third wave of the pandemic in the UK. But in many parts of the world, the second wave has not yet fully subsided. Each wave brings with it new concerns, and new inequalities that were so far invisible to governments, to policymakers and to society at large.[3]

#### *What we know*

In India, where I conduct most of my research, the first wave of Covid-19 brought into stark relief gender and class inequalities (Datta et al., 2021). The lockdown led to the suspension of all forms of public life. Roads, streets, highways, trains, buses and all forms of infrastructures that were related to movement were suspended, People were asked to stay at home, work from home and interact across screens. During the second wave in India, this was more pronounced as people struggled to get access to hospital beds, to oxygen cylinders, to essential medicines and so on. The infrastructures that sustained their very survival in the city had been withdrawn during the pandemic (Datta, 2020c).

In this crises, digital infrastructure has formed the building blocks of the Indian state's 'technological solutionism' (Kitchin, 2020) towards Covid-19. A total of 47 of the 100 Indian smart city command-and-control centres were redeployed as 'Covid War Rooms' from where data from all sorts of infrastructures were centralized and monitored. Across the world, and particularly in the Global South, this has nonetheless exacerbated the struggles in what Val Plumwood called the 'shadow places' (Plumwood, 2008) of development – in the slums, resettlement colonies, low-income and informal neighbourhoods. My argument today is that in a year of lockdowns, social distancing and uncertainty, a 'shadow pandemic' has emerged across two connected scales: domestic and regional.

### *Where we are heading*

The most intimate aspect of a pandemic is the exacerbation of gender-based marginalization in the home through broken links between social, economic and political dimensions of everyday life. This is particularly severe for marginalized women – labour migrants, gig workers, domestic workers, street vendors and so on. Poor women, sexual minorities, minority communities and migrant workers on the other side of the digital and infrastructural divide were unable to access essential online services or work from home, or report on domestic and other forms of violence under social distancing. This has had devastating impacts on women and sexual minorities in low-income neighbourhoods locked-in under impossible conditions of 'working from home'. With supply chains broken, lack of access to vital infrastructures of water, sanitation, energy and food, and with increased vulnerability to sexual assaults, the gendered impacts of the lockdown have been largely 'hidden' from most Covid-19 policies.

The second impact of this shadow pandemic has been on India's small cities and towns where migrants returned during the lockdown (Datta, 2020a). There is no denying that Covid-19 is an urban crisis in the way it has differential impacts on those in slums and informal settlements unable to quarantine or maintain social distancing. But second- and third-tier cities and towns in India are now paying a higher cost for Covid-19 than larger metropolises. Small cities have been unequal partners in India's urbanization with historically poor investment in infrastructure, planning and governance. Poor public health, sanitation, education and basic infrastructures combined with local governance deficits make them hotspots of infectious diseases. While bigger cities such as Delhi, Bangalore and Mumbai are receiving much attention during the Covid-19 crisis, there is now a humanitarian crisis unfolding in India's small towns and cities with no guarantees of food, livelihoods, healthcare or sustainable long-term futures.

Take a small city where we are working – Jalandhar. Under lockdown, Jalandhar's clothing and sports industries are hardest hit. The city's biggest second-hand clothes market is run almost exclusively by women migrants from Gujarat and Punjab. These women traders have survived evictions, arrests and court orders, but they now face an existential threat from lockdown. Next to them another clothes market run mainly by Dalit shopkeepers has survived devastating market fires in the past and faces continuing threats of eviction (Datta, 2019). These shop owners also employ migrant workers who would be returning to their home in the smaller cities in the region. On the outskirts of Jalandhar lies Qaji Mandi, a slum settled since the 1940s by migrant families from South India. Their women are mainly food and vegetable sellers, men are labourers, sweepers or small-time shop owners. Many there also lost their livelihoods during the lockdown.

The intimate and the regional are connected in this crisis – the former through immobility and the latter through a coerced mobility. Regional futures are governed by the conditions of lockdown in the home and domestic life is conditioned through the possibilities of maintaining regional supply chains for survival. The home that has for a long time been a workspace for women is now also the space of confinement for migrant men returning from larger cities. This home, which had been largely outside of public view, is also connected to the state and other public institutions (such as schools, colleges, non-governmental organizations – NGOs) through digital infrastructure. This home now provides the space of care of bodies ravaged by disease and broken infrastructures in metropolitan regions.

### *Where should we be headed*

We have learnt from the first and second waves of the pandemic that technological systems do not in themselves lead to survival and resilience (Datta, 2020b). Indeed, for marginal groups, it is not just Covid-19 but the exacerbation of accumulative violence across generations that is in fact currently threatening their survival. Attending to these survival infrastructures means understanding what Amin (2014, p. 137) notes as how and where 'infrastructures – visible and invisible – are deeply implicated in not only the making and unmaking of individual lives, but also in the experience of community, solidarity and struggle for recognition'. Under Covid-19, these are also infrastructures of care – networks of support, empathy, affect and volunteering – that are provisions of welfare and citizenship at the same time.

The nature of our response to the invisible crisis in smaller cities will determine the course of regional futures in a post-Covid context. This future lies not in the metropolitan cities, but in attending to the connected nature of marginalization's across intimate domesticities and rapidly urbanizing regions. If we recognize that, we will know that this virus has made the crisis of urbanization and migration visible like never before.

## CONCLUSIONS: WHAT KIND OF REGIONAL RECOVERIES FOR WHAT KIND OF REGIONAL FUTURES?

Recent months have seen the exceptional become the ordinary. From social distancing to widespread travel restrictions, new quarantine rules to lockdowns and

remote working, the significant shock of Covid-19 and its implications are becoming clearer for all to see. And yet, as attention switches to recovery, calls to pivot away from business-as-usual approaches and to 'grow back better' are clashing with structural forces opposed to significant change (Bailey & Tomlinson, 2021). Add in the global climate and migration crises, rise in populism, racial tensions and the #blacklivesmatter movement, geopolitical manoeuvrings by the United States, Russia, China and the EU, and the question on most people's lips is: What happens next?

Against this backdrop, regional studies are more vital than ever to inform public debate and invoke appropriate policy responses. Regional studies as a field of study has tools tailored to understanding the spatial impacts of significant shocks, be they economic, political, social or environmental. For this reason, regional research will once more spearhead major efforts to provide the type of reliable, robust knowledge necessary to support cities and regions in their recovery. Indeed, specialized knowledge of the local and regional context is going to be an even more valuable commodity when, as noted in the introduction, variability in data reporting is such a deep-rooted problem and exposes the data-dependent smart city technology seen by many to be the antidote to urban and regional problems (Clark, 2021). Yet that field of study may need a rethinking of our research priorities, theoretical frameworks and normative commitments, as Martin (2021) notes, if it is to contribute to 'building forward better' and making capitalism more equitable and sustainable. Covid-19 has taught us that the greater the change, the greater the disruption, but also the greater the disruption, the greater the chance of change.

As we look ahead though, it is critical that we consider fundamental questions about the significance of these changes, including: Which changes will ultimately endure? Which changes will be short-lived and fizzle away? Why is this and what are the implications for cities and regions? What does this tell us about the capacity for regional research to influence policy and affect meaningful societal change? Alongside continuing to map (and understand the reasons for) the unfolding regional geographies of Covid infections, and the uneven regional impacts resulting from this, the question of what kind of recoveries for what kind of regional futures is where attention needs to be focused.

## ACKNOWLEDGEMENTS

This paper originates from the opening plenary panel session at the 2021 Regional Studies Association (RSA) Global E-Festival, 2–18 June 2021. The authors thank the RSA for the invitation to organize and participate in this panel, the audience for their contributions, and Jennifer Clark for comments made on an earlier draft. Parts of Isabelle Anguelovski's contribution appeared in a previous International Institute for Environment and Development (IIED) blog post: 'COVID-19 highlights three pathways to achieve urban health and environmental justice' (https://www.iied.org/covid-19-highlights-three-pathways-achieve-urban-health-environmental-justice). Parts of this section also appeared in an Urban Transformations network (University of Oxford) blog post, 'COVID19 may be an urban crisis, but India's small cities will be its "collateral damage"' (https://www.urbantransformations.ox.ac.uk/blog/2020/covid19-may-be-an-urban-crisis-but-indias-small-cities-will-be-its-collateral-damage/), produced from these projects.

## DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors. The information and views set out in Elisa Roller's contribution, and the paper overall, are those of the authors and do not necessarily reflect the official opinion of the European Commission.

## FUNDING

Ayona Datta acknowledges funding from the Arts and Humanities Research Council (AHRC) [Grant Number AH/R003866/1], 'Gendering the Smart City', and Economic and Social Research Council (ESRC) [grant number ES/R006857/1], 'Learning from Small Cities', that produced the background data for this paper.

## NOTES

1. For the Brazilian government's Covid-19 dashboard, see https://covid.saude.gov.br/.
2. For the Italian government's Covid-19 dashboard, see https://opendatadpc.maps.arcgis.com/apps/dashboards/b0c68bce2cce478eaac82fe38d4138b1/.
3. For example, on South Africa, see Visagie and Turok (2021).

## ORCID

*David Bailey* http://orcid.org/0000-0002-1956-0556
*Riccardo Crescenzi* http://orcid.org/0000-0003-0465-9796
*Isabelle Anguelovski* http://orcid.org/0000-0002-6409-5155
*Ayona Datta* http://orcid.org/0000-0002-0360-5406
*John Harrison* http://orcid.org/0000-0002-6434-5142

## REFERENCES

Addie, J. P., Glass, M., & Nelles, J. (2020). Regionalizing the infrastructure turn: A research agenda. *Regional Studies, Regional Science*, *7*(1), 10–26. https://doi.org/10.1080/21681376.2019.1701543

Alan Turing Institute. (2021). *Data science and AI in the age of COVID-19*. https://www.turing.ac.uk/sites/default/files/2021-06/data-science-and-ai-in-the-age-of-covid_full-report_2.pdf

Amin, A. (2014). Lively infrastructure. *Theory, Culture & Society*, *31* (7–8), 137–161. https://doi.org/10.1177/0263276414548490

Anguelovski, I., & Connolly, J. J. T. (Eds.). (2022). *The green city and social injustice: 21 tales from North America and Europe*. Routledge.

Bailey, D., Clark, J., Colombelli, A., Corradini, C., De Propris, L., Derudder, B., Fratesi, U., Fritsch, M., Harrison, J., Hatfield, M., Kemeny, T., Kogler, D., Lagendijk, A., Lawton, P., Ortega-Argiles, R., Iglesias Ortera, C., & Usai, S. (2020). Regions in a time of pandemic. *Regional Studies*, *54*(9), 1163–1174. https://doi.org/10.1080/00343404.2020.1798611

Bailey, D., & Tomlinson, P. (2021). *Building back badly*. UK in a Changing Europe blog. https://ukandeu.ac.uk/industrial-strategy-building-back-badly/

Barbieri, D. M., Lou, B., Passavanti, M., Hui, C., Hoff, I., Antunes Lessa, D., Sikka, G., Chang, K., Gupta, A., & Fang, K. (2021). Impact of COVID-19 pandemic on mobility in ten countries and associated perceived risk for all transport modes. *PloS One*, *16*(2), e0245886. https://doi.org/10.1371/journal.pone.0245886

Bourdin, S., Jeanne, L., Nadou, F., & Noiret, G. (2021). Does lockdown work? A spatial analysis of the spread and concentration of Covid-19 in Italy. *Regional Studies*, *55*, 1182–1193. https://doi.org/10.1080/00343404.2021.1887471

Clark, J. (2021). *Solving for the city*. MIT Technology Review. https://www.technologyreview.com/2021/04/28/1023104/smart-cities-urban-technology-pandemic-covid/

Cocola-Gant, A., & Lopez-Gay, A. (2020). Transnational gentrification, tourism and the formation of 'foreign only' enclaves in Barcelona. *Urban Studies*, *57*(15), 3025–3043. https://doi.org/10.1177/0042098020916111

Cole, H. V. S., Anguelovski, I., Baró, F., García-Lamarca, M., Kotsila, P., Pérez del Pulgar, C., Shokry, G., & Triguero-Mas, M. (2020). The COVID-19 pandemic: Power and privilege, gentrification, and urban environmental justice in the global north. *Cities & Health*, 1–5. https://doi.org/10.1080/23748834.2020.1785176

Connolly, C., Keil, R., & Ali, S. H. (2021). Extended urbanisation and the spatialities of infectious disease: Demographic change, infrastructure and governance. *Urban Studies*, *58*(2), 245–263. https://doi.org/10.1177/0042098020910873

Crescenzi, R., Di Cataldo, M., & Giua, M. (2020). It's not about the money: EU funds, local opportunities, and Euroscepticism. *Regional Science and Urban Economics*, *84*, 103556. https://doi.org/10.1016/j.regsciurbeco.2020.103556

Crescenzi, R., Di Cataldo, M., & Giua, M. (2021a). FDI inflows in Europe: Does investment promotion work? *Journal of International Economics*, *132*, 103497. https://doi.org/10.1016/j.jinteco.2021.103497

Crescenzi, R., Giua, M., & Sonzogno, G. (2021b). Mind the Covid-19 crisis: An evidence-based implementation of next generation EU. *Journal of Policy Modeling*, *43*(2), 278–297. https://doi.org/10.1016/j.jpolmod.2021.03.002

Crescenzi, R., Harman, O., & Arnold, D. (2018). Move on up! Building, embedding and reshaping global value chains through investment flows: Insights for regional innovation policies. In *Background paper for OECD/European Commission workshop series on 'Broadening innovation policy: New insights for regions and cities'*. Organisation for Economic Co-operation and Development (OECD). https://www.oecd.org/cfe/regionaldevelopment/CrescenziHarman(2018)MoveOnUp.pdf

Datta, A. (2019). Why Smart City projects may not be enough to hold back Jalandhar's youth. *Citizen Matters*. https://citizenmatters.in/jalandhar-smart-city-promises-fail-to-attract-youth-13829

Datta, A. (2020a). COVID19 may be an urban crisis, but India's small cities will be its 'collateral damage' *Learning from Small Cities*. https://www.smartsmallcity.com/blog/2020/4/9/covid19crisis-smallcities

Datta, A. (2020b). Self(ie)-governance: Technologies of intimate surveillance in India under COVID-19. *Dialogues in Human Geography*, *10*(2), 234–237. https://doi.org/10.1177/2043820620929797

Datta, A. (2020c). Survival infrastructures under Covid-19. *Geography Directions*. https://blog.geographydirections.com/2020/05/13/survival-infrastructures-under-covid-19/

Datta, A., Aditi, A., Ghoshal, A., Thomas, A., & Mishra, Y. (2021). Apps, maps and war rooms: On the modes of existence of 'COVtech' in India. *Urban Geography*, *42*(3), 382–390. https://doi.org/10.1080/02723638.2020.1807165

de Vet, J. M., Nigohosyan, D., Nunez Ferrer, J., Gross, A.-K., Kuehl, S., & Flickenschild, M. (2021). *Impacts of the COVID19 pandemic on EU industries*. Publication for the Committee on Industry, Research and Energy, Policy. Department for Economic, Scientific and Quality of Life Policies, European Parliament. https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662903/IPOL_STU(2021)662903_EN.pdf

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

European Commission. (2020). *Stepping up Europe's 2030 climate ambition: Investing in a climate-neutral future for the benefit of our people*. COM/2020/562. https://knowledge4policy.ec.europa.eu/publication/communication-com2020562-stepping-europe%E2%80%99s-2030-climate-ambition-investing-climate_en

European Committee of the Regions. (2020). *Potential impacts of COVID-19 on regions and cities of the EU*. https://doi:10.2863/56992

European Parliament. (2020). *COVID-19 and the tourism sector*. European Union. https://www.europarl.europa.eu/RegData/etudes/ATAG/2020/649368/EPRS_ATA(2020)649368_EN.pdf

Eurostat. (2020). Change in electricity prices for non-household consumers compared with previous year, same semester, second half 2020 (%). https://ec.europa.eu/eurostat/statistics-explained/images/8/87/Change_in_electricity_prices_for_non-household_consumers_compared_with_previous_year%2C_same_semester%2C_second_half_2020_%28%25%29_v1.png

Gould, K. A., & Lewis, T. L. (2017). *Green gentrification: Urban sustainability and the struggle for environmental justice*. Routledge.

Honey-Rosés, J., Anguelovski, I., Chireh, V. K., Daher, C., Konijnendijk van den Bosch, C., Litt, J. S., Mawani, V., McCall, M. K., Orellana, A., & Oscilowicz, E. (2020). The impact of COVID-19 on public space: An early review of the emerging questions – Design, perceptions and inequities. *Cities & Health*, 1–17. https://doi.org/10.1080/23748834.2020.1780074

Hu, S., & Chen, P. (2021). Who left riding transit? Examining socioeconomic disparities in the impact of COVID-19 on ridership. *Transportation Research Part D: Transport and Environment*, *90*, 102654. https://doi.org/10.1016/j.trd.2020.102654

Kitchin, R. (2020). *Using digital technologies to tackle the spread of the coronavirus: panacea or folly?* (The Programmable City Working Paper). http://progcity.maynoothuniversity.ie/wp-content/uploads/2020/04/Digital-tech-spread-of-coronavirus-Rob-Kitchin-PC-WP44.pdf

Martin, R. (2021). Rebuilding the economy from the Covid crisis: Time to rethink regional studies? *Regional Studies, Regional Science*, *8*(1), 143–161. https://doi.org/10.1080/21681376.2021.1919191

McCann, P., Ortega-Argilés, R., Sevinc, D., & Cepeda-Zorrilla, M. (2021a). Rebalancing UK regional and industrial policy post-

Brexit and post-Covid-19: Lessons learned and priorities for the future. *Regional Studies*, 1–13. https://doi.org/10.1080/00343404.2021.1922663

McCann, P., Ortega-Argilés, R., & Yuan, P.-Y. (2021b). The Covid-19 shock in European regions. *Regional Studies*, 1–19. https://doi.org/10.1080/00343404.2021.1983164

Mikolai, J., Keenan, K., & Kulu, H. (2020). Intersecting household-level health and socio-economic vulnerabilities and the COVID-19 crisis: An analysis from the UK. *SSM – Population Health*, *12*, 100628. https://doi.org/10.1016/j.ssmph.2020.100628

Nikitas, A., Tsigdinos, S., Karolemeas, C., Koumpa, E., & Bakogiannis, E. (2021). Cycling in the era of COVID-19: Lessons learnt and best practice policy recommendations for a more bike-centric future. *Sustainability*, *13*(9), 4620. https://doi.org/10.3390/su13094620

Organisation for Economic Co-operation and Development (OECD). (2020). *The territorial impact of COVID-19: Managing the crisis across levels of government*. http://www.oecd.org/coronavirus/policy-responses/the-territorial-impact-of-covid-19-managing-the-crisis-across-levels-of-government-d3e314e1/

Plumwood, V. (2008). *Shadow places and the politics of dwelling*. Australian Humanities Review. http://australianhumanitiesreview.org/2008/03/01/shadow-places-and-the-politics-of-dwelling/

Rodríguez-Pose, A., & Burlina, C. (2021). Institutions and the uneven geography of the first wave of the COVID-19 pandemic. *Journal of Regional Science*, *61*(4), 728–752. https://doi.org/10.1111/jors.12541

Statista. (2021). Number of novel coronavirus COVID-19 infection, death and recovery cases in Greater China as of July 25, 2021, by region. https://www.statista.com/statistics/1090007/china-confirmed-and-suspected-wuhan-coronavirus-cases-region/

Visagie, J., & Turok, I. (2021). Rural–urban inequalities amplified by COVID-19: Evidence from South Africa. *Area Development and Policy*, *6*(1), 50–62. https://doi.org/10.1080/23792949.2020.1851143

Vlados, C., & Chatzinikolaou, D. (2021). Mutations of the emerging new globalization in the post-COVID-19 era: Beyond Rodrik's trilemma. *Territory, Politics, Governance*, 1–21. https://doi.org/10.1080/21622671.2021.1954081

World Energy Council. (2008). *Europe's vulnerability to energy crises*. World Energy Council. https://www.worldenergy.org/assets/downloads/PUB_Europes_Vulnerability_to_Energy_Crisis_2008-WEC.pdf

World Health Organisation (WHO). (2021). *Weekly epidemiological update on COVID-19*. https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19—27-july-2021