Introduction

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Productivity growth is central to the prosperity and development of a country and the issues surrounding productivity in the UK are particularly thorny, given the UK's longstanding poor productivity performance (McCann and Vorley 2020). Moreover, at the heart of the UK's poor overall productivity performance are enormous interregional imbalances in productivity, which nowadays are intertwined with both Brexit and the 'levelling up' agenda (McCann and Ortega-Argilés 2020). Yet, both the 'levelling up' agenda and the challenges associated with Brexit have recently been completely overtaken by the need to respond to the Covid-19 pandemic. At the time of writing in late summer 2020, the economic and societal shocks associated with the Covid-19 pandemic of 2020 are only beginning to be realised.

As nationally instituted firm support and labour furlough schemes begin to be withdrawn in most countries, the real economic effects of the crisis will increasingly become apparent. Widespread redundancies, bankruptcies, and capital shocks are increasingly evident in many sectors and parts of the economy, and these are likely to have long-lasting effects. The scale of the crisis in the UK is underscored by the fact that the prospects for the recovery of the economy as a whole are markedly more pessimistic than was even the case during the immediate aftermath of the global financial crisis (*Financial Times* 2020a; Judge and Pacitti 2020). The contraction in the UK during the second quarter of 2020 was greater than any of the UK's peer group of countries or major competitors (*Financial Times* 2020a), and UK public borrowing has reached the highest levels in peace-time history (*Financial Times* 2020b). The UK has already shed close to three quarters of a million jobs (*Financial Times* 2020c) and employment adverts have fallen by between two thirds and more than three quarters in many parts of the UK (BBC 2020). At present, mobility levels are recovering more slowly in the UK than in other countries (*The Economist* 2020), and in addition, workers in the UK and the US appear to be far more reluctant to return to the office than workers in other countries (*Financial Times* 2020d; *The Guardian* 2020). All in all, the prospect of a rapid and broad-based recovery remains unlikely (*Financial Times* 2020e), especially given that the UK economy will also have to absorb the likely addi-

tional shocks associated with Brexit (Dhingra and De Lyon 2020; McCann and Ortega-Argilés 2020).

Apart from the sheer scale of the crisis, the nature of the Covid-19 pandemic shocks are simply so varied and so pervasive across almost all aspects of life in ways that previous recessions have never been. The pandemic throws up challenges to all firms of economic and non-economic human interaction and challenges many of our basic assumptions regarding how we work, trade, educate, meet, care, travel, communicate, rest and recuperate, share, debate, design, govern, describe, talk and reflect. This complexity highlights the need to rebuild and recover from the crisis in a holistic way addressing issues of resilience, inclusiveness and sustainability, as well as productivity (OECD 2020).

During the months since the onset of the Covid-19 pandemic in early 2020 there have been large numbers of papers and commentaries published in different arenas on various aspects of the crisis, ranging from medical and scientific investigations, through to social, economic, environmental and political issues. Much of the real-time information is published in news-media outlets and official government websites, while many of the interpretations and analyses of the situation are found in magazines, online commentaries and social media. Many papers have been produced by academic researchers and published mostly on research websites and web-fora, with still relatively small numbers published in academic journals, simply due to the speed of the onset of the crisis and the ensuing disruption to so many aspects of our lives. As such, the scale of the crisis along with a lack of coordination between the rather disparate and ad hoc arenas in which information and knowledge emerges, makes it immensely difficult to develop an overall picture of what is happening now and even harder to assess the likely medium and long-term implications of the current realities.

The aim of this book is to partially address this gap as far as the questions of productivity, and UK productivity in particular, are concerned. The difficulties regarding the raising of productivity represent a profound challenge facing the whole of the UK economy and society as well as many other OECD economies. However, the productivity challenges facing the UK economy are particularly acute. Now, overlaid on the pre-existing challenges are those which have been thrown up by the Covid-19 crisis. As such, in order to understand the implications of the pandemic, it is therefore essential that our analyses build on the existing research and examine how the prior productivity challenges are likely to be exacerbated or mitigated by the pandemic. To date the analytical and empirical challenges involved in addressing the so-called UK 'productivity puzzle' have been examined in more depth and range by the *Productivity Insights Network*, a research network funded by the Economic

and Social Research Council, than by anyone else (see McCann and Vorley 2020).

Marshalling the capabilities and expertise of the *Productivity Insights Network*, we have put together a book comprised of twenty-one chapters, authored by forty-four experts, examining different aspects of how the Covid-19 pandemic is likely to impact on the UK economy, society and governance in the medium and long-term. Each individual chapter in this book examines these broad issues from a specific vantage point and through a particular lens. Together the edited collection provides deep insights and makes key connections, as well as articulating the emerging challenges. The chapters are ordered so as to provide a pathway through the issues and to provide a sequence of building blocks in order to provide in-depth insights that help us understand the emerging challenges.

In Chapter 1, Philip McCann and Raquel Ortega-Argilés discuss the likely sectoral and spatial impacts of the pandemic from perspective of the worldwide capital shocks engendered by the Covid-19 crisis and examine how these may impact on the UK economy. Their analysis suggests that the capital shocks associated with the Covid-19 crisis are likely to impact particularly severely on the small and medium-sized (SME) firm segments of the market along with the real estate sectors, especially in the weaker parts of the economy, thereby leading to even greater regional divergence.

These themes are then picked up in Chapter 2 by Richard Harris who examines the impacts of the crisis on the leading and lagging firms, examining the gaps between those operating at the frontiers of technology and knowledge from those which are not near these frontiers. His analysis points to greater monopoly positions of larger and global leading firms, alongside potentially greater vulnerability to global value-chain shocks and reduced creative destruction, with potential structural responses involving increased automation and reshoring as a means to overcome uncertainty.

The issue of uncertainty is examined in Chapter 3 by Vania Sena and Sumon Bhaumik who discuss the behaviour of firms under conditions of profound uncertainty. In particular, they analyse the ability of buyer and supplier firms to restructure their supply chains in response to profound shocks. Addressing these questions raises the importance of access to finance under conditions of severe capital constraints and the critical importance of ensuring that national government monetary policy is aligned with broader areas of industrial policy.

The themes of capital shocks and uncertainty are picked up in the following three chapters. Chapter 4 by Andrew Henley, Tim Vorley and Cristian Gherhes examines the implications of the crisis on the viability and resilience of micro-businesses. They observe that the national policy measures put in place to safeguard employment during the height of the Covid-19 crisis, may actually serve to maintain in business large numbers of firms whose productivity is

permanently very low. Finding ways to address the issues associated with the long tail of poor performing firms remains a critical challenge for the UK productivity performance, although the increased use of digitisation by firms during the lockdown may represent one step forward.

The issues surrounding start-up firms and also small scale-up firms are picked up in Chapters 5 and 6. Chapter 5 by Colin Mason and Michaela Hruskova examines the implications of the crisis for the entrepreneurial ecosystem and the potential forms of financing for firm start-ups and SMEs. The Covid-19 crisis is leading to a much more difficult environment for the raising of crucial entrepreneurial capital and also deprives both firms and investors of the critical knowledge-sharing and learning which is involved in different forms of business finance. While policy responses are required to mitigate these losses, the current approach has no real place-based logic to it, thereby ignoring the regional differences in the availability of capital. As we see in Chapter 6 by Colin Mason, these issues become particularly stark where the role of business angels are concerned. To date, government responses have focused overly on venture capital funds and have been too small and fragmented.

Taken together, this first group of six chapters provides a comprehensive account of the likely medium and long-term implications of the Covid-19 pandemic on the performance and behaviour of different types of firms in the context of the functioning of the wider national and international economy, and especially regarding the role of the likely capital shocks. Chapters 7–10 move on to examine specific features of the Covid-19 shocks to different dimensions of firms' operations and behaviour, along with their internal organisational and managerial relationships, also involving labour.

Chapter 7 by Stuart Mills, Richard Whittle and Gavin Brown discusses the nature and implications of the shift to greater online consumption, and in particular as it relates to sectors such as retailing and hospitality, and its implications for workers in these sectors. They highlight the disruptive role that new technologies are playing, exacerbated by the crisis, and argue that these same technologies may mean profound changes in business models in many sectors, requiring us to re-think how we re-train and re-skill the workers in these sectors to respond to the new realities.

The themes of skills are picked up in Chapter 8 by Anne Green who argues that emerging evidence points to some potential productivity improvements as we emerge from the lockdown. New patterns of working have been developed during the lockdown, and some aspects of these may be incorporated into the new ways that firms adapt to the new normal. However, the relationships, including trade-offs, between inclusivity and productivity, will become more important as the furlough schemes are withdrawn. As a key part of this is the challenge facing the skills-training system in the post-Covid-19 context.

The skills-training system will need to be able to adapt to the new realities and to be able to equip not only young people with the skills for the modern (post-Covid-19) economy, but also to better permit lifelong learning processes.

Chapter 9 by Daniel Kopasker discusses the wellbeing and mental health challenges arising from the Covid-19 lockdown, and in particular, the implications for good work. The quality of work has important implications for wellbeing, innovation and productivity, all of which are essential for driving a strong and long-lasting economic recovery. There have been some positive steps forward in terms of policy settings in this arena, and it is important that in the urgency of recovery from the crisis that such issues are not overlooked in favour of simply low-quality employment growth.

As Patricia Findlay, Colin Lindsay and Graeme Roy argue in Chapter 10, this depends in turn on the particular choices that business owners and managers make regarding the appropriate business models to deploy in the post-Covid-19 context. The effectiveness of the responses of firms both in the immediate recovery period and in the longer term will depend in part on how the firm's value-creation processes are reconsidered in the light of the pandemic, and how innovation is linked to workplace motivation, employee participation and stakeholder engagement.

The efforts of the government to mitigate the impacts of the Covid-19 pandemic mean that, as noted above, the economic and societal shocks associated with the crisis will continue to prevail. The implications of the pandemic on employers and employees has been profound and is likely to continue to have adverse impacts on work and employment. Chapters 11–14 examine the implications of the pandemic on different aspects of infrastructure, the built environment and the economic geography of the UK.

Chapter 11 by Iain Docherty, Greg Marsden, Jillian Anable and Tom Forth, argues that the recovery from the pandemic offers an opportunity to begin to make profound changes in our patterns of mobility. The crisis itself has provided insights and glimpses of alternative ways of organising work, leisure and travel relationships, and these immediate changes provide ways forward for us to think about more long-term systemic change. At the same time, the urgent need to drive an economic recovery may result in opposing pressures moving against more long-term viable solutions for addressing climate change.

Chapter 12 by Ben Gardiner, Richard Lewney and Ron Martin considers the sectoral and spatial impacts of the Covid-19 recession on the UK economy. They examine the evidence from previous UK recessions and use this to provide insights into the likely implications for today's recession. Their arguments strongly point towards greater regional divergence. In addition, they argue that there are various reasons why productivity may not recover, or at least may not improve, in the post-pandemic period, and that much will depend

on government policy, even without the challenges associated with Brexit looming large.

Chapter 13 by Robert Huggins and Piers Thompson examines how innovation processes focused on cities may be impacted by the types of shocks associated with Covid-19, which have markedly reduced commuting and face-to-face interaction. They argue that innovation will continue to be focused on cities in the post-Covid-19 context, although different cities and regions are likely to be impacted differently due to legacy effects. At the same time, the societal shocks associated with the pandemic and the lockdown opens up a broader set of questions which need to be considered, and greater experimentalism in entrepreneurship would be a key element.

Chapter 14 by Duncan MacLennan, Julie Tian Miao, Linda Christie and Jinqiao Long addresses the role played by housing markets in the productivity debates, and how the interactions between housing markets and other parts of the economy will be crucial for understanding the recovery process. While housing interacts with so many other aspects of the economy influencing productivity via various different channels, these linkages are often lost in policy thinking. Housing debates tend to focus on issues of affordability and accessibility while macroeconomic policy has a largely reductionist view of housing markets which ignore most of these economic interactions. The post-Covid-19 recovery of cities, in particular, will require a more sophisticated and nuanced discussion of the role played by housing in productivity.

The nature of these issues each serve in part to explain aspects of the interregional imbalances in productivity in the UK, and collectively serve to compound the challenge. The *Productivity Insights Network* has sought to emphasise the geographical nature of the productivity problem in the UK and highlight the complex geography of productivity. A problem that needs to be better understood in the levelling-up agenda is to prevail and culminate in a meaningful rebalancing of the UK economy. The next set of contributions, Chapters 15–17, consider some of the fundamental analytical and conceptual issues raised by the Covid-19 crisis.

Chapter 15 by Ekkehard Ernst discusses the challenges raised by some four decades of the prioritisation of efficiency, which has left many parts of our economic systems exposed to shocks. The societal impacts of Covid-19 have exposed weaknesses both in our systems and also in how we think about instilling robust productivity growth in our economic systems at the most fundamental levels. Modern discussions regarding rebuilding our economies in a more resilient manner therefore require us to think differently about how many aspects of our economic systems are organised and implemented. These differences are deep-seated and demand a reconsideration not only of systems of policy-making but also the conceptual frameworks which underpin our whole understanding of these issues.

Chapter 16 by Gary Dymski and Hanna Szymborska reflects on the shocks associated with both the Covid-19 pandemic and also the 2008 global financial crisis through the lens of the framework developed by Hyman Minsky. Minsky's analytical framework focused on the balance sheet positions of major institutions within the economy and how these interacted with the balance sheet behaviour of millions of households and firms. In US parlance, these two are characterised by 'Wall Street' and 'Main Street', and Dymski and Szymborska argue that during the previous crisis, while the policy focus was on supporting 'Wall Street', insufficient attention was paid to 'Main Street'. In turn, they argue that in the post-Covid-19 context, similar mistakes will weaken and slow down the productivity recovery process.

Chapter 17 by Don Webber and Gary Dymski develops a novel way of thinking about how productivity relationships can be better understood in the current context whereby industries face major shocks. Productivity is a result of many complex interactions and heterogeneous demand–supply linkages can mean that recovery processes can take many different forms, some of which may be unexpected and unintended. Many of these demand–supply linkages are often overlooked in many microeconomic and also many macroeconomic narratives, which tend to treat supply-side and demand-side issues as being largely independent of each other. Taking the broader approach advocated here also points to the importance of considering issues such as social inclusion and sustainability alongside productivity.

The unprecedented nature of the Covid-19 pandemic also serves as an inflection point to reflect and revisit what was understood and assumed within prevailing analytical and conceptual debates. The need to think differently about economic (and societal) systems is picked up in Chapters 18–21, which consider many of the implications that the Covid-19 pandemic raises for public policy-making in different arenas.

In Chapter 18, Jen Nelles, Tim Vorley and Adam Brown discuss the possibilities for designing and delivering good recovery policies by adopting a systems approach. Such systems-thinking seeks to identify the linkages between policy settings, and in particular, to consider the interactions, feedback loops and unintended or unobserved interferences which are typically evident in many different policy arenas. Policy-making often takes place in siloed settings and in a system-changing event such as the Covid-19 pandemic, such siloed thinking will invariably be of little or no use and can even be damaging. Instead, a much more holistic approach is required and the chapter provides a framework of how such approaches can be successfully deployed.

Chapter 19 by Katy Jones discusses the challenges facing labour market and employment policies in the pandemic and post-pandemic context. In terms of active labour market policies the chapter argues that there are serious problems associated with a 'work first' approach to the economic recovery, a policy

approach which focuses on gaining work, irrespective of the quality of the job or the quality of the matching between the job and the candidate. Such an approach is likely to limit productivity growth. In addition, the Covid-19 crisis calls into question many of the conditionality criteria currently in the employment systems and argues that some of these criteria may need to be applied to employers as well as employees.

Chapter 20 by Jonathan Cook and Tim Vorley discusses the question of innovation and innovation policy in the context of the pandemic. While the need for innovation is critical in driving a post-Covid-19 recovery, the available financial capital required for innovation will be shrinking, and especially in those places which are weaker and where innovation is more limited. In this context, innovation policy faces enormous challenges and broader criteria for assessing effectiveness will need to be considered, including behavioural changes, improved knowledge diffusion, better health and improved environmental conditions. However, these broader goals will also pose challenges for the evaluation of innovation and innovation policy and will require a move away from some of the narrower evaluation criteria which were feasible prior to Covid-19.

Chapter 21 by Elizabeth Waind, Felix Ritchie, Nick Bailey, Paul Caskie, Sian Morrison-Rees, Sarah Lowe and Nick Webster, provides a brief, but very important, overview of the work and progress made by the Administrative Data Resource (ADR) initiative, which seeks to facilitate the linking of different UK data and datasets. These activities are crucial in the current context. As we have seen, the Covid-19 pandemic has impacted profoundly and simultaneously on so many different aspects of our lives and understanding the implications of these shocks will urgently and increasingly require the ability to integrate different types of knowledge and evidence. The progress made by ADR is therefore of crucial importance in facilitating these types of investigations, and the chapter provides a concise roadmap of what data is available and what is becoming available, and the potential for exploiting these newly integrated data sources in post-Covid-19 analyses and policy-making.

The edited collection is not intended to provide a definitive account on productivity and the pandemic in the UK, but rather brings together an authoritative collection of essays from different perspectives. Together they serve to provide insight into the UK's productivity puzzle in the wake of the pandemic and highlight the emerging challenges. The acutely geographic nature of the productivity problem in the UK highlights that geography matters, and with it place. Given the enduring differences in productivity between regions and places in particular, maintaining a focus on place is and will continue to be critical for the future of productivity research for the *Productivity Insights Network* and the newly established flagship *Productivity Institute*.

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