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Regional Innovation, Industrial Policy and UK Interregional Challenges

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Introduction

The UK interregional productivity inequalities are nowadays widely recognised as posing some of the greatest challenges to our economy, society, and governance systems. However, this is a very recent phenomenon, reflecting the fact that as a polity, the UK and its institutions have until just a few years ago, largely failed to consider the UK as having a serious regional problem. Moreover, the role that UK-specific governance and institutional issues may have played in exacerbating the regional problem have also been largely outside of the narratives and debates in mainstream UK economics. Indeed, prior to the EU Referendum shocks of 2016 very few economists understood the scale of the problem (McCann 2016), and it is only the political shocks associated with Brexit that have placed these issues centre-stage in UK policy and political debates. The nature and consequences of the UK's economic geography for its national economic performance was barely considered in mainstream economic thinking until very recently, and even now most economic policy-makers and institutions at the very highest levels are belatedly struggling to comprehend the scale and complexities of the challenges ahead. Unfortunately, this has allowed non-economic narratives, sometimes with little-or-no-substance, to flourish and drive the political economy of Levelling Up and Devolution. For the sake of future good policy and institutions, UK economics must seriously engage with the regional question, and central to these debates must be the issue of how to foster innovation in the local context.

Innovation is known to be a crucial driver of medium and long-run economic growth and development (McCann and Ortega-Argilés 2021a). Innovation represents the process of translating new ideas and initiatives into marketable products and services which are new to the firm or to the market, and innovative regions are typically better able to adopt and adapt new technologies to new markets. As such, innovative regions typically display both higher growth and also more resilience to economic shocks in the medium and long-term. Promoting regional innovation often requires a reshaping of the local entrepreneurial landscape, the local information networks and the sources of knowledge, as well as the interrelationships between the local institutional set-up and the private sector (McCann and Ortega-Argilés 2013, 2016), and industrial and regional policies can play an important part in these reshaping processes.

Our increasing awareness of the roles that industrial and regional policies can play in driving local innovation is based partly on recent developments in our understanding of the interrelationships between the public and private sectors in the innovation arena (Mazzucato 2013) and also on the observed experiences of different places. Modern regional innovation policies are very different to either traditional industrial policies or traditional regional policies, and their role in the economy is evolving as society adapts to ongoing and emerging societal shocks.

In the UK, however, the application of these policies is challenged both by the governance and institutional structure of the country, and also a lack of clarity regarding the relationship between place-based innovation and regional policies and the top-down highly centralised nature of UK economic and industrial policy-making. Developing a clarity about these issues is essential if the UK is going to successfully address the challenges of 'Levelling Up' the UK's interregional inequalities.

The UK context provides an interesting case of how the design of governance systems may facilitate or militate against appropriate policy responses. In terms of regional economic performance, ever since Putnam's analysis of Italian regions (Putnam 1993), the relationship between institutional issues and economic development has traditionally been dominated by questions regarding how the quality of governance and government interacts with economic processes. In the European context, a growing body of research has examined how the regional quality of government shapes economic development and a broad consensus has emerged that a high quality of regional government helps to foster strong local economic development. However, the UK context raises a different, but equally fundamental question. What happens when the governance systems and its institutions are of a high quality, but at the same time are inappropriately designed for addressing the relevant challenges? Strong and high-quality institutions are often harder to dislodge or reform than poor quality institutions, and this highlights the problem that it is not necessarily a problem of high versus low quality institutions which matters for regional economic development, but the specific design of the institutions. The UK case reveals the problem that well-established and strong institutions which were designed to address purportedly 'national' issues, but which in hindsight are also inappropriately designed for responding to regional challenge, can themselves actually exacerbate regional problems. The legacy of these inappropriately-designed governance systems and their associated policy narratives is profound, and their reform is extremely difficult. The result has been one of ongoing ambiguities and inconsistencies regarding the relationships between industrial policy, regional policy and place-based approaches to innovation and economic development, and a longstanding lack of a coherent institutional and policy interface.

In order to examine these issues, the rest of the paper is organised as follows. In the next section we discuss the nature and scale of the UK's interregional productivity inequalities, and also how the UK economics and governmental arenas have considered these issues over many decades. We then discuss how post-Brexit political narratives have shaped current government responses to these issues. On the basis of these discussions, we then discuss the distinction between traditional industrial policy as applied to regions and the more modern approaches to regional innovation policy. Finally, we examine the specific governance challenges faced by the UK in deploying these more modern approaches to regional innovation policy.

The UK Regional Economic Problem

When measured across a broad range of 28 (McCann 2020) or more (Carrascal-Incera et al. 2020; Raikes et al. 2019; Agrawal and Phillips 2020) indices we see that the UK is more interregionally unbalanced than another 30 or so OECD countries (McCann 2020). While London is a 'world city' success story, and much of its hinterland is also very prosperous on multiple dimensions, half (*The Economist* 2020) of the UK population today live in areas: which are poorer than the poorest US states of Mississippi and West Virginia; whose productivity is below the Czech Republic and no better than the less prosperous parts of the former East Germany (McCann 2016, 2020) and on a par with Slovakia; whose quality and accessibility to healthcare is on a par with eastern Europe (*The Lancet* 2018); with a thin and fraying social fabric (Tanner et al. 2021); and whose multi-dimensional living standards are akin to Alabama (Veneri and Murtin 2019). The scale of the regional inequalities is very high by the standards of the industrialised world (Zymek and Jones 2020), yet in the UK there has been relatively little public policy emphasis on these issues for decades (McCann and Ortega-Argilés 2021).

In the first three and a half post-world war II decades of the twentieth century, UK regional policy was a small part of a broader nationwide industrial policy schema. The UK industrial policy architecture during the post war reconstruction decades centred on state support for newly nationalised industries, as well as the dispersion of communities away from areas which had been devastated by the war. This involved the rebuilding of the urban fabric of many cities and the creation and expansion of new towns and new suburbs, specifically catering to the land requirements suitable for new and reconstructed manufacturing industries. The 1960s saw the rationalisation of the railway system under the so-called Beeching reforms (Gibbons et al. 2018), which reinforced the London-centric architecture of the UK railway system, and the building of the national motorway network also closely followed the major trunk lines of the rationalised railway system, thereby further reinforcing the London-centric economic geography of the while infrastructure system. The 1960s and 1970s also saw a major expansion of the higher education system and reforms to the secondary educational system, as well as changes to the local government architecture with the creation of a number of unitary local government authorities. As such, any state subsidies to firms and industries in particular places under the guise of regional policy took place against this broader backdrop. However, even at its highest levels in the late 1970s, regional policy never accounted for more than 0.4% of GDP, and since the early 1980s has only been of the order of 0.1% and 0.2% of GDP (McCann 2016), including EU regional policy funding. As Lord Bob Kerslake, the former head of the UK civil service remarked, these were only ever 'pea-shooter' policies.

The reason for this was that there were profound shifts in thinking and economic policy design from the early 1980s onwards. Industrial policy, to the extent that it existed in the UK, was primary focussed on the deregulation of markets, on expanding the competition and contestability of sectors both in the private and public sectors, and on ensuring that competition policy and regulatory regimes were well-designed. As such, the role of state moved decisively away from state support for firms or industries, and away from a largely top-down state subsidy-based regional policy. On the one hand, the state became pro-active in terms of the breaking up monopolies and monopsonies, and the changing of the legal architecture of competition settings, while on the other hand, the state simultaneously became very passive in terms of any directionality of the trajectory of individual markets. This was most notable in terms of foreign direct investment, where limitations on foreign ownership were largely removed.

Within this shift of thinking and policy approaches, there was also an important narrative shift. From the 1980s onwards a dominant political economy narrative emerged that as a *national* priority, the London economy needed to be reinvigorated as a world-leading centre after many decades of decline. The rationale was that as the 'motor' of the UK economy, a reinvigorated London would act as both a generator and conduit for the national and global knowledge, technological and investment flows which would diffuse throughout all UK regions and nations. According to this almost universally-held narrative, the enhanced commercial dynamism in the core London economy would therefore disseminate and galvanise economic development in all other more peripheral parts of the UK economy. As such, this narrative also posited that greater shares (O'Brien and Miscampbell 2020) of productivity-enhancing public investments in numerous major infrastructure, cultural and research-related assets in and around London economy were regarded as a *national* priority. Note that there was no formal economic model underpinning this core-periphery argument, beyond a very rudimentary notion of growth and diffusion, allied with optimism associated with the observation that interregional convergence was a widespread phenomenon throughout the industrialised world. Importantly, this narrative was both implicitly, and in some cases also explicitly, shared across numerous public, private and civil society institutions in key decision-making roles.

This core-periphery diffusion narrative became even more embedded in UK national institutional thinking following the publication of the two HM Treasury (2001, 2003) and one World Bank (2009) reports which were framed on the basis of the emerging narratives of North American urban economists, and which posited that market-wide competitive processes allied with agglomeration economies would underpin national growth. That there was a natural geographical efficiency-equity trade-off was not just assumed, it was asserted. On these arguments, policy-makers should be primarily space-blind in thinking, eschewing any 'place-based' concerns for spatial inequalities, because eventually knowledge and technological diffusions will correct for any such core-periphery imbalances (McCann et al. 2021). For many in Whitehall, Westminster and the London think-tank world, these reports bolstered the continuation of largely place-blind and sectoral narratives which already dominated mainstream high-level UK policy-thinking and policy-debates.

In a sense, in the UK policy context over a period of more than two decades, the conceptual distinction between industrial policy and regional policy had become very blurred, as was the positioning of regional policy within the wider context of industrial policy. Part of this blurring was conceptual, and part of this is because both policy approaches had largely gone off the national policy agenda, so there was very little practical experience of considering how their logic, construction or implementation relates to any broader theoretical or conceptual framing. In effect, a disconnection was starting to emerge between how industrial policies relating to innovation and entrepreneurship were being increasingly understood internationally and how they were being articulated within the UK. An early example of this disconnection relates to the Regional Development Agencies (RDAs).

At the same time as these largely space blind lines of thinking were key to Treasury[1]-led government thinking (HMT 2001, 2003), central government had also been actively trying to address regional problems since 1997 though the establishment of regional development agencies (RDAs) and government offices for the regions (GORs). The broad intention of the RDAs was to take a holistic and detailed approach to regional development and to engage many local stakeholders in their programmes and policies. As part of this remit, the RDAs also took on and expanded earlier urban policy initiatives dating back to the 1980s which aimed at helping cities move forward via land reclamation, property development and redevelopment (McCann 2016). RDAs also took on the role of managing and delivering EU Cohesion Policy actions and interventions. The RDAs linked into central government primarily via different ministries to The Treasury, and the fact that so much of UK economic policy-making was siloed and channelled via particular ministries, meant that the space-blind narratives operating within the Treasury co-existed with more place-based ways of thinking operating in other ministries. The result a certain degree of confusion at the highest levels of government regarding the nature of regional policy and also how it interfaced with industrial policy. The RDAs were also overly controlled by central government minsters and ministries, so any efforts they made at place-based tailoring were largely undermined by ongoing top-down central government interference (McCann et al. 2021). Even if *de jure* the RDAs were independent to design and deliver economic development policies and programmes, de facto they had to conform to top-down central government control, such that much of what was intended to be regional in design was in fact national, and much of what was intended to be place-based was in fact watered down to something which was little more than space-blind.

A second clear example of this ambiguity and confusion regarding what was regional policy or industrial policy and the balance between place-based and space-blind thinking is the shift to localism in the aftermath of the global financial crisis. The new coalition government of 2010 introduced a clear localism agenda (McCann et al. 2021) which abolished the RDAs and then deregulated and further decentralised local and regional economic development actions into Local Economic Partnerships, involving crucial roles for the private sector. The aim here was to better align local knowledge with local incentives, market mechanisms and economic development priorities and opportunities (McCann et al. 2021). Yet, at exactly the same time as local economic development was being deregulated and decentralised as part of a wider localism agenda, the UK government also centralised the management of all EU regional policy schemes in England into a central government set-up. At a stroke, England became the most centralised polity in the EU Cohesion Policy arena, with a population almost five times larger than the next largest managing authority. It might be argued that the reason for this was to ensure better fiscal management in the post 2008-crisis era, but this was at odds with the other dimensions of local and regional economic policy which were being increasingly localised.

These different undercurrents are likely to reflect a certain degree of confusion on the part of central government regarding how best to facilitate local economic development. In particular, the longstanding UK government belief that any spatial market mechanisms would be growth enhancing and eventually self-correcting started to fracture quickly in the aftermath of the 2008 global financial crisis. Although London and its hinterland were initially in the eye of the storm, the economic recovery of the core regions was relatively rapid, whereas many parts of the periphery subsequently experienced a longstanding flatlining of productivity. Awareness of

[1] The Treasury is the UK finance ministry, and is by far the most important ministry in the UK government system.

this started to emerge at exactly the same time that the OECD began producing standardised estimates of the productivity performance of hundreds of cities and thousands of regions across some 35 countries. What became startlingly apparent was that although UK policy discussions often focus on the UK ‘productivity puzzle’, in reality there was no real productivity puzzle in the core regions of the UK, defined by London and its vast southern hinterland. It is almost entirely a phenomenon of regions in the North, Midlands, Wales and Northern Ireland plus some parts of Western Scotland, and it was not just a post-crisis phenomenon. The longstanding productivity underperformance of half of the UK economy was as dramatic as the productivity overperformance of the other half of the UK (*The Economist* 2020), meaning that aggregate UK productivity levels and growth rates were no more than pedestrian by OECD-wide and European-wide standards.

It is now only recently becoming understood that very average UK productivity performance has come at the cost of some of the highest interregional inequalities in the industrialised world (McCann 2016, 2020). No country which is richer than the UK has higher interregional inequalities, and all more prosperous countries grow interregionally in a more balanced manner (Carrascal-Incera et al. 2020). In addition, most of the more prosperous countries are also far more devolved than the UK, irrespective of whether they are a unitary or federal state, and devolution itself is associated with more balanced regional growth. During the last decade, the realisation that the UK’s centralised governance systems might also be a big part of the interregional problem therefore also started to dawn.

In order to understand the scale of the problem, it is useful to compare the UK with Germany, two countries with similar scale populations, similar population densities, many similar sized cities and similar urban population densities. At the time of German reunification in 1990, unsurprisingly, the reunified Germany was more interregionally unequal than the UK. However, Germany has invested some €70 billion per annum for thirty years (Enenkel 2021; Henkel et al. 2018) in what people in the UK now call ‘Levelling Up’, involving investments in infrastructure, land use, research and development, institutions, capacity building and governance reforms. As Carrascal-Incera et al. (2020) show, the result of these major and longstanding German ‘Levelling Up’ activities is that over time Germany has become less interregionally imbalanced than the UK. Indeed, on many indices the UK today is more interregionally imbalanced than a reunified Germany was in 1990, while the reunified Germany today has a *national* productivity premium over the UK which is larger than that which West Germany had over the UK in 1990. Not only the comparison with Germany, but also comparisons across all OECD countries, demonstrate that there was no spatial equity-efficiency trade off; indeed, it appears that there never was (Carrascal-Incera et al. 2020; Garcilazo et al. 2021). However, there was increasingly an international understanding that there is a trade-off between governance centralisation and balanced interregional growth. Centralised societies tend to exhibit more unbalanced growth and a greater dominance by one major urban centre, but even on these criteria the UK imbalances are an outlier (McCann 2016). The ultra-centralised nature of the UK institutional system provides very high quality governance capabilities as regards fiscal control, but is profoundly inflexible and limited when it comes to developing place-based approaches to policy. Indeed, the centralised nature of the governance system itself militates against devolved, tailored and place-based approaches to economic development (McCann 2022a), and reforming the system implies implementing profound accountability changes to the whole governance system, well beyond matters of place-based policy (McCann 2022a).

In the case of the UK, the coincidence of the seat of government, the commercial centre, and multiple modes of trade routes, meant that London and its hinterland had not acted as a 'motor' for the economy, but rather it has been *decoupling* (McCann 2016) from the rest of the country for more three decades, linked primarily to events in other global cities and largely (or even entirely) disconnected from many parts of the UK. The economy had morphed into a 'hub with no spokes' system (Haldane 2018). Recently, a whole range of evidence on these issues has emerged from numerous sources and much of the UK economics profession, along with most of the top-echelons of the UK governance system, are now facing an uncomfortable (or even tragic) reality. Not surprisingly, there are now serious conceptual as well as empirical doubts regarding whether many of the major infrastructure, cultural and research related public investments in London are in reality national, or primarily local and regional, in nature.

Over the last four decades the mainstream UK economic narratives about regional inequalities have gone through five phases: (i) The first phase during the 1980s–1990s held that regional issues were not a problem, not an issue; (ii) the second phase from the late 1990s and the early 2000s onwards was that regional inequalities were an issue, but not a problem, because the market system will largely correct for these over time; (iii) the third phase which was post the 2008 crisis perceived regional inequalities as only a minor issue in comparison to other challenges, so there was no major policy prioritisation relevant to this except on specific issues such as 'city-deals'; (iv) the fourth phase commenced with the post-Brexit political shocks and the realisation that regional inequalities were a major issue and one which must be prioritised, but; (v) we now realise that it is an enormous issue and we also realise that it is one that we do not really know how to address. Over four decades, the prevailing policy and governance narratives which have emerged from the UK's ultra-centralised governance system have served to stymie efforts at responding to regional economic shocks, and to delay any sense of urgency for addressing these issues until it is potentially too late. Unfortunately, it is this longstanding lack of any economic acknowledgement, understanding or engagement with these issues by central government that has provided an ideal opening for non-economic narratives driven by the 'geography of discontent' (McCann 2020) to dominate the UK political economy world.

The Geography of Discontent and Brexit

The 'geography of discontent' (McCann 2020) arises where people perceive that their communities have been largely undervalued, ignored and left behind by the modern economy, and the political shocks associated with this discontent are a real and potent phenomenon. The ballot box mutiny (Collier 2018) is the only way that people are able to articulate their perceptions, and in the UK this was manifest in the geography of the Brexit vote and the fall of the so-called 'Red Wall' parliamentary seats (McCann and Ortega-Argilés 2021a). The current 'Levelling Up' agenda was forged entirely out of the whole Brexit process. Yet, ironically, Brexit itself will almost certainly work directly against Levelling Up, primarily because the UK's weaker regions are far more economically dependent on EU markets than the more prosperous core regions of the UK. There is now a large body of evidence on this (Chen et al. 2018; Thissen et al. 2020; Cambridge Econometrics 2018; Borchert and Tamberi 2018a,b; Gasiorek et al. 2018; Clarke et al. 2017; Oliver Wyman 2018) including the government's own analysis (HMG 2018; HoCEEUC 2018), and the scale of the regional economic Brexit problem is orders of magnitude beyond anything that a combination of the current policy settings such as Freeports, a Towns Fund, a Levelling Up Fund or a Shared Prosperity Fund, can together address.

From an economics perspective, the inherent contradiction between Brexit and Levelling Up has been almost entirely ignored by public narratives (McCann and Ortega-Argilés 2021a), and the long-run consequences of this are unknown. Importantly, where Brexit has been explicitly linked in UK public and policy narratives to economic geography, the linking has been fundamentally misguided in economic terms, driven as it is primarily by media and psephological considerations. An unfortunate borrowing of US 'cities-versus-towns' observations (*The Economist* 2017) and a mixing of these with claims about so-called 'metropolitan elites' (Goodhart 2017) has meant that Levelling Up is now dominated by a cities-versus-towns narrative, something which is important from a psephological perspective, but from an economic perspective is not correct. Obviously, there are 'left-behind' towns in the UK, especially in deindustrialised regions as well as in some coastal areas. However, across the country as a whole, the gaps between cities and towns (ONS 2018), between large urban areas and small urban areas, or between urban areas and rural regions, are amongst the lowest of the OECD countries (Garcilazo and Oliveira-Martins 2020). Indeed, many of the UK's most prosperous places are towns. Numerous towns, and especially in the south of England, are more prosperous than most of the UK's large urban areas, and towns are actually the most prosperous places even in the UK's economically weaker regions (ONS 2018, 2019, 2020). Indeed, this reflects the central productivity problem that the UK now faces both nationally and regionally, which is the economic under-performance of its large cities in the economically weaker regions. The UK's large cities outside of the south of England and eastern Scotland all underperform economically with respect to their size by OECD-wide and European-wide comparisons and also fail to display the scale-related productivity-driving features typical in other advanced economies (CFC 2021). Indeed, they also underperform in comparison to smaller towns even in their own hinterland regions. Many of these large cities consequently also fail to provide the economic 'motors' that their respective regional hinterlands – including towns and rural areas – need for their own prosperity. Obviously, there are areas of poverty in London and the South of England, but because cities in these regions 'do their job' in economic terms generating higher productivity than their hinterlands, the lowest income groups in these places also have much greater opportunities for upward social mobility and higher earnings (SMC 2020), access to higher education (HoC 2021a), and increased longevity (Marmot 2021) than people in other urban areas. As such, the very reason that the gaps between towns and cities and between urban and rural areas in the UK are so small is because so many UK cities do not punch economically even near their weight (Carrascal-Incera et al. 2020). Overall, from an economics perspective, there is no 'cities-versus-towns' problem in the UK (ONS 2018, 2019, 2020), but this narrative now dominates public debates and mainstream policy-thinking. The conceptual and analytical confusion is accentuated by the fact that many people and institutions are currently making up their own definitions of what Levelling Up is or should be, thereby potentially diluting the much-needed clarity of focus on regional productivity inequalities. This is the backdrop against which industrial and regional policies aimed at spurring innovation are set.

UK Industrial, Regional and Innovation Policy

A core feature of most modern industrial and regional policies are local innovation policy agendas, and these are very different to traditional regional policies, as depicted in Table 1. Traditionally, in most countries, regional policy was largely a top-down sectoral policy which provided a spatial dimension to a largely sectoral-focussed industrial policy approach. This logic tended to be underpinned by subsidies to particular firms or sectors in particular, places, and these programmes tended to be centrally designed and delivered. Their focus was typically on the provision of 'hard' capital and infrastructure and their programmes tended to be delivered via the existing functional administrative units, acting under the auspices of central government.

However, by the end of the twentieth century policy-thinking in many parts of the world was already beginning to shift towards a very different construct, in which much more decentralised and bottom-up approaches to regional innovation policy were being advocated. In particular, modern regional innovation policies (McCann and Ortega-Argilés 2013, 2016) are built around integrated development projects aiming at tapping into under-utilised potential. As well as supporting or subsidising the provision of hard infrastructure, the toolkits of these policies are also typically aimed at enhancing 'soft' infrastructure including business support schemes, networking programmes, and policies aimed at enhancing credit availability. These approaches also emphasise the importance of multi-level governance arrangements, in which both upper and lower tier institutions and levels of governance play different but complementary roles. The aim of these modern approaches is to galvanise primarily bottom-up actions aimed at enhancing innovation in the local context, and many of these policies are underpinned by policies operating in the context of functional areas.

Table 1 Traditional Regional Policy Versus and Modern Place-Based Approaches to Regional Policy

	Traditional Regional Policy	**Modern Regional Innovation Policy**
Objectives	Compensating temporarily for location disadvantages of lagging regions	Tapping into underutilised potential in all regions to enhance development in all regions
Unit of Intervention	Administrative units	Functional economic areas
Strategies	Sectoral approach	Integrated development projects
Tools	Subsidies and state aids Hard capital (infrastructure)	Mix of hard capital (infrastructure) and 'soft' capital (business support, credit availability, networking systems)
Logic	Top-down centrally orchestrated	Mix of bottom-up and top-down – locally designed and delivered
Actors	Central government	Multi-level governance involving different tiers or level of local, regional and national government working in

		partnership and alongside the private and civil society sectors

Source: OECD (2009): McCann (2013)

On the issue of tapping into under-utilised potential, and major area of emphasis is often on fostering entrepreneurship in key fields which can help to diversify a region's capabilities, and thereby help to develop new and more efficient ways of organising the innovation process (Schumpeter, 1934; Nelson and Winter, 1982; Aghion and Howitt, 1992). Entrepreneurship is a critical driver of innovation, but different regions face different constraints. In aiming to strengthen the links between entrepreneurship and innovation there is a constant need to improve knowledge flows and dissemination across actors and institutions, and removing bottlenecks and alleviating constraints is therefore a key focus of many areas of policy (Szerb et al. 2020). Key areas of concern which policies typically target include: enhancing the local entrepreneurial culture; closing R&D funding gaps; addressing shortages of analytical skills; fostering managerial capabilities; and increasing inter-firm or inter-organisational collaboration (Jackson et al. 2016). The types of policies which are widespread, include: enhancing the links between universities, research institutes and the wider business community; improving the absorption, adoption and adaptation of knowledge; encouraging large firms to engage in innovative activities with local SMEs alongside firms in wider global value-chains. In the UK, however, at present the evidence on these policies in the local context is very mixed[2].

Part of the problem of assessing the effectiveness of these more modern types of regional innovation policies in the UK context is that the institutional design of the UK governance system via which such policies are designed and delivered is so atypical, and largely unrelated to the implicit governance set-ups which the original thinking on these policy approaches envisaged. Amongst large OECD countries, the UK has by far the most centralised and top-down governance system and one which is also strongly organised on a sectoral logic. This governance structure and logic makes it inherently very difficult to develop place-based ways of working, because on many levels the policy logic is in opposition to the governance logic, and it is possible to see consider this in the light of the last three decades of policy thinking and implementation.

In the UK these types of more modern regional innovation policies really began to emerge in embryonic formats during the 1990s and 2000s, and in particular, during the time of the regional development agencies (RDAs), whose remits regarding economic geography were framed in a wider regional context. The establishment of RDAs at the level of OECD-TL2 regions was intended to provide a meso-level of governance which better facilitates policy design and delivery, in the context of a country whose governance system is highly centralised and top-down in nature. Unfortunately, design-faults with the system undermined much of the meso-level governance potential of RDAs, with constant central governance interference stymying many of the more innovative aspects of the governance of the RDA system (McCann et al. 2021). This region-wide approach was then changed to a much more localist and decentralised approach with the change of government in 2010, built around Local Enterprise Partnerships (LEPs), which were much more locally devolved bodies comprised primarily of

[2] https://whatworksgrowth.org/policy-reviews/innovation/

members from the private sector. For various different reasons many LEPs have struggled to develop a serious policy-design or policy-delivery remit and to fill the gaps left by the demise of the regional development agencies (McCann et al. 2021) However, many of these new regional innovation policy aspects still remained central to thinking in the new institutional arena, in which the facilitation of local and bottom-up innovation-related incentives and activities was deemed to be essential. This thinking has also more recently been carried over to the recently established city-region combined authorities, which aim to provide a better decision-making alignment between institutional systems, political accountability, and economic geography at the wider urban levels.

Other potentially complementary areas of policy innovation also relate to public procurement. There is increasing interest in the UK in the possibilities that public procurement may offer in driving demand-led innovation processes. Some of the devolution trends evident in the UK, and especially to city-regions, offer possibilities for more locally-tailored innovation policies framed around a demand-led logic. Over 80% of OECD countries have developed policies public procurement strategies aimed at driving innovation, although only half of these countries are currently measuring their effectiveness. However, their efficacy as part of a regional innovation policy will also depend on the governance system and how appropriate it is for such purposes. Public procurement concepts come from primarily top-down thinking, where place-based policies need decentralised and locally-tailored approaches. Public procurement offers the possibilities for both scaling up innovation-related activities and also provides directionality in such processes as required. At the same time, the effectiveness of public procurement mechanisms at the sub-national level to bring about effective change will also depend on the convening power of the sub-national governance bodies as well as their financial firepower and levels of policy discretion, autonomy and authority. These are all areas where localities within England are currently very weak, with low levels of discretion, autonomy and authority, whereas they are growing in each of the three devolved administrations of Scotland, Wales and Northern Ireland.

In the post covid-19 and post-Brexit context, there may be new opportunities to use public procurement to help galvanise economically weaker regions. However, this depends more broadly on how place-based regional policy-types of thinking is integrated into the wider UK industrial and innovation policy area. This is now more challenging than ever because, in addition to the challenges associated with implementing place-based innovation and industrial policies in a context where the governance system is inherently top-down and centralised, from 2016 onwards, the UK also faced the institutional and political shocks of Brexit. In order to help chart a path through the evolving context, in 2017 government of Theresa May launched a UK Industrial Strategy (HMG 2017). This marked a major departure from the policy approaches advocated over the previous four decades, with an explicit industrial policy framework which was intended to overlay all other economic policies. This 2017 Industrial Strategy was built around five ‘foundations’, namely: ideas, people, infrastructure, business environment, and places. The strategy pointed to more directionality being introduced into economic policy-making environment than had previously been the case, but a weakness of the strategy concerned the question of ‘place’. In the Industrial Strategy Green Paper published in early 2017, the role of place in the overall document accounted for some 15% of the text, below the 20% that might be expected given that it was one of the five foundations. However, in response to the public consultation on the Green Paper, by the time that the 2017 White Paper was published as the formal Industrial Strategy (HMG 2017), the role of place was further reduced to only 10% of the document. This reflected something of a lack of clarity regarding the role that geography plays in the innovation nexus, and consequently also a lack of clarity regarding the interface between industrial policy and regional policy. However, in early 2021 the UK Industrial Strategy was abolished and replaced with a 'Plan for Growth' (HMT 2021) which was constructed around three 'pillars', namely: infrastructure, skills and innovation, with place now being articulated as a cross-cutting theme, interacting with each of the three pillars. Having place as a cross-cutting theme in industrial and innovation policy potentially makes more sense, as long as the theme is integral to each of the three individual pillars.

Governance Challenges

These policy twists and turns reflect the inherent ambiguity in UK political economy circles regarding how geography and regions fit into the overall national innovation and productivity growth agenda. Traditionally, as we have already seen, although regional economists and economic geographers have made many contributions to policy debates, in general, geography and regions have played little to no real part in how government has considered national economic policy, and it is only very recently that these issues have become mainstream in UK political economy circles, and this in itself potentially represents a major step forward. Yet, these ambiguities are also themselves a problem of the fact that the UK has an overly-centralised and top-down governance system, and this centralisation and control itself hampers serious thinking and actions regarding the deployment of devolved and bottom-up development policies. New internationally-comparable evidence on devolved governance systems and structures (Ladner et al. 2019; Hooghe et al. 2016; Hooghe and Marks 2016), allied with a barrage of evidence on UK regional imbalances, increasingly points the finger at institutional questions as being central to the emergence of the UK's regional imbalances. That is not to say that they are the only issues, in that economic geography and asymmetric globalisation shocks, which are likely to be exacerbated by Brexit, are also critical (McCann 2016), but the UK's highly centralised governance system is clearly a major part of the problem (Carrascal-Incera et al. 2020). The UK's highly centralised and top-down governance system itself inhibits a shift from traditional to more modern regional innovation policies. Yet, correcting for these problems is extremely difficult in the UK case for various reasons.

Firstly, shifting from traditional regional and industrial policy settings to a more modern form of regional innovation policies itself requires fundamental institutional and governance reforms to a highly centralised governance system. This is not a matter of just making changes to a policy, but actually something much more fundamental, challenging the set-up and make-up of the national and sub-national institutional structures and systems and their fiscal interrelationships (McCann 2022a). The UK's over-centralised Westminster-Whitehall governance system is itself likely to offer major resistance to further sub-national or sub-state devolution, precisely because monopolies and monopsonies will never self-reform, and using diverse narratives to stymie devolution as a *national* priority, preferring to frame it primarily as a local issue.

Secondly, the fiscal federalism literature provides us with great deal of analysis ideal for designing a devolved governance system on something like a 'level playing field'. In contrast, designing and implementing the economics of a devolved governance system on a 'playing field' which is already adversely and severely tilted against the weakest regions, has never been done in the modern era (McCann 2022a), and there is a real danger that reforms may exacerbate the already serious problems. Moreover, the effects of the covid-19 pandemic are likely to further entrench the UK regional and governance inequalities (McCann and Ortega-Argilés 2021b). Even without covid-19, within UK government and research circles the prevailing understanding of regional imbalances was far behind where it needed to be, and as such, the likely scale of the required institutional, governance and policy changes to address the imbalances cannot be underestimated.

The UK is steadily moving to more of a bottom-up and place-based approach to regional innovation policy, although the institutional and governance challenges involved in doing this are very significant, precisely because the institutional quality is high. This is not a question of high quality versus poor quality institutions, but rather of high quality and robust institutions which are ill-designed and ill-equipped to address the challenges, but which are also extremely difficult to dislodge or reform. A major movement in this direction will almost certainly involve fundamental governance reforms regarding how sub-central government relates to central government, although the exact ways in which this will play our are as yet unclear, as are the time-periods over which this will take place. One potential solution is to develop institutions for cooperation (McCann 2022b) which can be grafted into the current centralised system, although whether such approaches will be adopted is as yet unknown.

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