

Policy Report Series

Townscapes

Making innovation more inclusive

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Executive summary

Innovation is generally considered a key driver of economic growth. However, its benefits are not evenly distributed, often exacerbating existing inequalities. Marginalised groups and economically lagging regions frequently lack the opportunity to participate in or benefit from the innovation economy. This report examines how to make innovation more inclusive, focusing on the United Kingdom (UK).

Over time, innovation policy has evolved from state-supported research and development (R&D) to broader national systems of innovation. Recently, the emphasis has shifted to addressing social and environmental challenges through inclusive innovation. Despite the increasing focus, the concept of inclusive innovation remains ambiguous, with definitions varying across different disciplines. Generally, it aims to ensure that marginalised groups benefit from technological advancements (focusing on affordability, social inclusion, and capability building) and to decrease regional disparities. Therefore, effective inclusive innovation policies support strategies that enhance social, industrial or territorial inclusiveness.

While the UK has a strong R&D base, it faces significant spatial economic inequalities. Innovation is often concentrated in some regions like London and Manchester, leaving other areas behind. This concentration exacerbates regional disparities, highlighting the need for more inclusive innovation strategies. To address these disparities and create a more inclusive innovation economy in the

UK, this report makes recommendations emphasising the importance of developing data-driven, coordinated approaches, enhancing local innovation ecosystems, and ensuring diversity in innovation practices.

Achieving an inclusive innovation ecosystem requires clear objectives, diverse funding streams, and policies that support participation from a broad range of stakeholders. Ensuring that the benefits of innovation are widely shared involves collaboration across sectors, alongside policies that address both upstream themes – such as governance, R&D investment, and diversity in innovation – and downstream themes like supply chain development, product diffusion, and financial returns. To support these efforts, coordinated actions are also needed at all levels of government. By implementing these approaches, innovation can become a driving force for more equitable growth, ensuring that all regions and communities can participate in and benefit from the opportunities it creates.

1. Introduction

Innovation – the creation of novel products and services through ideas – drives long-run economic growth and social progress, but how it does so and who benefits can vary greatly.

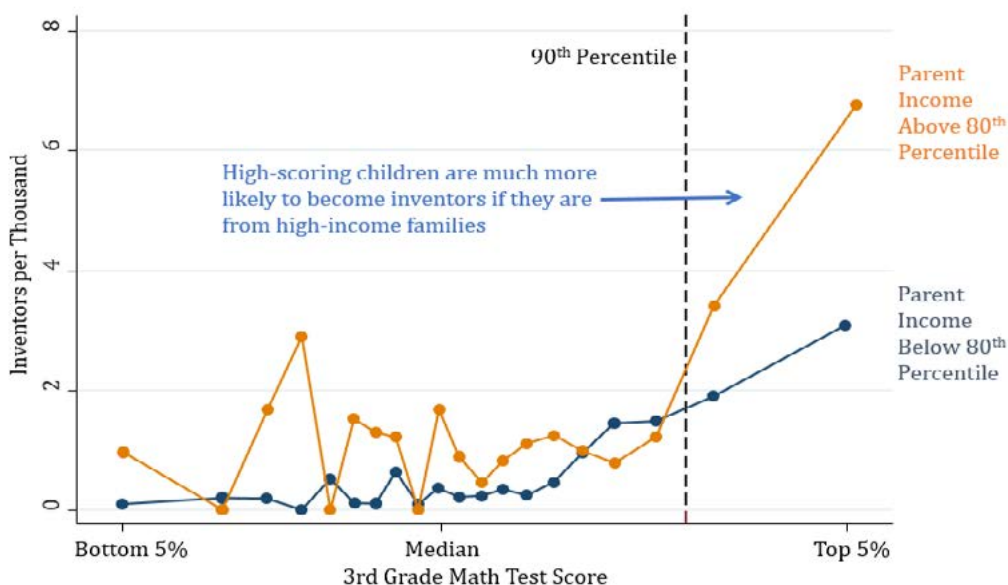
Innovation can exacerbate inequalities, as new technologies and the economic benefits from their invention often benefit those with resources and access. The identity and location of the innovators, and the needs they identify, shapes the innovations that occur. Marginalised groups usually lack opportunities to participate in or benefit from the innovation economy. Technological progress risks deepening social and economic divides. For example, Bell et al. (2019) found that in the United States (US), children who perform well in their third-grade maths scores are more likely to become inventors if they come from high-income families (Figure 1). On the other hand, successful children from low-income families have a lower chance of becoming inventors.

High-tech industries involving skilled researchers may concentrate in urban areas, leaving rural or less developed areas behind. For example, the Organisation for Economic Co-operation and Development (OECD) (2017) reports that between 20% and 65% of R&D activities occur in the top 20% of regions with around 30% of tertiary-educated workers, indicating a strong geographic concentration of innovation-related activities that favours leading regions. Its role in economic growth, long recognised in the economics literature (Solow, 1957), means governments are

keen to encourage innovation through a range of policies such as research funding, tax incentives and skills policies. But there is increased emphasis on making innovation more inclusive. One reason is the high level of inequality and slow income growth (except at the top of the distribution) in many economies. This includes spatial inequalities. Another is the recognition that innovation in technologies such as digital/artificial intelligence (AI) and net zero will only win wide acceptance and political support if most people benefit from the significant structural changes underway in the economy. For example, 'green' technologies have started to become politically polarising as they are seen as costing too much for too little gain, while AI billionaires warn that their innovations pose major safety threats.

The focus in policy discussions is therefore increasingly on making innovation 'inclusive'. This report describes how this focus has emerged. It then discusses the definition of inclusive innovation and the variety of policy frameworks covered in the literature, which originally emerged in the context of low-income countries and their scope for economic development. Following that, it focuses on the UK context, suggesting an approach to inclusive innovation. Then, it examines the role of coordination failures. Finally, it presents recommendations for promoting a more diffused and inclusive innovation economy in the UK, targeting different levels of governance.

Figure 1. Patent rates vs. third-grade maths test scores for children of low- vs. high-income parents



Source: Bell et al. (2019).

2. Trends in innovation policy

Innovation became a focus of economic policy in the postwar years, reflecting the role technology had played during the war, as well as a new focus on long term growth dynamics in economics (Schot and Steinmueller, 2018). This initial policy approach emphasised the importance of the state's support for R&D. A consensus emerged that expanding the state's role in scientific research could boost productivity, and many governments, including the UK's, started to fund basic research through a range of policies and institutions. For example, in 2010, the EU formalised the goal of investing three percent of gross domestic product (GDP) average in R&D across the EU by 2020 (European Commission, 2010). Education for research careers, especially in STEM (science, technology, engineering, mathematics) subjects, also became a policy focus.

Over time, the policy debate moved on to the consideration of national 'systems of innovation': innovation is perceived as a product of national policies and institutional setups, highlighting the need for coordination among different actors in the system (Schot and Steinmueller, 2018). This framework focused on how well institutional arrangements contributed to the nation's comparative advantage in technological goods and services, amid increasing competition between countries at the research frontier. More recently still, policymakers have started to see innovation as essential to a transformation of the economy in response to social and environmental challenges, as well as contributing to economic growth (Stanley, Glennie and Gabriel, 2018; Parsons et al., 2024). While relatively new, this focus is reflected in the attention being paid to investment and innovation in net zero or the AI frontier as offering the potential to hit not just two but three birds with one stone: economic growth, national advantage, and social or planetary goals.

However, this positive picture casts a shadow. 'Non-inclusive' innovation also drives inequalities (Schrock and

Lowe, 2021). It disrupts work and production, replacing existing products and reshaping work processes through new technologies like automation and AI. As firms make decisions to use new technologies or alter their production processes, this can result in unemployment, wage and job polarisation or precarious work arrangements. Secondly, innovations are typically targeted at higher-income customers, partly because of the market opportunity but also often reflecting the narrow demographics of those developing new products. This results in uneven access to beneficial technologies, a lack of diversity in innovation, and inequitable rewards. Third, innovation tends to concentrate in urban areas; 'agglomeration' effects are particularly strong in knowledge-intensive activities including innovation. Investment clusters in innovation districts within cities benefit highly educated workers but drive up housing costs and displace low-income or minority neighbourhoods; Silicon Valley is a prominent example of this kind of spatial polarisation but it occurs everywhere and is particularly stark in innovative cities.

Some critics (e.g. Soete, 2013) furthermore argue that current innovation models, especially those of large digital technology companies, may destroy more value than they create. He describes the activities of these companies as 'conspicuous innovation', where minor technological improvements drive unnecessary consumption, harming the environment and society. Similar points have been made about the negative impact of innovation in the financial sector, manifested in the 2008 financial crisis (Haldane, 2017). Chataway, Hanlin and Kaplinsky (2014) link large-scale, capital-intensive innovations to the growing disconnect between economic growth and social development. Another popular critique of market-led innovation argues for governments to set the direction of innovation and shape markets (Mazzucato, 2018). In general, an emerging 'responsible research and innovation' (RRI) agenda promotes public involvement in innovation governance (Stanley et al., 2018), emphasising

the importance of researchers engaging with citizens, businesses and government to ensure new technologies are developed responsibly and enhance societal wellbeing. The likelihood of market failures leading to innovation failing to address collective challenges is all the more apparent in the context environmental crisis and the major social problems associated with digital technologies.

The fundamental case for inclusive innovation is therefore the need for society to consent to the use of resources and taxpayer funds to develop new ideas and technologies. Innovation that leads to inequality and worse or

fewer jobs, while creating products that either only a minority can afford or – worse – actively cause harm, is unsustainable. And yet innovation is key to long-term growth, and to dealing with significant challenges such as climate change or ageing, and so needs to be sustained. Since 2016, especially with the policy failures in global issues like climate change and COVID-19, there has been a sharp increase in the search for “inclusive innovation” on Google (Figure 2).

But what is inclusive innovation?

Figure 2. Google Trends search for “inclusive innovation”



Source: Worldwide, 12 July 2024

3. Inclusive innovation? Definitions and frameworks

Despite its growing usage in policy discussions, inclusive innovation is seen as an ambiguous concept in the academic literature (Pansera and Owen, 2018). Foster and Heeks (2013, p. 335) define inclusive innovation as, “the inclusion within some aspect of innovation of groups who are currently marginalized.” Similarly, Mashelkar (2014) describes inclusive innovation as “affordable access to quality goods and services, creating livelihood opportunities for the excluded population”. These definitions raise questions about which groups are seen as marginalised or excluded and need to be included in innovation. And which “aspect” of innovation should the marginalised group be included in. These authors argue that innovation is more inclusive when solutions are created with input from the people they are intended to help, not just for them.

Considering these ambiguities, in their more recent paper, Foster and Heeks (2015) provided a more detailed definition: “Inclusive innovation is the means by which new goods and services are developed for and by marginal groups (the poor, women, the disabled, ethnic minorities, etc.)... New government policies must encourage formal innovation systems to focus on the poor; help low-income actors to adapt, diffuse, and use innovations; and work to address structural roadblocks.” The OECD (2015, p.5) offered a more precise definition: “Inclusive innovation projects are initiatives that directly serve the welfare of lower-income and excluded groups.” They identified the excluded groups for inclusive innovation, including women, youth, the disabled, ethnic minorities, and informal sector entrepreneurs.

Definitions also vary across different academic disciplines, which have contrasting perspectives on the term. Mortazavi et al. (2020), using a combination of co-citation analysis and text coding for 293 core and relevant journal articles on inclusive innovation, mapped the most cited venues publishing inclusive innovation literature (Figure 3). The network illustrates both the multidisciplinary use of inclusive innovation and the existence of distinct approaches in different disciplines. For instance, George, McGahan and Prabhu (2012) note that while the economic development literature describes inclusive innovation as “innovation that benefits the disenfranchised” (p.661) or projects that serve the welfare of lower-income or excluded groups, the perspective in the management

literature is the opportunity to expand sales by tapping into underserved markets with better-targeted and tailored products.

Different approaches similarly involve different frameworks of analysis for inclusive innovation. The same paper maps the key terms used in 293 articles on inclusive innovation (Figure 4). This network map highlights the many different framings or narratives involved.

Hence there is no single approach in the academic literature (Papaioannou, 2014). The most used frameworks of inclusive innovation include:

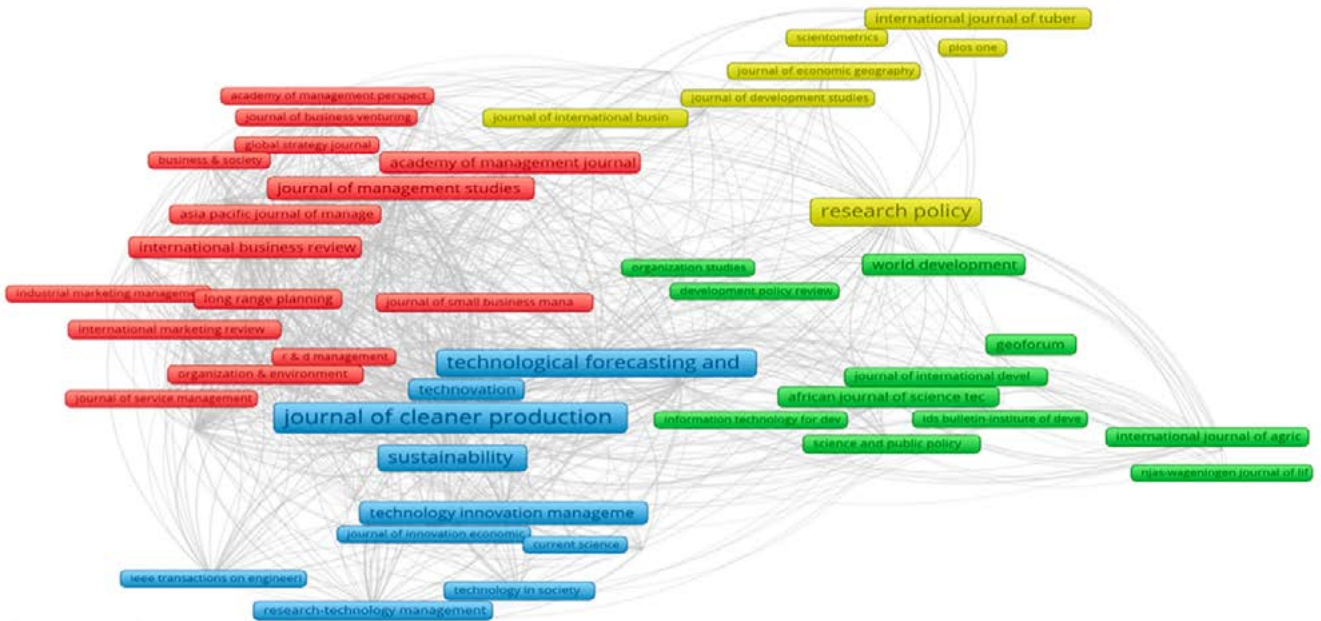
Bottom of the Pyramid (BoP) innovation

In the late 1990s and early 2000s there was a growing focus on pro-poor innovation among large private sector companies, significantly influenced by Prahalad’s work on consumers at the “bottom of the economic pyramid (BoP)” (Prahalad and Hart, 2002; Prahalad, 2005). According to Chataway et al. (2014), this idea led to the concept of “reverse innovation”, which was promoted by the Chief Executive Officer (CEO) Jeff Immelt of General Electric (Immelt, Govindarajan and Trimble, 2009) and later gained traction among transnational corporations like Procter and Gamble, Unilever, Nestlé, and Philips, exploring opportunities in expanding low-income consumer markets. Using Prahalad’s idea as a starting point, Anderson and Markides (2007) stated that firms operating in BoP markets should focus on the 4As (accessibility, affordability, awareness, and acceptability). BoP innovation is a ‘market-based’ framing for inclusive innovation, emphasising market dynamics and private enterprise, where innovation aims to generate profit as well social benefits, in developing country contexts often through multinational corporations (MNCs) or partnerships between MNCs and stakeholders.

Frugal innovation

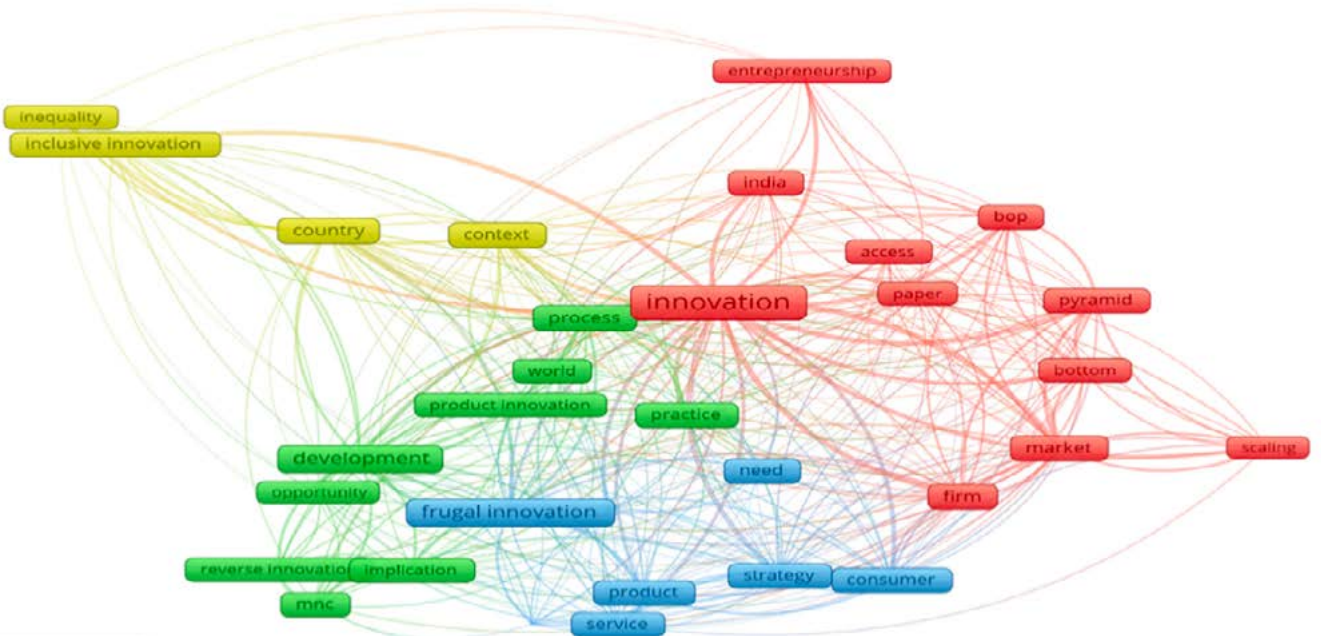
Metro Dynamics and Lee (2022) define frugal innovation as a “mode of practice that seeks to minimise resource usage, cost, and complexity in the production, constitution, and operation of new goods and services”. This focuses on new and more sustainable ways to produce typically manufactured products, with inclusivity often being a

Figure 3. The most popular publication venues for inclusive innovation literature



Source: Mortazavi et al. (2020).

Figure 4. Key terms in the inclusive innovation literature



Source: Mortazavi et al. (2020).

secondary benefit rather than the aim of the process (p.20). Likewise, George et al. (2012) define frugal innovation as “innovative, low-cost, and high-quality products and business models originating in developing countries and exportable to other developing countries or even the developed world” (p. 662). For example, George et al. (2012) discussed the case of the Tata Nano, an inexpensive car for the ‘common man’. Tata Motors, which owns luxury brands like the Jaguar XJ sports car, also sells the Nano, an affordable car for the masses (priced at \$2,500).

Grassroots innovation

Grassroots innovation is defined as “...socially inclusive towards local communities in terms of the knowledge, processes, and outcomes involved” (Smith, Fressoli, and Thomas, 2014, p. 114). Fressoli et al. (2014) define it as consisting of movements and networks formed by academics, activists, and practitioners experimenting with alternative knowledge-creation methods and innovation processes. Grassroots innovation aims to foster inclusive inclusion in various ways: (1) as a ‘process’ by encouraging participation in technology design, (2) as an ‘outcome’ by delivering services to marginalised groups, and (3) by driving ‘structural change’ by promoting wide and diverse participation in shaping policies and institutions (Fressoli et al., 2014). According to this perspective, external actors (including the state) should align their social development planning and interventions with grassroots initiatives, priorities, and innovations rather than imposing new knowledge, practices, and technologies (Opola et al., 2014). The grassroots innovation model highlights the innovator’s importance, particularly focusing on individuals from marginalised groups (Heeks and Foster,

2021). Contemporary innovation in developing countries often occurs in informal settings driven by grassroots movements addressing social injustices and environmental issues, which themselves may be consequences of market outcomes (Smith et al., 2014).

Given the limited overlap between these broad approaches, the idea of inclusive innovation, as it has emerged in the literature, which is mainly focused on developing economies, involves five concepts: (1) innovation as a tool for affordability; (2) innovation as a tool for social inclusion; (3) building innovation capabilities; (4) innovation as social empowerment in the face of constraints; and (5) innovation as an inclusive system (Appendix: Table 1, Mortazawi et al., 2020). All these alternatives in any case make it clear that inclusive innovation is not a value-neutral concept. For example, it may be taken to mean ensuring everyone has at least the formal right to participate in market processes and outcomes, so there is procedural justice. Alternatively, it may be seen as the substantive and equitable participation of all individuals in innovation processes and outcomes, unlikely to be achieved just by market forces.

4. Policy for inclusive innovation

Despite the absence of consensus on a definition, the idea of inclusive innovation is rapidly spreading in the policy domain. This is particularly so in countries beyond the developing world, which has to date been the focus of most of the academic literature. However, similarly divergent approaches emerge in the context of OECD economies too. For example, according to Foster and Heeks (2015): “Inclusive innovation is the means by which new goods and services are developed for and by marginal groups (the poor, women, the disabled, ethnic minorities, etc)... New government policies must encourage formal innovation systems to focus on the poor; help low-income actors to adapt, diffuse and use innovations; and work to address structural roadblocks”. This points to policies to affect the downstream outcomes of innovation. On the other hand, the OECD (2017) focuses on policies that address the upstream barriers to participation among innovators: “Aim to remove barriers to the participation of individuals, social groups, firms, sectors and regions that are underrepresented in innovation activities in order to ensure that all segments of society have the capacities and opportunities to successfully participate in and benefit from innovation.”

Zehavi and Breznitz (2017) try to bring these two perspectives together in the idea of ‘distribution-sensitive innovation policies’. They argue for policies that target both the production aspect (who participates) and the consumption aspect (who benefits). Then ‘distribution-sensitive innovation policy’ focuses on (1) supporting low- and medium-skilled workers by fostering innovation in sectors with high shares of these workers; (2) disadvantaged regions – encouraging innovation in economically lagging areas to bridge regional disparities; and (3) innovations for disabilities – developing innovations that cater to individuals with disabilities, enhancing their quality of life.

An alternative, wide-ranging classification comes from the UK’s National Endowment for Science, Technology, and the Arts (NESTA), which defines inclusive innovation policies as: “directed towards ensuring that the benefits and the risks of innovation are more equally shared. These policies will actively consider whose needs are met by innovation and how excluded social groups could be better served, focus on initiatives that promote broad participation in innovation, and take a democratic and participatory

approach to priority-setting and the governance of innovation” (Stanley et al., 2018, p. 2). Their inclusive innovation policy framework thus has four dimensions: (1) its overall objectives; (2) the direction of innovation; (3) participation; and (4) the governance of innovation (Stanley et al., 2018).

Lee (2023) has a three-way categorisation: innovation strategy, participation, and outcomes. Planes-Satorra and Paunov (2017) have three different categories: social inclusiveness, with a policy focus on the participation of individuals from disadvantaged groups either by enhancing their skills or by providing opportunities for them to engage in research, entrepreneurial, and innovation activities; industrial inclusiveness, policies aimed at supporting small and medium-sized enterprises (SMEs) and traditional sectors; and territorial inclusiveness, targeting lagging regions or areas. These categories aim to achieve three main objectives: (1) encouraging the involvement of underrepresented groups in innovative activities; (2) tackling the obstacles to entrepreneurship faced by underrepresented and disadvantaged groups; and (3) promoting innovation in regions lagging behind.

Not surprisingly, given this range of classifications, a variety of policies have been badged as targeting inclusive innovation; Table 1 gives several examples. But the classifications have some overlapping or common themes, which can be summarised as: ‘who’, ‘how’, ‘what’ and ‘where’. In other words, ‘who’ is involved in innovating and which groups are under-represented? ‘How’ does innovation come about – is the process or system legitimate and accountable? ‘What’ gets innovated, is society in general benefiting? And ‘where’ does innovation occur – does it contribute to growth beyond a small number of places, or instead does it concentrate opportunity narrowly?

Table 1. Some international examples of inclusive innovation policies

Programme to support the research activities of female researchers, Japan (2006–present) – Social inclusiveness			
Rationale: The share of women researchers, especially in science and engineering, is very low, with few in leading positions.	Objective: Increase the number of women in leading positions in research, particularly in STEM fields.	Target: Women researchers	Instrument: Grants to support engineering research projects led by female students; support for female researchers returning to R&D after career breaks (e.g. maternity), and provide mentoring programmes.
EuroAgri Foodchain (2014–18) – Industrial inclusiveness			
Rationale: The European agri-food sector can boost competitiveness by increasing international R&D cooperation, currently low in the industry.	Objective: Boost the competitiveness and innovation of the European agri-food industry by supporting R&D projects in one of the members of EUREKA.	Target: SMEs, large companies, research institutions and universities in the agri-led sector aiming to introduce innovations.	Instrument: Support varies and may include grants, advisory services and promotion of products and technologies across countries.
Special Economic Zones, Mexico (2016–present) – Territorial inclusiveness			
Rationale: There is a significant gap between the north of the country (richer, industrialised) and the south (high poverty, agriculture-based economy).	Objective: Faster economic development in the south by attracting foreign investment, which is expected to create jobs, boost production and improve quality of life.	Target: Peripheral regions (three lagging regions in southern Mexico).	Instrument: Establishment of four special economic zones offering fiscal incentives, foreign trade facilities, streamlined regulations, investment in competitive infrastructure, measures to increase regional productivity and regional development.
Social problem-solving R&D project, Korea (2001–present) – Social, territorial and industrial inclusiveness			
Rationale: Social problems (e.g. socio-economic polarisation, climate change) need to be addressed and researchers can contribute.	Objective: Solve social problems by increasing public participation in the process of R&D projects.	Target: Citizens, local communities, corporations, public institutions and social service organisations.	Instrument: Identify social problems through public feedback and support researchers and experts with financial and non-financial resources to address them.

Source: Adapted from OECD (2017).

5. The geography of inclusive innovation: the UK context

One of these of particular importance in the UK context is the ‘where.’ The UK has a strong science and research and development (R&D) base, including in its universities. It produces significantly more academic publications per capita – 57% more than the US and six times more than China – yet the UK struggles to turn this scientific knowledge into commercial success (The UK Innovation Report, 2024).

The UK’s government R&D spending significantly increased between 2010 and 2020 to improve productivity performance (Jones, 2023). However, it still trails behind leading nations like Germany, and while it is home to numerous companies that invest in research, only three of the world’s top 100 R&D-investing companies are headquartered in the UK (Cambridge Industrial Innovation Policy, 2024).¹ In 2021, the UK’s R&D investment was 2.9% of GDP compared to the OECD average of 2.72%. However, government R&D intensity in the UK only accounted for 0.56% of GDP, falling short of the OECD average of 0.62% (OECD, 2024).

At the same time, it is the most spatially unequal of the OECD economies. The distribution of public research spending has been unequal (Forth and Jones, 2020). The UK’s spatial inequalities are also evident in the Economic Complexity Index (ECI) and Knowledge Complexity Index (KCI) scores, highlighting economic and knowledge-based disparities across regions, with London and Cambridge scoring high (Coyle and Hampton, 2024).

As noted, innovation is generally geographically clustered in any case, due to economic benefits from agglomeration, such as knowledge sharing and better job matching. Regions with high concentrations of innovative sectors tend to outperform others in economic growth. Lee and Metro Dynamics (2022) describe the notable spatial concentration of innovation. Science parks and innovation districts, often linked to universities and urban settings, are key research hubs. Urban innovation districts have emerged, characterised by diverse specialisms and strong local assets such as higher education or research institutions. These districts attract talent, spread innovation benefits, generate jobs, and foster dynamic business environments.

While innovation districts enhance productivity and R&D by clustering businesses and amenities, they can lead to higher property prices, and displace small firms and local residents (Metro Dynamics and Lee, 2020). High innovation areas in urban contexts are often literally next door to disadvantaged areas, separated by invisible barriers. Kemeny and Osman (2018) and Breznitz (2021) explore the impacts of high-tech activities on local economies, cautioning against the pitfalls of planting such activities to non-innovative areas. At a regional level, disparities may result from the agglomeration of major corporations in specific “superstar” locations, monopolising innovation resources (Feldman, Guy, and Iammarino, 2021). Regions with physical and digital connectivity, weak absorptive capacities, and limited access to finance or skills, struggle to adopt new technologies and innovations, even when innovative firms are present. Spatial segregation occurs even within cities. Over time, lagging locations or regions may fall further behind as innovative areas attract more talent, investment, and entrepreneurship, as there are virtuous and vicious cycles. Disadvantaged groups in the lagging areas often face compounded disadvantages, making it difficult to access quality jobs and benefit from nearby innovation and growth (Planes-Satorra and Paunov, 2017).

Most countries’ innovation strategies include regional measures, but the focus on ‘place-based’ policies varies (Stanley et al., 2018). Some countries, like Norway and France, mention broad initiatives, while others, like Germany, Sweden, and the UK, focus on investing in deprived regions (Stanley et al., 2018). Germany’s strategy includes the ‘Entrepreneurial Regions’ campaign and task forces to improve regional economic structures. The UK has experienced substantial churn in its regional policies (Coyle and Muhtar, 2023). The 2017 Industrial Strategy published by Theresa May’s Conservative government, and subsequently abolished by her successor Boris Johnson, emphasised ‘place’ as a key theme, resulting in Local Industrial Strategies that leverage local strengths and increase economic capacities (Stanley et al., 2018). Similarly, the Build Back Better Plan (2021), R&D Roadmap (2020), Innovation Strategy (2021), Levelling Up White Paper (2022), and Science and Technology Framework

1. These three companies are AstraZeneca, GSK, and HSBC.

(2023) all highlight the importance of enhancing innovation potential across various regions. These policy documents also recognise the critical role of developing a skilled workforce to support innovation. The UK has a higher percentage of STEM graduates than many other advanced economies. However, employers still find it harder to fill roles that require key skills in areas like medicine, science, production, technology, and digital fields compared to the average availability in OECD countries and the European Union (EU) (Cambridge Industrial Innovation Policy, 2024). This points to the need for a broader talent pool in STEM, especially by creating more opportunities for underrepresented groups in fields like AI and data science, which are crucial to the UK's goal of becoming a leader in science and technology (The UK Science and Technology Framework, 2023).

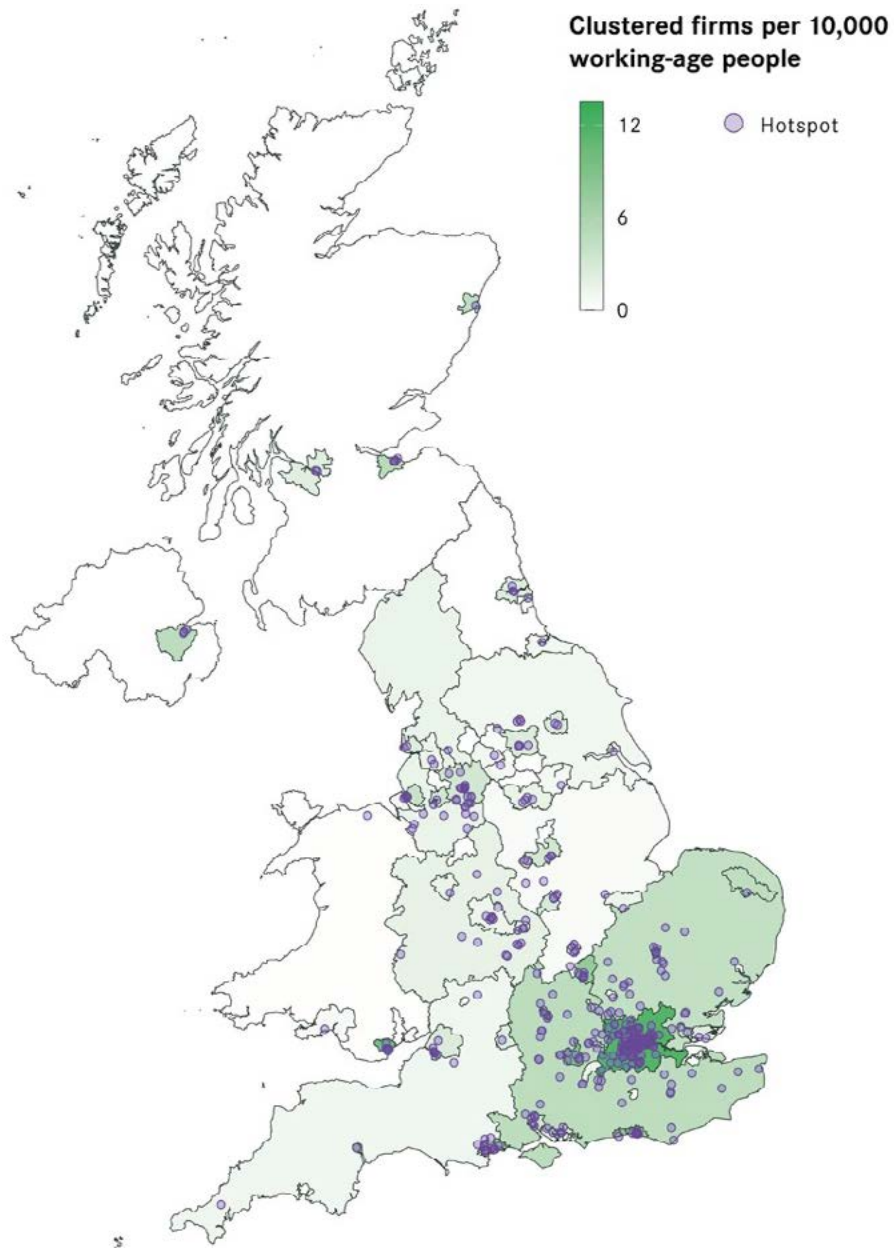
According to their business partnership strategy for growth, the new UK Labour government plans to create a Regulatory Innovation Office (RIO) to enhance accountability and foster innovation (Labour Party, 2024). The RIO will merge the Better Regulation Executive and the Regulatory Horizons Council to set and monitor targets for regulatory approval of new products and services, establish internationally benchmarked speed targets for regulatory decisions, and publish performance data. To support long-term R&D, the new government plans to implement 10-year budgets, reduce bureaucracy by simplifying the R&D funding system, and adopt a trust-based approach to reporting and audits. They will maintain the current R&D Tax Credits structure to provide stability, while addressing fraudulent claims and evaluating the scheme's sector-specific impact, starting with Life Sciences. Additionally, Labour aims to increase the number and success of university spinouts by working with universities to offer a 'Founder-track' option, where the university takes a share of equity at or below 10% (Labour Party, 2024). This approach aligns with the broader goals of fostering innovation-friendly university policies, as highlighted in the Independent Review of University Spin-out Companies (2023). The review recommends that universities adopt clearer, market-friendly equity terms, particularly for less intellectual property (IP)-intensive sectors like software, where it advises university equity to be capped at 10%. By establishing more standardised equity terms, the Labour

government's proposal could simplify spinout negotiations and facilitate a more efficient approval process, supporting the review's call for streamlined decision-making.

In the UK, Lee and Metro Dynamics (2022) focused on innovation districts. In yet another categorisation, they highlighted three fundamental dimensions for inclusive innovation: "design", "delivery", and "diffusion". Their research revealed that most current initiatives emphasise the design and delivery phases, with limited attention to the diffusion of benefits and outcomes. This lack of focus on the diffusion stage is critical, as achieving a successful and lasting inclusive innovation strategy relies on the integration of all three dimensions. In examining the present state of inclusive innovation, it's important to highlight examples of collaborative initiatives. As they discuss, one example is the National Health Service (NHS) Innovation Accelerator, which illustrates how healthcare organisations promote the adoption of local innovations by involving frontline staff in the creation of new solutions for patient care. At a local regional level, the Cambridgeshire and Peterborough Innovation Hub focuses on fostering local innovation and improving health outcomes. However, there remains a significant need for further action to ensure that the advantages of innovation are shared more equitably across all areas. These cases not only act as benchmarks but also emphasise the need for a more unified strategy to enhance the broader impact of innovation on the economy.

In another study in the UK, Evans (2023) explores how innovative 'new economy' firms cluster over short distances by identifying hotspots where these firms group together to benefit from agglomeration. The study identifies 344 innovation hotspots across the country, with a significant concentration in London and the Greater South East, which accounts for 60 per cent of all hotspots. Most of the remaining hotspots are distributed across the North West, West Midlands, and South West of England. Figure 5 illustrates these regional disparities, showcasing the geographic spread of individual hotspots and the levels of new economic activity across different parts of Britain.

Figure 5: Distribution of innovative hotspots



Source: Evans (2023).

6. Inclusive innovation and coordination failures

A key gap in the landscape in the UK is a shared understanding of the innovation opportunities across all the authorities and agencies with a role to play. Our most fundamental recommendation is for a data mapping exercise shared between national, regional and local authorities to develop a portrait for investors – private and public – of the capabilities, skills and assets (such as infrastructure, skills providers, or existing supply chains) available across the UK. This will need to combine a nationally shared framework for the types of information investors require, and a locally-driven provision of sufficiently granular data.

The reason for this is the role of coordination failures in holding back growth. Places may have advantages that are latent but held back by the absence of a specific asset needed to trigger innovation and growth. For example, South Korea and Taiwan both had skilled labour forces yet low levels of physical capital stock before their growth take-offs. Investment in capital coordinated by the government was able to trigger a high but so far latent return to that investment; the rate of return to individual investments in specific assets may appear low but the return may be much higher with sufficient coordination (Kremer, 1993; Rodrik, 1995). Knowing what is needed requires a solid government (as coordinating agent) understanding of a place's assets and capabilities. In addition, this understanding must be well-grounded in place-specific data. Shortages of specific capital assets or skills, the need to attain economies of scale in order to produce and compete, and the important role of inter-firm and inter-industry linkages in modern supply chains are all reasons why coordination is important to bring about inclusive investment.

Similarly, in their study on research priorities for inclusive innovation, Heeks et al. (2013) identified the absence of collaborative structures and a shared understanding among various actors as key barriers to inclusive innovation efforts in developing countries. Their research involves interviews with individuals from three emerging economies – India, Indonesia, and Uganda – including policymakers, strategists, and representatives from the private and non-governmental organisation (NGO) sectors. These interviews reveal policy-related challenges, with

interviewees expressing uncertainty and confusion about the concept of inclusive innovation. Some of the main barriers identified are: (1) lack of policy support; (2) absence of collaborative structures to facilitate inclusive innovation; and (3) insufficient skills and knowledge. This lack of readiness, along with poor coordination among key actors and institutions, exacerbates the barriers to inclusive innovation in developing countries (Heeks et al., 2013).

One notable effort to create inclusiveness through coordination and collaboration is Chile's Prototypes of Social Innovation programme. This programme seeks to identify regional challenges by fostering coordination and collaboration among all regional actors (Planes-Satorra and Paunov, 2017). The initiative engages diverse social groups – students, business owners, government officials, and social activists – through interviews and meetings. Once these challenges are identified, an open call for innovative solutions is made via an online platform designed for public participation and discussion. The programme encourages inclusive participation among the targeted groups, ensuring that solutions are rooted in the community's real needs.

Coordination among all policy actors is also critical for creating an innovation system centred on equity, diversity, and inclusion (EDI) in developed economies. In Sweden, strategic design approaches are employed in mission design, incorporating EDI principles through collaborative design methods and active engagement with the community (Kattel et al., 2023). Likewise, Denmark has introduced tools from the Danish Design Center to foster better coordination and management of innovation ecosystems (Danish Design Center, 2021; Kattel et al., 2023).

Box 1: Case Study – Inclusive innovation in North Carolina

The biopharmaceutical manufacturing sector in North Carolina represents a successful case of how inclusive innovation can be effectively pursued. According to Lowe and Wolf-Powers (2017), the state achieved this through its unique ability to coordinate efforts across various institutions, fostering a diverse institutional framework that brought together various stakeholders. Their study focuses on inclusive innovation in the new manufacturing economy, with an emphasis on identifying who benefits from innovation.

Lowe and Wolf-Powers (2017) highlight that North Carolina successfully combined innovation with social equity by ensuring that job creation included workers at all educational levels. A major factor in this success was the state's strong workforce development infrastructure, particularly its partnership with community colleges. These institutions provided technical training that allowed workers from traditional industries, such as textiles, to transition into biopharmaceutical manufacturing roles. The coordinated efforts between state, biopharmaceutical firms, and educational institutions – following the triple helix model – resulted in creating opportunities for workers at all levels, including those without advanced degrees. This contrasted with other states where innovation tended to benefit primarily highly educated professionals.

Overall, North Carolina's inclusive innovation strategy is notable for its ability to coordinate research, production, and workforce development efforts. By integrating community colleges into its system, the state helped workers with limited formal education transition into roles within the biopharmaceutical sector, contributing to a more inclusive job market (Lowe & Wolf-Powers, 2017).

7. Recommendations

Inclusive innovation is a broad term describing a necessary aim for policy and practice in the UK. The definitions and classifications surveyed in this report point to a core set of themes, with a corresponding range of policy tools and outcome measures. Table 2 summarises these.

Table 2. Inclusive innovation: a summary

Theme	Metric	Example policies
Upstream		
Governance/legitimacy	Engagement measures	Political accountability, participatory processes, stakeholder convening & policy coordination mechanisms
Asset base/capabilities	R&D spend – public/private; Universal basic infrastructure data at relevant spatial scale	Distribution of public R&D funding; other public investment; private investment incentives & services
Finance	Sources and amounts of funding: public, private internal, bank lending, VC etc.	Tax policies, policy stability
Innovation demography	Survey of demographic make-up of innovators	Spaces for start-ups, bursaries, skills policies; Further/higher education
Downstream		
Supply chains	Mapping of start-ups & supply chain growth	Network actors; local business support
Innovation impacts	Monitoring new products and services	Prizes, advance market commitments
Diffusion & use	Cost and usage of innovations	Know-how mechanisms, low-cost business consultancy
Financial returns	Return on investment (ROI) to different sources of funds	Information provision, coordination

The upstream themes focus on building foundational elements that support inclusive innovation. Effective governance ensures that all actors are actively involved in the innovation process, fostering transparency and accountability and reducing administrative delays. Strengthening the asset base through targeted investment in R&D and infrastructure is critical for building the capacity necessary for innovation to thrive. Similarly, access to a diverse set of financial resources, including public funding, private investment, and venture capital, is essential to support a wide range of innovation activities. Ensuring diversity within the innovation demography is

also key, as it promotes inclusion and brings a variety of perspectives that enrich the innovation process and its outcomes.

The downstream themes emphasise how innovations are adopted and their broader economic and societal impacts. Mapping startups and tracking supply chain growth help innovations reach wider markets, contributing to broader economic growth. Monitoring the impacts of innovation is essential to ensure that new products and services meet and deliver on inclusive needs, which can be incentivised through mechanisms like prizes and market commitments

to encourage their success. In the context of diffusion and use, the focus is on ensuring that innovations are not only widely accessible but also affordable and practical for diverse sectors and communities. Policies that support knowledge-sharing and low-cost consultancy can help reduce barriers to adoption, making it easier for all businesses, regardless of size or resources, to engage with innovation. Finally, tracking financial returns is crucial for generating sustainable outcomes – ensuring continued support for future innovation that benefits a wide range of stakeholders.

Together, these themes help policymakers focus on the tangible outcomes of inclusive innovation, ensuring its value benefits all parts of society and drives both social and economic growth.

The table applies at different spatial scales, national, regional and local, as the inequalities in the UK's economic geography are fractal. Indeed, the sharpest contrasts occur at the most local levels, within thriving cities such as Cambridge, Manchester and London. The policy selection will depend on the responsibilities and capabilities of public authorities at each level of government.

As discussed in this report, making innovation inclusive takes time. To support this process and to create a more inclusive and effective innovation economy in the UK, government action is needed at different levels, to implement the types of policy indicated in the table. Often, there will need to be greater coordination between different levels than is the case at present in the UK.


Locally, councils and local authorities need to adopt policies informed by their uniquely well-informed understanding of community needs and opportunities. This may include establishing innovation hubs, fostering collaboration between local businesses and educational institutions, and ensuring that innovation spaces are open and accessible to everyone. Local authorities can also play an important role in implementing localised funding and mentorship programs targeted at underrepresented groups. To achieve this, it is essential to improve local and national data collection to identify underrepresented groups and foster local talent pipelines.

At the regional level, authorities need to tailor innovation strategies to the unique strengths and needs of their areas. This involves fostering collaboration between regional universities, businesses, and local governments to create innovation networks that link any successor to the levelling-up agenda with innovation policy. Regional innovation hubs can support underrepresented or marginalised groups by providing access to funding, mentorship, and networking opportunities. Additionally, on a regional level, inclusive innovation policies can bridge gaps in education and skills by partnering with local educational institutions to offer specialised training programmes that align with regional economic priorities. By doing so, regions can develop a skilled workforce that meets the demands of local industries and enhances regional competitiveness. Investment in regional infrastructure, such as transport and digital connectivity, is also crucial to ensure that all areas can participate in and benefit from innovation-driven growth.

At the national level, the government should develop a consistent framework for inclusive innovation by setting clear objectives and benchmarks and coordinating effectively across bodies and levels of government to achieve these goals. This includes incentivising diversity in R&D funding, investing in infrastructure such as high-speed internet for all areas to meet a minimum standard everywhere, promoting public-private partnerships to foster an inclusive innovation ecosystem, and promoting inclusion in human resources policies. National policies should also support the development of skills needed to prepare a diverse workforce for an inclusive innovation economy.

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Appendix

Table 1. Clusters of inclusive innovation in the literature

Clusters	Sources	Method	Industry setting	Geographic context	Summary of innovation elements
Innovation as a tool for affordability	Zeschky, Widenmayer, & Gassmann, 2011	Survey based	Consumer goods	Asia	MNE presence in the region, level of experience of the organization in the market as well as effective partnership in the market are elements that offer affordable innovation drawn from the articles of this cluster.
	Prahalad, 2012	Others	Consumer goods	Asia	
	Zeschky, Widenmayer, & Gassmann, 2014	Literature review	Consumer goods	Asia	
	Prathap, 2014	Others	Not specified	Multiple	
	Tran & Ravaud, 2016	Other	Services	Not specific	
	Pansera & Sarkar, 2016	Case study	Services	Asia	
	Barclay, 2014	Conceptual	Not specified	Asia	
	Altmann & Engberg, 2016	Case study	Consumer goods	Multiple	
	Hall, Bockett, Taylor, Sivamohan, & Clark, 2001	Case study	Not specified	Asia	
	Hall & Lobina, 2007	Case study	Consumer goods	Multiple	
Innovation as an important tool for inclusion	Anderson & Markides, 2007	Others	Multiple	Multiple	Inclusion can be achieved through using market adaptation strategies, as facilitators to overcome market inequalities, and lastly, offering an iterative process to understand the market supply and demand.
	Hall et al., 2012	Case study	Transportation and logistics	Latin America	
	Knorringa, Peša, Leliveld, & Van Beers, 2016	Others	Not specified	Not specified	
	Levänen et al., 2016	Literature review	Multiple	Not specified	
	Ramani, SadreGhazi, & Duysters, 2012	Case study	Consumer goods	Asia	
	Schillo, Robinson, & Sainte-Marie, 2017	Literature review	Not specified	Not specified	
	Squire et al., 2011	Conceptual	Public administration	Not specified	
Building capabilities and social empowerment through innovation	Nocera, 2012	Others	Services	Not specified	Building capability is fostered through community growth plans, supporting local entrepreneurs and increasing the innovation capacity of the region.
	Ramani & Mukherjee, 2014	Case study	Services	Asia	
	Agrawal, Kapur, McHale, & Oertl, 2011	Others	Not specified	Asia	
Innovation constraints associated with social empowerment	Halme, Lindeman, & Linna, 2012	Case study	Services	Asia	Innovation constraints mostly evolve around financial restraints, institutional voids, and lack of willingness and motivation of MNEs to operate in developing countries.
	Cunha, Rego, Oliveira, Rosado, & Habib, 2014	Literature review	Not specified	Not specified	
	Pansera & Owen, 2015	Case study	Not specified	Asia	
	Prabhu & Jain, 2015	Others	Not specified	Asia	
	Mendoza & Thelen, 2008	Conceptual	Not specified	Not specified	
	Gorodnichenko & Schnitzer, 2013	Others	Not specified	Not specified	
Innovation as an inclusive system	George, McGahan, & Prabhu, 2012	Others	Not specified	Not specified	Innovation is made through engaging the locals in the process to generate localization. However, financial support packages are needed to aid the locals.
	Foster & Heeks, 2013a	Case study	Services	Africa	
	Sonne, 2012	Case study	Services	Asia	
	Foster & Heeks, 2013b	Case study	Services	Africa	
	Hegger, Spaargaren, van Vliet, & Frijns, 2011	Case study	Services	Europe	
	Milner & Madigan, 2004	Others	Consumer goods	Europe	

Source: Mortazavi et al. (2020).



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