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The Recent Place-Based Shift in US Green Industrial and Technological Policies

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Abstract

In this report we document the recent and dramatic pivot in the USA's federal industrial policy arena towards a much more explicitly place-based policy approach. This place-based approach is aimed at revitalising economically weaker regions in the national service of upgrading the US's technological base and its climate change mitigation agenda.

The Recent Place-Based Shift in US Green Industrial and Technological Policies

The EU Cohesion Policy has many decades of experience to build on, and much of this experience in the prioritisation of actions, strategic programming, stakeholder engagement and multi-level governance, allied with ongoing monitoring and evaluation, will be essential in responding with urgency to the climate change mitigation challenges. The recent political economy shocks and the resulting energy crisis, has refocussed attention on the sustainability and resilience challenges facing many European regions, and indeed in regions in many parts of the world. At the same time, these same issues have also galvanised a major shift in thinking and policy implementation the USA towards place-based policies, on a scale which is both unprecedented and also largely unexpected to most observers. Many of the environmental and energy-related challenges facing the USA and EU display common features, as do some of the policy responses, but there are also some important differences which need to be made clear, in order to identify the commonalities. In particular, the 'geography of discontent' (McCann 2020) in the US was stark, in terms of the spatial patterns of anti-establishment political voting in the 2016 Presidential election, and still evident in the 2020 Presidential elections. The extent to which places felt that they were 'left behind' and didn't matter (Rodriguez-Pose 2018) in wider national and international political debates threatened to undermine much of the democratic system (Wolf 2023), and similar 'geography of discontent' pressures were starkly evident in the UK Brexit vote, as well as voting patterns in Austria, Italy (McCann and Ortega-Argilés 2021) and elsewhere in Europe (Dijksta and Rodriguez-Pose 2020).

In the context of addressing climate change, the dramatic reshaping of US economic policy to an industrial policy with explicit place-based underpinnings is an exemplar of how regional policy is essential for facilitating climate change adaptation processes.

The US is different to many parts of the EU, in that health insurance depends on having a job. Involuntary unemployment, low labour participation (Weingarden 2017) and joblessness (Bartik 2020a) are serious societal challenges in all countries, but they are especially acute in the USA, because of the allied healthcare benefits of employment. In many economically depressed or 'left-behind' localities, both in the EU and the USA, widespread joblessness is associated with serious additional social and societal costs relating to poor physical and mental health, increased crime, increased drug and alcohol dependency, higher incidences of family breakdown, reduced educational attainment levels, higher welfare and disability benefit costs, and overall lower levels of quality of life, subjective wellbeing and life satisfaction (Bartik 2020a). In other words, local joblessness imposes enormous private and social costs, many of which are local, but some of which have wider regional and national impacts (Bartik 2020a).

These same arguments are also relevant for the EU, the major differences being that in the case of EU regions, much higher levels of welfare and social support are evident than in the US, including access to healthcare, and also place-based regional policies also have a longstanding tradition supporting economically weaker localities, whereas in the US such policies are much more limited. In the USA, total place-based policies amount to no more than 3% of state and local government fiscal resources generated by their own-source local tax revenues (Bartik 2020a). National federal intervention in place-based policies was abolished under the Reagan administration, on the advice of the President's Council for an Economic Agenda. As such, until very recently, place-based funding was only state and local in nature, receiving no national support, and where place-based economic policies do exist, they have tended to focus only on firms' incentives (Bartik 2020a).

In the US context, it is only very recently that there has developed a new consensus that place-based policies may have national benefits. For six decades, going back to Winnick's (1966) original argument that there was a dichotomy and trade-off in policy terms between 'people prosperity and place prosperity', the US has tended to eschew regional policies, and this so-called space-blind thinking also dominated World Bank (World Bank 2009) thinking. These purportedly space-blind lines of thinking emphasised a combination of enhanced education and increased out-migration as means for correcting weaker regions, but serious conceptual and empirical doubts about these approaches had already surfaced in EU a decade and a half ago (Barca 2009; OECD 2009a,b), and the new pro-place-based evidence formed the intellectual underpinnings of the 2014-2020 reforms to EU Cohesion Policy, including crucially, the introduction of the pioneering RIS3 smart specialisation.

The profound shift in favour of place-based policies also started to surface in the USA in the last few years, a decade or so after the EU. This US intellectual shift was led by key thinkers, including Tim Bartik, Mark Partridge, Steven Deller, Dan Rickman, as well as Mark Muro and the team he leads at the Brookings Metro Program, who provided a barrage of empirical evidence to support place-based approaches. Even former strong US advocates for space-blind thinking who were previously explicitly hostile to place-based policies

(Glaeser and Gottlieb 2008), are now seriously investigating the case for place-based policies (Austin et al. 2018). The reasons for the pro-place-based shifts in thinking even amongst former space-blind advocates are that empirical evidence increasingly points to migration being a poor mechanism for fostering regional adjustment (Bartik 2020a), and with the US changing from being an economy characterised by interregional convergence to one of interregional divergence, as is now also the case in many parts of the EU. Admittedly, the 'place-based' analysis of some of the former place-based sceptics is much narrower than the types of policy framing evident in EU regions, focusing solely on the optimal regionally-varying set-up and scale of the requisite local social insurance for generating local employment in these locations. Indeed, Rivlin (2018) argues that genuine place-based policies are much holistic than simply the application of local unemployment insurance, and in reality need to take into account the causes of the local economic weaknesses and the various options for turning these regions around.

These much wider and comprehensive place-based policy framings are now clearly evident in the USA. Muro (2023) argues that place-based approaches have three main merits in the US context. First, explicitly place-based strategies may be able to address the roots of the problem more directly by targeted interventions (Muro 2023) than economy-wide policy frameworks, which tend to be more general and less specifically related to the needs of left-behind places. Second, if place-based policies are built on locally 'grounded' problem-solving searches for solutions, then the stakeholder engagement afforded by such approaches offers greater possibilities for coordination and collaboration. This is essential in order to build scale. Third, such policy approaches aim to 'get the civics right' (Muro 2023), in the sense that this engagement and mobilisation of a wide array of actors and networks in a context of a bipartisan and stable political set-up ensures that the maximum knowledge and scrutiny are brought to bear on the policy prioritisation, design and delivery (Muro 2023). This is essential from the perspective of both the public sector and civil society sectors, but most importantly, it is essential in terms of encouraging the private sector to reinvest in left behind regions. These collaboration and coordination activities across the public, private and civil society sectors are essential forms of good governance, and in many ways it is easier to foster collaboration at the local and regional scales than it is at larger scales.

On the basis of wide-ranging US empirical evidence, Bartik (2020a) argues that for place-based policies to be successful, there are six key design principles, namely that:

(i) Place-based policies should focus explicitly on depressed areas.

(ii) Place-based policies should focus on high multiplier industries.

(iii) Place-based policies should not disproportionately favour large firms.

(iv) Place-based policies should focus on the enhanced provision of local business inputs, and local infrastructure and land provision.

(v) Place-based policies should be a coordinated package of policies tailored to the local context and aimed at building complementarities.

(vi) Place-based policies should be better evaluated using quantifiable selection criteria, thereby permitting the use of techniques such as regression discontinuity design.

These six key principles, which were derived from observations of US policy experiences (Bartik 2020a), are very consistent with the principles of the 2014-2020 reforms to EU Cohesion Policy (McCann 2015) which were ushered in following the recommendations of the Barca (2009) report. This strongly suggests that while there were still previously major gaps in understanding and consensus regarding policy approaches, there are nowadays many points of convergence and consensus in place-based thinking spanning both sides of the Atlantic. Crucially, these major US intellectual shifts have moved in favour place-based policies, and these shifts have laid the groundwork for a new generation of federally-directed and explicitly place-based 'green' industrial policies aimed at driving climate change mitigation.

The Biden administration has instituted this new generation of place-based policies on a scale which is unprecedented in the USA, and in many ways is also unprecedented in scale in the EU context. Political changes within the USA allied with the covid-19 emergency led to delays in action on the United Nations Sustainable Development Goals as enshrined in the Paris agreement. In addition, the energy-related shocks associated with the conflict in Ukraine have all given a new political impetus to fostering a greener economy in the USA, the EU and elsewhere. Meanwhile, security concerns regarding the out-sourcing of US technology in global production networks, allied with a fracturing of international relations, taken together have led to a greater domestic reorientation of US economic policy. The fact that the 'geography of discontent' was so

evident in the USA (Hendrickson et al. 2018) also tied the green agenda to an explicitly place-based agenda aimed at helping to turn around many left-behind regions.

As already mentioned, prior to the Biden administration's decision to act decisively, there had already been much place-based thinking undertaken in US policy and academic circles. In particular, much of this work had been spearheaded by the Brookings Metro Program (Shambaugh and Nunn 2018; Shearer et al. 2018), such that by the time the Biden administration acted to decisively move to a place-based approach with many policy arenas, US policy-analysts were well-prepared to assess progress on these fronts (Parilla et a. 2022).

The four key planks of the Biden administration's new economic policy agenda are:

the American Rescue Plan Act (ARPA)

the Infrastructure Investment and Jobs Act (IIJA) 2021

the Chips and Science Act (CSA)

the Inflation Reduction Act (IRA)

All four of these policy schema represent a nationwide pivot away from fluctuating and vacillating between laissez-faire policy and ad hoc and intermittent efforts at redistribution (Muro 2023). The American Rescue Plan Act (ARPA), the Infrastructure Investment and Jobs Act (IIJA) 2021, and the Chips and Science Act (CSA) together account for some $80bn in spending across 19 policy programmes (Muro 2023), plus many billions more in clean energy, cleantech and related investment programmes, alongside disaster recovery initiatives, all via the $400bn IRA Inflation Reduction Act (Muro 2023). All four acts represent both individually and even more important, collectively, a major shift in US economic towards a place-based agenda, including highlights such as the mid-western 'battery belt' agenda (Muro 2023). In particular, the Economic Development Administration's $1bn 'Build Back Better Regional Challenge' (BBBRC), which is explicitly place-based in design and logic, is a cornerstone of the American Rescue ARPA American Rescue Plan Act (Muro et al. 2021). The BBBRC seeks to strengthen regional-industry clusters across the USA and fostering well paid and resilient and boosting competitiveness (Haskins and Parilla 2023), especially in both high-technology manufacturing and the production renewables technologies. The objective is to allow localities to fund multi-dimensional cluster strategies, rather than having to piece together fragmented funding sources in a bid to scale up locally (Haskins and Parilla 2023).

The CHIPS and Science Act (CSA) is the mainstay of a new US industrial strategy (Muro et al. 2023). The federal government intends that both local and state governments also support these nationally-instigated projects and programmes (Muro et al. 2023), focussing primarily on the development of local industrial clusters and local co-investment (Muro et al. 2023). The intention of the CSA Chips and Science Act is that federal government will only account for 5%-15% of total capital investments, with a combination of the private sector, plus philanthropic and local public actors accounting for some 75%-95% of the overall programme. Rather than traditional industry-specific subsidies, as was common in earlier generations of US place-based policies, the commissioning of these projects in the CSA Chips and Science Act will focus on the potential for sub-central government funding to foster the creation of local spillovers and synergies (Muro et al. 2023). In particular, such synergies and spillovers are intended to for enhancing long-term economic development trajectories which are resilient to adverse economic shocks (Muro et al. 2023). Areas for CSA funding priorities include infrastructure, workforce development and R&D, all within a broad cluster development logic (Muro et al. 2023). As part of this agenda, the training, development and retention of workers in the semiconductor industries has to be a central element of each proposal, and while many parts of the semiconductor industry require very advanced skills, some 60% of semiconductor manufacturing jobs are not typically university graduate jobs, although they do require higher technical skills (Muro et al. 2023). As well as technological dimensions and technical skills, the CSA programme also explicitly considers broader community and investment issues in its portfolio. These wider considerations include increasing diversity both between and within policy-supported businesses, and the provision of childcare facilities for the policy-supported workers must be built into the design of the policy programme from the outset. In addition, a range of community benefits agreements and engagements with civil society actors are all expected to be part of proposals, ensuring that development becomes genuinely embedded in the long-run.

In terms of media coverage, the most prominent feature of the CHIPS and Science Act (CSA) is that it provides $50bn to support US-based semiconductor manufacturing, research and development. However, embedded within the CSA Chips and Science Act there are two major tranches of place-based funding and policy.

The first tranche is some $10bn of CSA funding to cover five years of costs associated with the creation of 20 new Regional Technology Hubs located in regions which are different from the current major US technology

hubs, most of which are in coastal regions (Bartik et al. 2022). This policy regarding the creation of new technology hubs located in non-coastal regions builds on the proposals originally put forward by Mark Muro and Jacob Whiton of the Brookings Metro Program and Rob Atkinson of the Information Technology and Innovation Foundation (Atkinson et al. 2018), and another by Simon Johnson and Jonathan Gruber at MIT (Johnson and Gruber 2019). These proposals sought to tackle the problem that US domestica technology investment and jobs was becoming increasingly geographically concentrated in a few locations, largely locking out whole parts of the country from the technological progress enjoyed by these locations. At the same time, the fact that increasing sections of the semiconductor industry were being out-sourced internationally, also risked the US being unable to compete in the future in key technologies and thereby increasingly vulnerable to international political shocks. As well as the political risks, costs constraints and congestion mean that the domestic upgrading and near-shoring of whole semiconductor value-chains was understood to only be viable in the long-run if other parts of the US were able to play key contributions. US technology-upgrading and knowledge-diffusion are being underpinned by an explicit place-based logic aimed at embedding technologies more widely across regions.

The second CSA place-based element is $1bn tranche of funding to cover five years of costs associated with the setting up of 'Recompete' pilot programme in ten distressed communities (Bartik et al. 2022). These are places where the employment to population ratios are very low due to a combination of involuntary unemployment, joblessness and low activity and participation rates (Bartik et al. 2022). This programme is based on a proposal originally put forward by Tim Bartik (2020b,c), and focuses on ensuring that new technology-related jobs lead to wider societal benefits, especially in distressed communities and amongst workers without university or college educations. Bartik (2020) argues that this is both possible and realistic, because high-technology jobs typically also display high local employment multipliers, and this is the case even for lower skilled local workers. Other commentators (Glaeser and Hausman 2019) have argued that in order to foster greater employment opportunities in economically weaker localities, the policy priority should be to develop programmes which aim to promote knowledge diffusion from economically stronger to economically weaker regions. In many ways the CHIPS and Science Act (CSA) is intended to respond to both of these issues by building a wider geographical spread of technology centres which also lead to high local employment multipliers. Although the Regional Technology Hubs programme is not explicitly or specifically aimed at distressed areas, it is a federal requirement that a third of the commissioned Regional Technology Hubs must be located in smaller US cities or rural regions. In addition, the need for job-creation in underrepresented and disadvantaged communities is an explicit requirement for the Regional Technology Hubs to be commissioned. In the USA, it is typically smaller cities and rural communities that are struggling economically (Bartik et al. 2022), so taken together, the combination of the targeting many of these localities alongside the need for job-creation in disadvantaged communities, provides the mechanisms by which the programmes seek to address the socio-economic and geographical widening and deepening of technology-led prosperity programmes.

In the case of both the Regional Technology Hubs programme and the Recompete programmes, in order to foster economic development the federal funding can be used flexibly by state and local policy-makers in order to provide a broad array of infrastructure and services (Bartik et al. 2022). However, the commissioning of these programmes requires that they are all rigorously evaluated from the outset, and ongoing monitoring and evaluation are built into the programmes.

As mentioned above, $1bn 'Build Back Better' regional challenge promoted by the Economic Development Administration, is a cornerstone of the ARPA American Rescue Plan Act (Muro et al. 2021; Parilla et al. 2022). The 'Build Back Better' regional challenge provides five-year grants ranging between $25 million and $65 million and offered across 21 regions which are selected via a competitive process from a pool of 60 shortlisted finalists (Parilla et al. 2022) and which are to be charged with promoting critical industry clusters The fostering of multi-stakeholder coalitions of businesses, governments, universities (Parilla and Haskins 2023), and community-based organizations (Parilla et al. 2022) is a central focus of the programmes. These stakeholder coalitions will be in the vanguard of the design and the delivery of local economic development strategies which are explicitly intended to be comprehensive in nature. The comprehensive nature includes explicit requirements for fostering employment and economic opportunities to communities traditionally which have traditionally been underserved by economic development trajectories in recent decades (Parilla et al. 2022).

The Infrastructure Investment and Jobs Act (IIJA) 2021 provides some $864bn over five years (Ross et al. 2023) and across more than 400 programmes spanning multiple federal agencies. These federal agencies channel federal funds to local and state and governments and agencies. Some 72 of these programs accounting for $490bn allow for workforce development in their funded projects, of which six programs

amounting to $281m, or less than 1% of the total, exclusively provide for workforce development initiatives, including recruitment and training (Ross et al. 2023). In the Infrastructure Investment and Jobs Act (IIJA) 2021, US local and state bodies are afforded widespread discretion and powers in terms of the implementation of their programmes (Ross et al. 2023). While the energy components of both the IIJA Infrastructure Investment and Jobs Act and the IRA Inflation Reduction Act are focused on clean energy, the transportation components of the IIJA is somewhat rather more climate agnostic than the IRA (Tomer et al. 2023). Both state and local actors have a wide level of discretion regarding their local economic development priorities and decisions (Tomer et al. 2023).

The IRA Inflation Reduction Act aims at stimulating the production and implementation of a whole plethora of green technologies throughout the US economy (EPA 2023). The IRA builds on the initial climate funding opportunities passed into law in the Infrastructure Investment and Jobs Act (IIJA) to support projects aimed at climate change mitigation (Barbanell 2022). In order to achieve this, the IRA provides both direct funding and also tax incentives for firms and communities to repurpose their business and governance models towards a greener future. As well as spanning the new green technological arenas, the IRA also spans the US geographical arenas. The IRA includes almost $370bn of investment in disadvantaged communities, aimed at the prioritisation of projects that both repurpose retired fossil fuel infrastructures across the USA while also helping the re-employment and enhancement of employment for locally-displaced workers (Barbanell 2022). The aim of the IRA is to help set the USA on a course towards a profound climate change mitigation trajectory, but in a manner which is also explicitly provides a fair and equitable energy transition (EPA 2023) including for those who are economically displaced by the transition processes themselves (Barbanell 2022).

The priority of building and rebuilding inclusive regional economies is central to the whole US industrial policy agenda. After several decades of growing economic divergence between US regions, the combination of the ARPA, IIJA, and the CHIPS and Science Act provide a major federal government recommitment to investing directly in underdeveloped places and regions (Brookings Metro 2023). Together, these three bills provide nearly $80 billion of federal funding aimed at catalysing new markets, supporting new technologies, and improving the economic and social outcomes in those US regions which have been left behind by the recent patterns of regional economic growth (Brookings Metro 2023). Meanwhile, the IIJA provides some $864 billion in new federal government support for maintaining, upgrading and constructing all forms of transport, telecoms, water and energy-related infrastructure in U.S. cities and regions (Brookings Metro 2023). Moreover, the enactment of IIJA and IRA highlight the importance of pursuing climate mitigation and adaptation simultaneously by prioritizing the leadership, creativity, and protection of heavily impacted low-income communities (Brookings Metro Program 2023).

Against the backdrop of, and within the context of, the Chips and Science Act (CSA), the USA's National Science Foundation, America's top government funder of research and innovation, has now explicitly embraced place-based policies with the aim of driving innovation and entrepreneurship in places (Muro 2022). In order to do this the NSF has set up a new impact-oriented *Directorate for Technology, Innovation and Partnerships* (TIP)1[1] to spearhead the place-based programs. This is the first newly-created NSF directorate in over thirty years and underscores the seriousness with which the US government and scientific community are taking these place-based challenges. Across the full cycle from discovery to innovation, the explicit mission of the new TIP directorate is to strengthen the interplay between foundational and use-inspired work in driving new technologies in different types of places, having explicit regard to societal and economic impacts of the technology-development processes.

In April 2022, the NSF's new TIP directorate announced a new *Regional Innovation Engines program*, by which it would be supporting selected regions individually with up to $160m over ten years aimed at strengthening their local regional innovation systems, and with a particular focus on regions which have not fully participated in the tech boom of recent years (Muro 2022). The objectives of the program 2[2] are to:

- Advance critical technologies like semiconductors, artificial intelligence, advanced wireless, and biotechnology
- Address pressing national and societal challenges
- Cultivate partnerships across industry, academia, government, non-profits, civil society, and communities of practice

[1] https://new.nsf.gov/tip/latest
[2] https://new.nsf.gov/funding/initiatives/regional-innovation-engines

- Promote and stimulate economic growth and job creation; and
- Spur regional innovation and talent

The new NSF program, the *Regional Innovation Engines program*, addresses local and regional challenges which together inherently comprise a national challenge, namely the lagging technology development and inclusive talent development evident in many parts of the country (Muro 2022). Instead of providing funding on a competitive bid basis for basic research to be undertaken in top research universities, as has been the traditional NSF funding model, *the Regional Innovation Engines program* intentionally builds impact into the program design. The focus is on generating 'measurable societal impacts' and 'tangible outcomes' and explicitly aims to leverage local trust and social capital connections in order to maximise 'bottom up' local flows of knowledge (Muro 2022).

The challenge which the *Regional Innovation Engines program* gives to localities is to develop a coherent and comprehensive strategy for connecting and aligning of loosely-connected local actors, stakeholders and institutions into a cohesive network of partners who collectively able to drive forward the strategy (Muro 2022). The objective of the strategies is to cultivate a local trust-based innovation ecosystem which fosters knowledge-sharing, entrepreneurship, diversity and risk-taking, built around an improved local culture of governance and collaboration (Muro 2022). The coalitions leading the NSF's *Regional Innovation Engines program* are expected to be groups with a distinct geographical reach and groups with an emphasis on diversity3[3]. The new emphasis on essential programme elements of partnerships, leadership, accountability, culture, inclusion, and local impacts, all represent a very new way of research-related funding and mark a key turning point in terms of how the US is thinking about the knowledge-economic development nexus. The emphases on partnership-formation underpinning knowledge and technology translation and transformation, all aimed at fostering local growth and skills inclusivity, are common throughout the programs. So far, more than 500 localities have come forward with initial concepts for strategies and plans, which suggests that there is enormous untapped potential for these types of place-based collaborative approaches to enhancing innovation in the service of societal transformation.

The overall logic of the NSF *Regional Innovation Engines program* is very consistent with the $1bn *Build Back Better Regional Challenge: Supercharging Local Economies4*[4], which is now the flagship program of the US Economic Development Association, along with its $500m *Good Jobs Challenge5* [5](Muro 2022). The enormous place-based pivot in the USA policy arena obviously covers many different arenas (Muro et al. 2021), and the NSF's major movement in this direction is entirely consistent with this more general federal policy shift to place-based actions.

There is already emerging evidence that the new industrial policy is beginning to bear fruit (Chu and Roeder 2023). In terms of both US clean-tech industries and semiconductor production, the new investments announced in 2022 amount to almost double the commitments on capital expenditure in these same sectors in 2021 and nearly 20 times the amounts committed in 2019 (Chu and Roeder 2019).

As becomes clear in terms of the logic, design and scale of the US green industrial and place-based policy agenda, there are many commonalities between the USA and EU contexts. In terms of the green agenda, innovation is seen as being the central driver of the whole agenda. At the same time, the key issue to be overcome is that fact that economically weaker regions tend to be more vulnerable to climate change mitigation strategies than the more economically prosperous regions, whereas the more prosperous regions tend to be the most amenable to climate change mitigation strategies. This is the case both in the USA (Haskins and Parilla 2023; Tomer et al. 2021) and in the EU (European Union 2017; OECD 2019 a,b, 2023). In the case of the European Union, the regions facing the greatest risks from climate change mitigation strategies are economically weaker regions, especially in central and eastern Europe (OECD 2023). In addition, the new technological and commercial opportunities associated with climate change also tend to favour those regions which are already more technologically advanced (McCann and Soete 2020). The fact that the economically weaker regions are typically more exposed to climate change mitigation risks poses a major problem for top-down, centrally-orchestrated mission-led approaches, because the geography of local and regional incentives is fundamentally mis-aligned with the top-down centrally-orchestrated mission framing.

[3] https://new.nsf.gov/funding/initiatives/regional-innovation-engines
[4] https://www.eda.gov/arpa/build-back-better/
[5] https://www.eda.gov/funding/programs/american-rescue-plan/good-jobs-challenge?q=/arpa/good-jobs-challenge/

Workers in these regions are more exposed to the risk of climate change mitigation strategies, and without additional place-based support in these localities provided at scale and over long time-periods, residents in these regions will react against these strategies, typically via the ballot box (Tomer et al. 2021). In other words, without significant place-based involvements in the missions assisting the weaker regions facing the most risks from climate change mitigation strategies, the economically weaker regions will have little incentive to engage with the green agenda (McCann and Soete 2020).

In the case of the USA, these top-down mission-oriented issues and place-based incentives for weaker regions have already been explicitly addressed and reconciled by the fact that Biden Administration has embedded place-based approaches throughout the climate change mitigation agenda. Moreover, federal policy funding is available to help localities to group together to address these challenges at a wider regional level, not just at a local scale (Tamura and Kane 2023). The tripartite themes of innovation, sustainability and inclusiveness are being tightly bound together by the logic and architecture of the Biden administration's approach to industrial policy. Economically weaker US regions now have huge incentives to not only engage with the federal agenda, but in many cases have been given the opportunities to spearhead the agenda. Moreover, this embedding also has explicit local inclusiveness dimensions to it, which are both geographical and deprivation-related in nature. This approach inverts the longstanding space-blind logic typically evident in US federal policy arenas, and places local and regional place-based issues centre-stage in the fight against climate change. The fact that this profound shift in policy logic towards a place-based agenda has taken place in the USA has taken many observers and commentators by surprise. However, as already explained, in recent years much of the groundwork for this approach had already been laid in US intellectual and policy circles, and some of their place-based inspiration has been drawn from the 2014-2020 reforms to EU Cohesion Policy, including RIS smart specialisation.

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