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URBAN AND REGIONAL HORIZONS

The geography of just transitions: a place-based framework

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ABSTRACT
Countering the climate urgency requires industrial transitions in emission-intensive industries such as automotive, cement, metalworking, pulp and paper, and (petro)chemical manufacturing. While the 'just transition' literature asks how transitions can be made socially just, this article argues that the course and shape of just transitions in industrial regions depend on sources of structural, instrumental and ideological power rooted in place-based factors. This article presents a place-based framework to understand the opportunities and challenges for just transitions in different regions and contributes to advancing regional just transition policies.

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1. Introduction

Countering the escalating climate urgency requires far-ranging transformations in society and the economy. Such transformations include transitions of emission-intensive industries such as automotive, cement, metalworking, pulp and paper, and (petro)chemical manufacturing. For each of these industries, the literature discusses technological solutions such as electric vehicles, hydrogen, or carbon capture and storage (Åhman, 2020; Organisation for Economic Co-operation and Development (OECD), 2023). The just transition approach (Newell & Mulvaney, 2013; Wang & Lo, 2021) goes beyond this purely technological view by asking how transitions can be made socially just.

However, these approaches remain insufficient for understanding the repercussions of regional industrial transitions in their spatial context. Given that 'local political and economic contextual factors influence outcomes and the manner in which the major actors pursue their understanding of [just transition]' (Snell, 2018, p. 561), we argue that the course and shape of industrial transitions and their social justice implications in regions hosting emission-intensive industries depend on place-based factors. Although this context-specificity implies that 'just transition will look different everywhere' (Cha & Pastor, 2022, p. 7), such a place-based view was long absent in the just transition literature (see also Eadson et al., 2023).

An underdeveloped place-based perspective has direct consequences for policy design. For instance, Moodie et al. (2021) find Swedish territorial plans for the European Union's (EU) Just Transition Fund (JTF) to be oriented mainly technologically while neglecting the place-based dimension of regional industrial transitions. While this example cannot be generalised, such a technology-centred policy approach adds to the fund's narrow compensatory and reactive focus (Crespy & Munta, 2023), and both could be overcome with a wider conceptualisation which considers that, and how, place-based factors shape just transitions in industrial regions. A place-based view is particularly important in regions suffering from environmental degradation (Bez, 2025) and can also help understand conditions for the societal acceptability of climate policies as the benefits and burdens of transition are unevenly spread across regions (Rodríguez-Pose & Bartalucci, 2024; Vona, 2019).

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Recent years have seen the emergence of some contributions in economic geography that have sketched contours of such a place-based view on just transitions (e.g., Devine-Wright, 2022; Eadson et al., 2025; Hearne et al., 2025; Weckroth et al., 2025; Weller et al., 2024), although a comprehensive place-based framework is still missing. Moreover, power relations within the region and beyond remain relatively underresearched in the regional development literature, according to some recent calls (Calignano & Nilsen, 2024; Eadson & van Veelen, 2023). This article joins this emerging work by contributing a place-based framework rooted in power relations. The conceptual framework we propose can help understand *which* place-based factors serve as sources of power and *how* they shape just transitions at the regional level while also considering multiscalar influences. We argue that different but overlapping forms of power are rooted in regional structures, assets and discursive-ideational factors which create opportunities and challenges for achieving social justice. Since these opportunities and challenges differ across regions (Benner, 2025b; Trippl et al., 2024a), such a place-based framework can help improve regional transition strategies such as those supported through the JTF. To build our framework, we start by discussing its conceptual elements in the following sections.

2. Just transition: a diverse concept

A systematic Scopus search undertaken by one author shows that scholarly interest in just transition has intensified in recent years. Until 2016, few publications referred to 'just transition' in their title or abstract. Over 90% of the articles found have been published from 2020 to 2023. Despite this recent rise in interest, the history of the just transition idea precedes its academic conceptualisation with inspirations from different scholarly traditions (Wang & Lo, 2021). In its original field – the labour movement – the idea can be traced back to the 1970s under the 'labour environmentalism' movement (Silverman, 2004), but gained traction during the 1990s (Wang & Lo, 2021). It was particularly in that decade and in the US labour union movement that just transition came to be seen as reconciling environmental legislation with social justice for workers (Luke, 2023; Rosemberg, 2010; Young, 1998).

In the meantime, just transition has evolved into a more diverse concept with different intellectual roots in climate justice, environmental justice and energy justice concepts which pay more attention to the needs of vulnerable or marginalised groups (Heffron & McCauley, 2018; Newell & Mulvaney, 2013; Schlosberg & Collins, 2014; Wang & Lo, 2021). Compared with the original labour-centred concept (e.g., Rosemberg, 2010; Young, 1998), more recent scholarship has widened the meaning of just transition beyond its previous focus on workers and energy transitions towards a community-based perspective with different measures of social justice for different societal groups (Abram et al., 2022; Heffron & McCauley, 2018; Stevis & Felli, 2020; Wang & Lo, 2021).

Nonetheless, the conceptualisation of just transition is by no means completed, as the multiple origins of the concept and engagements of different academic traditions with it imply diversity in definition and understanding (Wang & Lo, 2021). Despite this diversity, the current just transition literature employs up to five dimensions of social justice (Abram et al., 2022; Heffron & McCauley, 2018; Sovacool et al., 2019):

- Distributive (or distributional) justice requires an equitable distribution of the benefits and costs of a transition and thus implies that those affected by transitions (including workers in emission-intensive industries) be compensated for income or job losses.
- Recognition justice acknowledges wider inequalities in society, including the marginalisation of social groups, and requires that inequalities between different groups be alleviated.
- Procedural justice requires that wide parts of society be included in decision-making about transitions.
- Restorative justice refers to past or future harms to communities or the environment and requires that these harms be compensated.
- Cosmopolitan justice requires that transitions be environmentally sustainable and socially just globally.

These dimensions are not independent. For example, from an environmental justice perspective, distributive, procedural and recognition justice are intertwined, while a climate justice perspective is untenable without cosmopolitan justice in the wake of global inequalities in the responsibility for, and vulnerability to, climate change (Schlosberg & Collins, 2014; Wang & Lo, 2021). Particularly

when viewed from a global perspective of climate justice, just transition can be understood as a 'planetary' concept (Stevis & Felli, 2020).

Nonetheless, a large part of the just transition literature keeps the focus regionally and on workers and addresses energy transitions such as the phase-out of coal (e.g., Cha & Pastor, 2022; Snell, 2018). Still, other industries face formidable transition challenges short of a complete phase-out (Trippl et al., 2025). These 'hard to abate' emission-intensive industries include automotive, cement, metalworking, pulp and paper, and (petro)chemical manufacturing located across different regions in Europe, resulting in a complex geography of industrial transition (Åhman, 2020; Benner, 2025b; OECD, 2023). This geography is associated with different degrees of regional vulnerability to the negative impacts of industrial transitions (Baumgartinger-Seiringer et al., 2025; Rodríguez-Pose & Bartalucci, 2024; Vona, 2019).

At the political level, the notion of a just transition has become an integral part of the European Green Deal (European Commission, 2019), embodied in the principle 'to leave no one behind' (p. 16) and in the establishment of a Just Transition Mechanism with the JTF at its core, a fund designed to help the most affected regions cope with industrial transitions. However, the fund has been criticised for its narrow compensatory and reactive focus (Crespy & Munta, 2023) and, in some cases, the lack of place-based regional strategies (Moodie et al., 2021).

In recent years, geographers have started to examine how place-based factors shape industrial transitions and their social justice (e.g., Devine-Wright, 2022; Eadson et al., 2025; Hearne et al., 2025; Weller et al., 2024), partly drawing on earlier research predating the just transition literature that engaged with previous eras of industrial restructuring and place-specific socio-economic impacts, for example, in the Ruhr area (Grabher, 1993), North East England (Hudson, 2005) or Detroit (Fraser, 2018). As Hearne et al. (2025) explain, the just transition approach goes beyond these earlier lessons by focusing on 'prospective rather than retrospective industrial change' (p. 1) and builds on the (implicit) 'recognition (by academics, if not by policymakers) that previous economic transitions have been poorly managed in many places' (p. 2). This difference in perspective notwithstanding, these literatures can complement each other in a place-based framework which needs to consider power relations.

3. Power relations in just transitions

Just transitions are political processes and crucially depend on power relations (Eadson & van Veelen, 2023; Newell & Mulvaney, 2013; Wang & Lo, 2021). Hence, the place-based view on just transitions we propose is based on different forms of power held together by hegemony.

So far, the role of power relations and hegemony has been rather neglected in the regional development literature (Calignano & Nilsen, 2024; Eadson & van Veelen, 2023) but repeatedly emphasised in the just transition literature (e.g., Newell & Mulvaney, 2013; Stevis & Felli, 2020; Wang & Lo, 2021). Power is enacted through agency but is also rooted in structures (Avelino, 2021; Giddens, 1984; Hayward & Lukes, 2008), and it has a symbolic component (Bourdieu, 1989). For example, actors can have different degrees of power due to their uneven capabilities to mobilise resources or shape discourses (Calignano & Nilsen, 2024).

How power manifests is hotly debated in social theory. Clegg (2002) conceptualises power exercises as dynamic, relational and structurally constrained processes operating through three interconnected circuits: direct actions (episodic), institutionalised rules (dispositional) and techniques of discipline and production (facilitative). Lukes (2002) likewise gives three accounts of power, distinguishing between observable conflicts, non-decision-making, and shaping the preferences and perceptions of others against their interests. Arguing for a contemporary shift from physical domination to psychological control, Foucault (2002) emphasises subtle and self-sustaining enactments of power. While comprehensively reviewing the vast literature on power would go far beyond the scope of this article, we find it useful to draw on Avelino and Rotmans (2009) as their synthesis of power from a transition studies perspective is particularly relevant for power relations in just transitions. Following three interpretations of power surveyed by Avelino and Rotmans (2009), we see power as anchored in structures (structural), assets (instrumental) and discursive/ideational factors (discursive) (see also Geels, 2014). As a minor modification, we substitute the latter for the more comprehensive term ideological power (Mann, 2002) to highlight the political orientations involved. These forms of power are not independent but held together by Gramsci's (1971) notion of

hegemony as an entangled relationship between power over productive resources (i.e., structural and instrumental power) and the concomitant perception of legitimacy (hence, ideological power), thus enabling the use of power through both coercion and consensus (Glassman, 2009).

Critically, however, power is not a resource that actors can 'possess and hoard' (Latour, 1984, p. 265) but is embedded in social relations (Avelino, 2021) and, thus, has relational and associational qualities (Allen, 2004; McFarlane, 2009). Power relations define who has 'power over' whom, but also who can use 'power to' change or maintain the status quo and who mobilises 'power with' others to collectively pursue common interests (Avelino, 2021). This is where different forms of agency to stimulate or resist change (Grillitsch & Sotarauta, 2020; Jolly et al., 2020) come into play to enact power relations (Giddens, 1984) and their hegemony in contested processes of regional development (Calignano & Nilsen, 2024).

This perspective on agency and power relations has important implications for just transitions. For example, the economic dominance of an emission-intensive industry or, at the extreme, one large company with strong structural, instrumental and/or ideological power confers a high degree of economic and political influence on incumbents that can be used to resist (Geels, 2014) but also possibly to advance transitions (Baumgartinger-Seiringer, 2022). Looking beyond incumbents, entrepreneurs will usually start from a much less powerful position but can still advance transitions (Sanders, 2022). Beyond firms, labour union officials can be powerful actors whose agency often tends to be disregarded in the regional development literature (Eadson & van Veelen, 2023). Labour unions can hold considerable sway over policies and strategies to ensure distributive and procedural justice (Beer et al., 2024; Eadson et al., 2023; Johnstone & Hielscher, 2017; Rosemberg, 2010; Snell, 2018). Moreover, 'labour environmentalists' among trade union officials might push for industrial transitions from the standpoint of occupational health and safety (Silverman, 2004). Like powerful incumbent firms, labour union officials can resist or advance transitions for strategic reasons, for example, by building coalitions either with environmental advocacy groups or corporate interests (Kalt, 2022; Silverman, 2004; Wang & Lo, 2021). Gärdebo (2022) illustrates how regional trade union officials in three Swedish regions took a much more reticent and conservative approach towards industrial transition than national ones and thus demonstrates how being embedded in place-based factors and power relations enables or constrains different forms of agency. What this example underlines is how actors can use their power in various ways, that is, they can exercise their 'power to' shape transitions (Avelino, 2021) by choosing very different courses of action and possibly with very different outcomes. This power, and its exercise, is embedded in the wider political economy of just transitions (Eadson & van Veelen, 2023; Newell & Mulvaney, 2013). For instance, corporatist relations between firms, unions and government such as those governing coal phase-out in Germany, have been shown to facilitate just transitions and mobilise union support, even if this support falls short of enthusiastic labour environmentalism (Abraham, 2017).

In the political economy of just transitions, the role of the state is crucial for power relations. While a comprehensive discussion of the nature of the state (Jessop, 2009) is beyond the scope of this article, the power relations between different levels of government, governmental policies such as codetermination in firms or compensatory welfare schemes, and policy shifts enacted by (changes in) government are worth highlighting (Abraham, 2017). Even if their organisation, ideological orientation and degree of activism vary, governments are powerful agents in and for just transitions.

Finally, the role of civil society needs to be considered (Evans & Phelan, 2016), particularly when policy action is weak or absent (Hess et al., 2021). Civil-society organisations or activists can build significant ideological power and use it against structurally and instrumentally powerful actors such as large firms in struggles over social and environmental justice (Berry, 2003).

4. Towards a place-based framework

Place-based factors define the context for socio-economic development in regions (see also Trippl et al., 2025). This raises the question what a 'region' is. While the limited space does not allow for a comprehensive discussion of regional ontologies, we argue that regions are a crucial arena for just transitions. As Tomaney (2009) argues, 'the region is a medium and an outcome of social processes' marked by 'diverse economic, cultural, and political characteristics' as well as specific power relations (p. 140). Beyond the basic understanding in regional geography that regions refer to subnational entities, the diverse organisation of nation

states implies that regions can refer to different forms of administrative and jurisdictional entities but also be understood as purely functional and economic territories (Tomaney, 2009). This diversity notwithstanding, we argue that place-based factors are relevant for different forms of the 'region', although with idiosyncratic differences that need due consideration in empirical research. Regions are key focal entities for just transitions, as eligibility for the JTF shows.[1] This, however, does not necessarily mean that decisions *for* the region are made *in* the region or *by* the region (i.e., by regional governments or agencies). As we will argue below, the degree of regional autonomy and jurisdiction, and thus the scope for decision-making, can vary widely (Weller & Beer, 2023).

We conceptualise place-based factors by drawing on regional innovation systems (RIS) and regional industrial path development research (e.g., MacKinnon et al., 2019; Tödtling & Trippl, 2005; Trippl et al., 2020, 2025) and include intangible, discursive and ideational, factors relevant for transitions (Balestreri et al., 2023; Benner, 2024; Gong & Truffer, 2024). By adding these discursive-ideational factors, we respond to Eadson and van Veelen's (2023) call for 'an expanded view of place' (p. 225) that draws attention to place identities (see also Devine-Wright, 2022; Murphy, 2015; Sovacool et al., 2025). Hence, we distinguish structural factors, instrumental factors and discursive-ideational factors which combine and serve as sources of structural, instrumental and ideological power. Finally, multiscalarity and positionality of regions (Sheppard, 2002) are considered.

4.1. Structural factors

Structural factors refer to the economic, organisational and institutional structures of a region (Trippl et al., 2025). First and foremost, the regional industrial structure is of high relevance. How dominant an emission-intensive industry is within a regional economy and labour market makes a significant difference in the socio-economic impact of an industrial transition. The absolute size of such a regional industry is important because of its weight on the labour market and possibly also its political clout, but so are its linkages with other industries (Eadson et al., 2023; Johnstone & Hielscher, 2017). For instance, the transition of a dominant and interlinked industry can affect regional small and medium-sized construction or crafts firms. Hence, 'when one employer leaves this often has knock on effects on auxiliary services, significantly exacerbating the initial impact' of transition (Eadson et al., 2023, p. 5). Company towns dominated by one firm (Moonesirust & Brown, 2021) are an extreme case of regional structural dominance.

How precisely an emission-intensive industry can transition varies. Besides the extraction and burning of fossil fuels (coal, gas, oil) subject to far-ranging phase-out (e.g., Kalt, 2022), most emission-intensive industries are likely to undergo significant changes in their technological or organisational mode of operation through the 'exnovation' of unsustainable practices or technologies (Heyen et al., 2017; Trippl et al., 2025). Depending on how radical these changes will be and how they modify labour needs, transition can bring about significant social consequences at the regional scale, for example through job losses or employment restructuring in these industries (OECD, 2023). These consequences particularly raise questions of distributive justice (Trippl et al., 2025). Further, there is a risk of offshoring emission-intensive industries, leading to negative social consequences in regions that used to host them but without achieving the full environmental gains of transition (Bruckner et al., 2023), thus raising questions of distributive and cosmopolitan justice (Moodie et al., 2021; Sovacool et al., 2019; Stevis & Felli, 2020).

Organisational support structures are another important structural factor in a RIS (Tödtling & Trippl, 2005; Trippl et al., 2020), and their effectiveness is highly relevant for procedural justice. As the smart specialisation literature suggests (e.g., Capello & Kroll, 2016), some regions will have more effective organisational support structures than others. These may be better equipped to carry out regional transition policies and more attentive to social justice concerns. Crucially and in contrast to conventional RIS studies, the organisation of labour interests (e.g., degree and change of unionisation, representativeness of labour unions across different industries, involvement in governance arrangements) needs to be considered as an important element of the organisational fabric of a regional economy (Abraham, 2017; Eadson & van Veelen, 2023; Kalt, 2022; Snell, 2018; Weller et al., 2024). Taken together, this fabric defines the organisational thickness of a RIS (Isaksen, 2015; Tödtling & Trippl, 2005), while institutional structures such as laws, regulations or standards define its institutional thickness (Zukauskaite et al., 2017). Organisations and institutions make up the institutional infrastructure of a RIS, and their elaboration and coherence

are relevant structural conditions for transitions, for example by facilitating or hampering the initiation, consolidation and contestation of change (Baumgartinger-Seiringer et al., 2022). Parts of this institutional infrastructure are defined by governments at the national (or supranational) level (Weller & Beer, 2023), as we will discuss below in terms of multiscalarity and the positionality of regions.

4.2. Instrumental factors

Instrumental power is rooted in a range of assets, that is, actors can exert power because they have a grip on, and can mobilise, different forms of assets better than less powerful actors (Avelino & Rotmans, 2009), and some of these assets are place-based. These place-based assets (instrumental factors) include, for example, natural resources, material assets and built infrastructure, available technologies, or human skills, knowledge and competencies (MacKinnon et al., 2019; Maskell & Malmberg, 1999; Trippl et al., 2020).[2] Human assets and their development are particularly relevant for the inclusiveness of economic development (Lee, 2024), hence it comes as no surprise that education and training of workers are often regarded as major elements of just transition policies (Rosemberg, 2010). However, peripherality, demographic shrinkage and outmigration can limit possibilities for regional industrial transitions (Moodie et al., 2021).

Assets should not be seen as simply being 'there' but as shaped by actors within the region and beyond (MacKinnon et al., 2019; Maskell & Malmberg, 1999). Through activities of asset modification, actors can change the regional asset base by creating new assets, reusing extant ones, destructing old ones, or linking up to and transplanting external ones from other regions (Miörner & Trippl, 2019; Trippl et al., 2020). However, the ability to do so is unequally distributed, thus undergirding unequal instrumental power relations.

Moreover, assets can be degraded, raising questions of restorative justice. For instance, the toxic pollution that some emission-intensive industries can cause in their host regions degrades the natural environment (Bez, 2025; Bez & Virgillito, 2024) and can provoke young residents to leave the region (Biddau et al., 2023).

4.3. Discursive-ideational factors

Discursive and ideational place-based factors shape how the context of a region is interpreted by actors (Benner, 2024; Ey & Sherval, 2016; Murphy, 2015). These intangible factors encompass a wide range of ideas, representations, meanings, identities and industrial cultures (Bole, 2021; Gong & Truffer, 2024; Pfotenhauer et al., 2023), and they are place-based and linked to citizen's place attachment (Balestreri et al., 2023; Devine-Wright, 2022; Sovacool et al., 2025). They are shaped by actors in discursive processes (Hajer & Pelzer, 2018) that generate interpretive schemes such as framings, metaphors, narratives and imaginaries (Benner, 2025a; Calignano & Nilsen, 2024; Chateau et al., 2021; Görmar, 2024).

Regional culture includes, for instance, attitudes about how regional actors deal with each other, negotiate conflicts and debate controversial issues (Pfotenhauer et al., 2023). Some aspects of regional culture apply to the wider regional community such as attitudes towards education and employment, the propensity for collective action or social cohesion (Huggins et al., 2021). Other attitudes towards specific industries, worker loyalty to firms or dominant company cultures represent the industrial culture of a region (Bole, 2021). Regional culture is rooted in long-term historical legacies and often highly persistent (Huggins et al., 2021), for example, when it comes to labour-market patterns such as low educational aspirations and professional ambitions rooted in past industrial activities (Hudson, 2005). Attitudes towards employment in old industries have been shown to impact whether workers and their families perceive industrial transitions as a threat not just to their livelihoods but also to their individual and collective identity (Bell & York, 2010; Della Bosca & Gillespie, 2018; Devine-Wright, 2022). Social norms and values affect how the prospects for, and scope of, industrial transitions and their social justice are viewed. For example, Bavaria's conservative regional culture that prioritises continuity and constrains controversial debates (Pfotenhauer et al., 2023) is likely to engender narrow and technology-centric forms of industrial transitions or make transitions very difficult in the first place, while Gong and Truffer (2024) show how actors in Baden-Württemberg adapted their framing of the dominant automotive industry to (mostly technological) transition through changing imaginaries.

Framings and imaginaries affect how actors perceive a region's problem endowment (Flanagan et al., 2023), and they can represent industrial transitions as a risk or opportunity and thus shape public perceptions of social justice (Wang & Lo, 2021). For example, Cha and Pastor (2022) describe how the term 'just transition' is perceived by actors in Eastern Kentucky as an elitist euphemism for the 'War on Coal' and as a language that 'is unfamiliar and does not have any of the meaning scholars have developed' (p. 3). Painful associations that can impact the framing of just transitions further include failed privatisation policies (Weller, 2019). These examples imply how discursive-ideational place-based factors relate to, and encompass, (elements of) political orientations and ideologies in society at large.

Framings and imaginaries matter for the course and shape of just transitions (Benner, 2025a; Murphy et al., 2022). For example, a narrow framing that focuses primarily on the particularistic regional consequences of an energy transition on labour is likely to privilege male manufacturing workers within the region while neglecting women and minorities and induce possible injustices on other scales (Cha & Pastor, 2022; Stevis & Felli, 2020). Framings that centre on fears of loss or the demonisation of old industries can make just transition activities much more difficult to achieve than framings that either maintain the core of collective identity despite transition or draw attention to opportunities resulting from transition (Della Bosca & Gillespie, 2018). As Bell and York (2010) observe, actors in old industries can strategically frame the links between the industry and the regional cultural identity, for example through claims such as 'Coal is West Virginia' (p. 130), thus hampering transition. Hence, regional discourses and framings can encourage or discourage activities for or against just transitions and shape how far these activities will go, for example, whether they remain limited to technological fixes or extend to social practices.

For example, Biddau et al. (2023) study inhabitants' place attachment in Taranto, Italy's 'capital of steel' (p. 5.) and find a conflicted and ambivalent discourse that combines local pride with stigmatisation due to pollution and health risks, up to drastic metaphors of the city as 'a metastasizing tumor' (p. 9), and a general feeling of alienation. This example shows how regions affected by toxic pollution (Bez & Virgillito, 2024) can spawn discourses that are likely to exert endogenous pressure for transition. In such cases, transition discourses can become polarised between workers and environmentalists (Biddau et al., 2023; Evans & Phelan, 2016).

4.4. Multiscalarity and positionality

Despite their importance for just transitions, place-based factors need to be seen in a multiscalar context (see also Trippl et al., 2025). For example, supranational policy frameworks such as the European Green Deal (European Commission, 2019) provide a crucial multiscalar impetus for transitions at the regional level. Other examples of multiscalarity refer to how the regional asset base can be weakened by asset outflows such as outmigration (Moodie et al., 2021), but also strengthened when extra-regional assets are accessed, transplanted and anchored (Binz et al., 2016; Miörner & Trippl, 2019; Trippl et al., 2020). Moreover, regional imaginaries are embedded in larger societal discourses and ideologies, for instance, on climate change or deindustrialisation, and policies and other ideas travel across space across regions and countries (Czarniawska & Joerges, 1996; Haddad & Benner, 2021) through various mechanisms such as consultants (Czarniawska-Joerges, 1990).

Relatedly, the positionality of the region in global flows and networks (Sheppard, 2002), or more broadly in what McFarlane (2009) calls 'translocal assemblages', needs to be considered as power relations exist not only within the region but also with extra-regional actors, and place-based factors are embedded in structures, assets and discourses at higher scales. The relational character of positionality implies that 'the conditions of possibility for an agent depend on her or his position with respect to others' (Sheppard, 2002, p. 318) and is visible, for instance, in the diverging stances toward just transition within Swedish labour unions at the national and regional levels (Gärdebo, 2022) which demonstrate frictions between actors operating at different scales.

Moreover, according to Sheppard (2002), positionality represents unequal power relations across scales, resulting in different degrees of exposition by regions to the actions of powerful extra-regional actors disposing of structural, instrumental or ideological power rooted in sources at different scales. Following Allen (2011), these power relations are embedded in flexible global 'power-topologies' in which agents can 'make their presence felt in more or less powerful ways that transcend a landscape of fixed distances' (p. 291).

Therefore, how 'distant' actors exert power in a region depends on how they enact it through their decisions and practices (Allen, 2004, 2011). Similarly, Massey (1993) describes a 'power-geometry' that produces highly differentiated forms of inclusion in, and exclusion from, global economic processes in and across regions.

When it comes to the consequences of spatially unequal power relations and their enactment for regional transitions, the example of Tesla's 'gigafactory' in Brandenburg, Germany, shows how a multinational company headquartered outside the region can exert ideological power in discourses on desirable futures within the region (Mercante-Thierauf, 2025). This example shows how regional transitions are intertwined with power relations in global production networks and their transformation (Coe & Gibson, 2023). Moreover, regional transition discourses are often embedded in higher-level political discourses (Johnstone & Mando, 2015; Weller, 2019). These often highly unequal power relations are inscribed into a global political economy of just transition (Newell & Mulvaney, 2013) which raises particularly complex issues of cosmopolitan justice that go far beyond the focal region such as the sourcing of critical materials needed for industrial transitions (Sovacool et al., 2020).

Relatedly, the positionality of regions in the political and administrative organisation of the state needs to be considered. Regions vary in their degree of jurisdiction and autonomy towards national governments, and their positionality is important in just transitions as regional actors need to align their strategies and actions with the power of the state to define policy frameworks and legislation (Weller & Beer, 2023). Such political power-geometries across space (Massey, 1993) are a crucial complement to a place-based view on just transitions. Nonetheless, we contend that despite wide diversity in the jurisdictional power of regions and their autonomy towards state power, place-based factors shape the room for action at the regional level, but how they do so depends on their precise configurations, to which we turn next.

4.5. A place-based just transitions framework

Based on the conceptual building blocks introduced above, we propose a place-based framework for just transitions (Figure 1). The framework includes three sets of place-based factors (structural, instrumental, discursive-ideational) which are not independent but combine in specific place-specific configurations, for example, in cases of lock-in (Grabher, 1993; Hassink, 2010). Multiple place-specific factors serve as

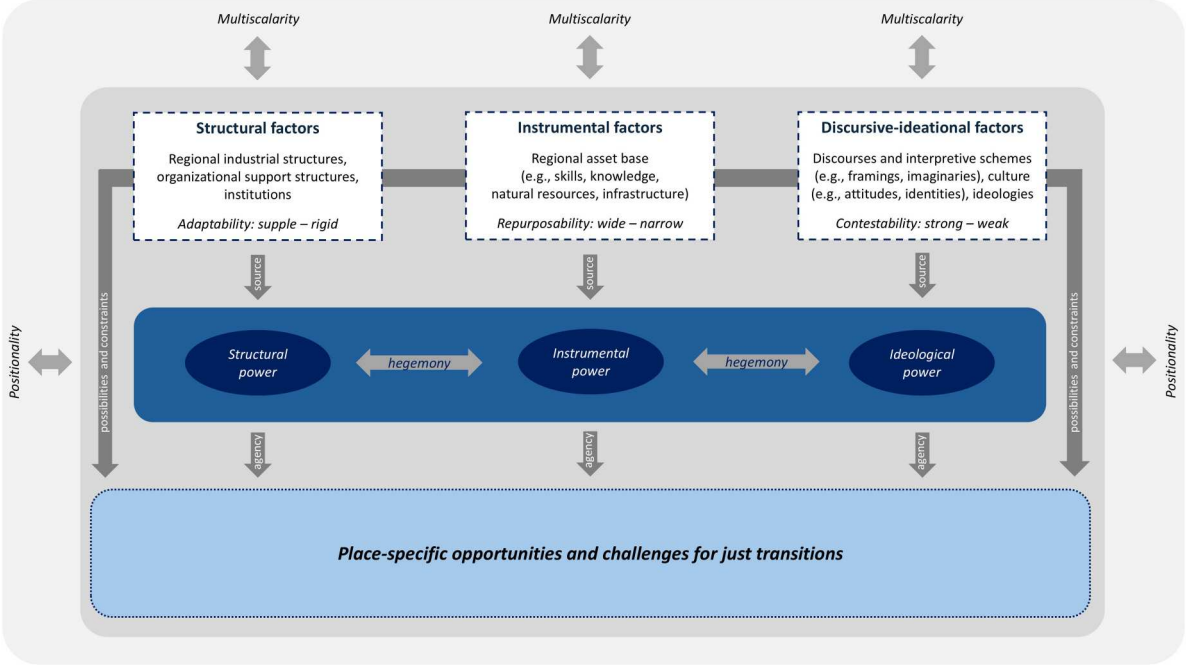

Figure 1. Place-based just transitions framework.
Source: Authors' elaboration.

sources for different types of power (structural, instrumental, ideological), although this correspondence is an analytical simplification and should not be understood as fully clear-cut, as types of power draw on multiple factors (Avelino & Rotmans, 2011). Forms of power interact and reinforce one another through patterns of hegemony (Glassman, 2009; Gramsci, 1971). Power-enacting agency and place-based factors contribute to shaping opportunities and challenges for just transitions in a place-specific way. However, these place-specific opportunities and challenges for just transitions are not purely a product of regional dynamics but are affected by multiscalar influences on place-based factors (see also Trippl et al., 2025) and, more generally, the positionality of a region in a global power-topology.

We distinguish three dimensions (adaptability of structural factors, repurposability of instrumental factors and contestability of discursive-ideational factors) to characterise differences between regions. We regard each of these dimensions as a continuum with many shades between two extremes, respectively, and the extremes described should be seen as stylised for analytical purposes while empirically a much higher complexity should be expected. The place-specific configuration of a region in each of these three dimensions implies specific power relations, inequalities, multiscalar relations and positionalities, as well as resulting opportunities and challenges for just transitions which we will briefly discuss by drawing on empirical examples from the literature.

4.5.1. Adaptability

For transitions to succeed, structural factors will usually need to be adapted, which can take different degrees of radicality and range from a reorientation of existing structures to a deeper transformation of the RIS (Isaksen et al., 2022; Trippl et al., 2024a, 2024b). Therefore, we characterise structural conditions for just transitions by using the term 'adaptability'.

The adaptability of the regional industrial structure depends on characteristics such as sectoral diversification, firm ownership and size, and the strength of local linkages between industries and firms (Martin & Sunley, 2020; see also Baumgartinger-Seiringer et al., 2025; Trippl et al., 2025). Ownership structures will also make a difference, for instance, whether an emission-intensive industry is state-owned or privatised (Snell, 2018; Weller, 2019), and this will also affect the region's positionality. Further, adaptability of structural factors depends on a region's organisational and institutional thickness (Isaksen, 2015; Tödtling & Trippl, 2005; Zukauskaite et al., 2017), the degree of unionisation and the representativeness and effectiveness of labour union structures (Eadson & van Veelen, 2023; Snell, 2018), and the coherence between organisations and institutions (Baumgartinger-Seiringer et al., 2022).

The adaptability of structural factors can range from supple to rigid. In regions whose industrial structure includes emission-intensive industries (Baumgartinger-Seiringer et al., 2025; OECD, 2023), supple structural factors mean, for instance, that these emission-intensive industries are of limited scale, not dominant and relatively isolated from other parts of the regional economy. Existing regional industrial structures are amenable to green diversification (Santoalha & Boschma, 2021) and exnovation will often be easier if the industry subject to transition (or even complete phase-out) is small compared with other industries in the region. Effective organisational support structures and flexible institutions are likely to facilitate transition, and trade unions provide an effective counterpart to firms and governments (Snell, 2018) in negotiating just transition strategies but those representing emission-intensive industries are not sufficiently dominant to effectively resist transition efforts (Kalt, 2022). Hence, structural power will not be very unequally distributed.

These circumstances offer opportunities for achieving distributive justice because, given the limited scale and relative isolation of emission-intensive industries, financial compensation for workers affected by the closure or downsizing of these industries is likely to be feasible. Moreover, green diversification might enable some of these workers to find new jobs. Recognition justice, however, is more challenging to ensure as new green industries can reproduce or even exacerbate social inequalities (While & Eadson, 2022). Procedural justice cannot be taken for granted but might be facilitated by effective organisational support structures and the flexibility of institutions to include participatory elements (e.g., in planning processes). As regions with highly supple structural factors seem less problematic and, therefore, research on just transitions in them does not appear widespread, examples are difficult to find. Martin's (2020) case study of transition in the chemical industry in Western Sweden comes close, although its social justice implications would merit further research.

In contrast, rigid structural factors pose far greater difficulties. Rigidity can be due, for instance, to a high dominance of one or several powerful emission-intensive industries and strong linkages in the regional economy and labour market. Organisational support structures might be absent, too weak or lack the capabilities or funding to support transition, trade unions representing emission-intensive industries might ally themselves with hegemonic corporate vested interests and adopt oppositional strategies (Kalt, 2022), and institutions might prove difficult to change. In such a case, structural power is very unequally distributed. An extreme case of rigid structural factors is functional and political lock-in (Grabher, 1993; Hassink, 2010). Taranto, with its steel industry and the considerable social injustices related to the industry's dominance and power, as well as environmental and health-related impacts, is an example of a region locked into rigid structural factors and the ensuing inequalities (Biddau et al., 2023; Greco & Di Fabbio, 2014).

With highly rigid structural factors, industrial transitions might be difficult to achieve in the first place, but when they unfold, for example through sudden plant closures (Beer et al., 2024; Snell, 2018), social justice will be hard to ensure. Procedural justice will be very difficult to achieve with weak organisational support structures and inflexible institutions that might include historically grown top-down policymaking traditions (see also Capello & Kroll, 2016). The dominance of emission-intensive industries and their linkages imply that many workers will potentially be affected by transition, and considerable funding will be needed to safeguard distributive justice. Regions whose industrial structure is dominated by an emission-intensive industry are likely to face 'job blackmail' (Johnstone & Mando, 2015; Young, 1998) by dominant industries with high structural power due to their employment of sizable numbers of workers and their ability to cut jobs regionally or to relocate them elsewhere (Bez, 2025). For instance, a regional industrial structure dominated by one or a few large multinational companies can change quickly through relocations, but these will pose significant challenges, particularly for distributive and procedural justice. Such a sudden change is exemplified by the closures of automotive plants owned by multinational companies such as Ford, General Motors and Toyota in Australian regions which affected suppliers in an industry with up to 100,000 employees (Beer et al., 2024). This example also shows the positionality of these regions in a global power-topology when multinationals 'fold' their decisions into regions (Allen, 2011), and it illustrates how distributive and procedural justice are particularly challenging to ensure when decisions are made by powerful actors located elsewhere.

4.5.2. Repurposability

Similar to structural factors, transition processes will usually involve varying degrees of change in the regional asset base (Isaksen et al., 2022; Trippl et al., 2024a, 2024b), but whether and to what degree these changes are possible depends on what we summarise as asset repurposability. Empirically, Velthuis et al. (2025) reveal different varieties of left-behind regions in Europe with marked differences in the availability, and thus also the potential repurposability, of human assets. For instance, while they find 232 regions with 32% of the EU15 population affected by economic decline and deindustrialisation, this variety of regions exhibits a positive net migration rate among young people which might be partly related to the infrastructural asset of available and affordable housing (Velthuis et al., 2025). In contrast, a smaller but still sizable number of regions marked by demographic decline and aging lose young people and, hence, key human assets needed for transition, thus exacerbating injustices for the remaining, aging populations due to eroding public budgets and deteriorating services (Velthuis et al., 2025).

Instrumental factors in a region can range from being widely repurposable (referring to a strong and diversified regional asset base) to narrowly repurposable (weak and specialised regional asset base). A widely repurposable regional asset base (e.g., in terms of skills, competencies and technologies) can be employed by new green industries or modified for the green renewal of existing industries (Trippl et al., 2020). For example, such transitions will be more feasible to achieve for regions with a diversified labour market, skilled immigration and a broad technological knowledge base. Again, Martin's (2020) case of Western Sweden might offer an apt example, albeit even in this case, transition does not seem to unfold smoothly either.

In contrast, a narrowly repurposable asset base is typically aligned with the specific needs of hegemonic emission-intensive industries. The asset base might suffer from degradation of natural assets or get 'stranded' as those assets that were crucial for carbon-intensive activities become obsolete (Atkins, 2024). Regions facing constraints in their human assets are an important example of narrow repurposability. Employment in emission-intensive industries is often low-skilled while green industries tend to need higher

skills, thus raising severe questions about distributive justice (Vona, 2019; While & Eadson, 2022). Even when jobs in emission-intensive industries are lost, industrial transitions might stall because the regional asset base might be too limited. For example, Moodie et al. (2021) mention how Sweden's peripheral Norrbotten region suffers from the outmigration of skilled workers needed for transitions. In such a case, powerful firms are likely to look for the needed human assets in other regions. This might even lead to 'noxious deindustrialization' as in the case of Grangemouth (UK) where automation and rising skills requirements led to a drop in local employment in the petrochemical industry in favour of outside recruiting, but environmental degradation remained (Feltrin et al., 2022).

Klitkou et al. (2021) show how the closure of pulp and paper plants in Hønefoss, Norway, led to attempts to repurpose existing assets (particularly natural resources) towards biofuel, biochar and biocarbon production, but also how regional assets were insufficient and needed to be complemented with external ones (e.g., financial capital provided by national or multinational companies). In such a case, instrumental power would seem to remain unequally distributed, and procedural and recognition justice remain questionable. Still, such a repurposing of existing assets, if successful, offers opportunities to ensure distributive justice as affected groups (e.g., workers, forest owners) could reorient to the new industries (Klitkou et al., 2021). Cosmopolitan justice does not seem particularly problematic at first sight but will depend on the specifics of the case, for example, the environmental footprint and the natural resource location of old and new industries within the region and beyond.

A specific problem of a narrowly repurposable regional asset base is the environmental degradation of assets, for example, due to toxic pollution which seems to be widespread among regions hosting emission-intensive industries (Bez & Virgillito, 2024). These regions face strong challenges for restorative justice in finding equitable ways of cleaning up toxic contaminations (Benner, 2025b; Bez, 2025) which implies high funding needs. In addition, environmental degradation can be a form of discrimination against marginalised groups and thus bring with it massive problems of recognition justice, as the higher incidence of pollution in places with high shares of marginalised groups in Louisiana suggests (Nagra et al., 2021; Terrell & St. Julien, 2023).

4.5.3. Contestability

Discursive-ideational factors range from strongly contested to weakly contested. Strongly contested discursive-ideational factors are open to a range of alternative regional futures (Gong, 2024) which are amenable to contestation without any hegemonic discourse being closed and dominated by powerful actors (Calignano & Nilsen, 2024). For example, from the labour side discourses might be open to labour environmentalist positions (Silverman, 2004). Hence, ideological power is relatively equally distributed. Identities are weakly tied to emission-intensive industries, and alternative discourses and imaginaries highlighting the opportunities of transition instead of its threats can emerge and unfold. The diversity of discursive-ideational factors generally safeguards openness for debates on social justice. The discursive experimentation, coalitions and struggles in the energy transition in California (Hess, 2019) exemplify such strongly contested discursive-ideational factors.

When discursive-ideational factors are weakly contested, they are not amenable to an open negotiation of alternative futures because historically grown cultural attributes, discourses, and interpretive schemes are hegemonic and hinder change (Evans & Phelan, 2016), notably due to the high ideological power of vested interests that resist transition (Baumgartinger-Seiringer, 2022; Geels, 2014). For example, Bavaria with its 'conservative innovation culture' (Pfotenhauer et al., 2023) could fall into this category. Recognition justice will face obstacles due to an exclusionary bias found in such a conservative innovation culture (Pfotenhauer et al., 2023). For the same reason, procedural justice can be difficult to extend to wider parts of society. Because of their strong ideological power, actors with vested interests in large emission-intensive industries can shape hegemonic discourses (Calignano & Nilsen, 2024) and maintain their hegemony. Regional identities and imaginaries can be tied to these industries. In such a setting, actors advocating alternative futures are not powerful enough to make their voices heard in a way that challenges hegemonic discourses. Wolfsburg, Germany, where Volkswagen is headquartered offers an instructive case of weakly contested discursive-ideational factors that make a regional future beyond the firm's hegemonic dominance almost impossible to imagine (Moonesirust & Brown, 2021). Another illuminating but less clear-cut case is Brandenburg where imaginaries of 'green' development centre around Tesla's gigafactory, are still contested but

are subject to a strongly unequal distribution of ideological power (Mercante-Thierauf, 2025). Nonetheless, even changing and diverse imaginaries can be one-sided and disregard social justice. For example, diverse (also 'green') urban regeneration imaginaries in Detroit share a disregard for marginalised inhabitants and are, thus, wanting in recognition justice (Fraser, 2018).

Finally, regions might see a dominant 'job blackmail' discourse.[3] Such a discourse is visible, for instance, in the representation of coal plant closures in Pennsylvania in regional news media, although interestingly promoted by politicians instead of industry (Johnstone & Mando, 2015). Similar to the case of Eastern Kentucky (Cha & Pastor, 2022), Johnstone and Mando (2015) find this regional transition discourse to be embedded in national policy discourses and, in an exhibit of the multiscalarity of discursive-ideational factors, framed as 'Obama's War on Coal' blamed on national climate policies (p. 94). Generally, such arguments can perpetuate the widespread 'jobs versus environment' narrative (Evans & Phelan, 2016; Young, 1998) that juxtaposes socio-economic development and climate policies in opposition to each other, although this narrative is empirically questionable, detracts from environmentally friendly and economically beneficial upgrading or diversification, and maintains unjust occupational health hazards for workers in polluting industries (Bez, 2025; Bez & Virgillito, 2024; Feltrin et al., 2022; Vona, 2019).

In extreme cases, regions can fall into cognitive or imaginary lock-in (Grabher, 1993; Hudson, 2005; Marquardt & Nasiritousi, 2022). For example, Newey and Coenen (2022) describe how Anchorage (Alaska) is cognitively (and politically) locked into the oil industry, and how this lock-in contributes particularly to problems of recognition and procedural justice (e.g., poverty, homelessness, closed-circle decision-making). Relatedly, the multiscalar travel and regional translation of discourses, imaginaries and policy concepts (Czarniawska & Joerges, 1996; Haddad & Benner, 2021) will also be shaped by discursive-ideational factors and their contestability within the region and, in the extreme, be hampered by lock-in. For instance, Eadson et al. (2025) show how the just transition concept was interpreted and translated into less-than-transformative policy orientations in South Yorkshire, UK, due to cognitive path dependencies.

The specific configurations of structural, instrumental and discursive-ideational factors yield place-specific opportunities and constraints for just transitions. While discussing a wider array of these configurations goes far beyond the scope of this article, the empirical examples mentioned demonstrate how place-based factors shape how just transitions might look very different from one region to another. Distinguishing between structural, instrumental and discursive-ideational place-based factors allows for a much more nuanced view of just transitions than a simplified dichotomy between 'dynamic' and 'lagging' regions.

5. Conclusions and policy implications

This article contributed to an emerging place-based view to better understand the course and shape of just transitions, in line with recent literature (e.g., Devine-Wright, 2022; Eadson et al., 2025; Sovacool et al., 2025; Weller et al., 2024). We proposed a place-based just transitions framework by distinguishing between structural, instrumental and discursive-ideational place-based factors, which serve as sources of power and condition regional transitions. We argued that opportunities and challenges for just transitions depend on these place-based factors, on the power relations they undergird, and on the positionality of a region in a global power-topology. While our approach to power was pragmatic due to the limited space and a much deeper engagement with the vast literature on power would be desirable, we would like to encourage others to take inspiration from our discussion and sharpen the focus on power and hegemony in future research.

Crucially, our framework highlights that the geography of just transitions will vary across space. While the framework is simplified and necessarily masks some of the complexities of empirical reality, despite (or maybe because of) its simplicity, it can be useful for comparative empirical research across diverse regions. The framework enables a focus on specific place-based factors and their possible lock-in, peculiar power relations and patterns of hegemony, and resulting regional just transition opportunities and challenges. Questions for such empirical research could be, for instance, who exercises which form of power, rooted in which place-based factors, embedded in which multiscalar relationships, and how all of this reproduces existing inequalities, overcomes them or creates new ones in the wake of ongoing regional industrial transitions. We would expect a wide empirical range of place-specific configurations relevant for just transitions, from regions with supple structural factors, widely repurposable instrumental factors, and strongly contested discursive-ideational factors (presumably rare cases of diversified urban regions, if any) to those with rigid structural factors,

narrowly repurposable instrumental factors and weakly contested discursive-ideational factors (probably more widespread cases of locked-in regions in industrial decline), and everything in between, including regions with advantages on some dimensions and disadvantages on others (e.g., Bavaria).

It is particularly for the many shades between the extremes that our framework might be most useful as the analytical groundwork for designing tailor-made, place-based just transition policies that go beyond those commonly applied, for example, in coal regions. Criticism of the JTF and its implementation (e.g., Moodie et al., 2021; Weckroth et al., 2025) underscores the usefulness of a place-based framework for policy design, and its relevance extends to far more regions than those eligible for JTF support, given the fund's relatively modest budget (Crespy & Munta, 2023; Rodríguez-Pose & Bartalucci, 2024). The conceptualisation proposed in this article suggests that holistic place-based just transition policies would benefit from widening the focus beyond instrumental factors (e.g., promoting technological change, reskilling workers) and better considering structural factors (e.g., strengthening the adaptability of organisations and institutions) as well as discursive-ideational factors (e.g., supporting open negotiation processes of alternative regional visions). Moreover, place-based just transition policies should pay more attention to unequal power relations and give a stronger voice to less powerful actors (e.g., civil society) in decision-making processes. As regions with very diverse structural, instrumental and discursive-ideational factors will have to engage in just transitions of different scopes and shapes in the years ahead, more diversity and comprehensiveness in policy design are urgently needed.

Notes

1. In Austria, for example, JTF eligibility is defined at the level of NUTS-3 regions (ÖROK, 2022).
2. We consider institutions not as assets but as structural factors.
3. This example demonstrates how different forms of power interact, as the exercise of ideological power through job blackmail arguments seems most effective when an industry has high structural power by employing many workers (Vona, 2019).

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