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To cite this article: Trond Nilsen, Markus Grillitsch & Atle Hauge (2022): Varieties of periphery and local agency in regional development, *Regional Studies*, DOI: [10.1080/00343404.2022.2106364](https://doi.org/10.1080/00343404.2022.2106364)

To link to this article: <https://doi.org/10.1080/00343404.2022.2106364>



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Published online: 07 Sep 2022.



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Varieties of periphery and local agency in regional development

Trond Nilsen^a , Markus Grillitsch^{a,b}  and Atle Hauge^a 

ABSTRACT

The extent to which structures and preconditions stimulate or hinder regional development is of interest in economic geography, as is the renewal of 'left-behind' peripheral regions. However, few studies have addressed how and to what extent peripheral regions differ. To disentangle the notion of peripheral regions as homogeneous and lacking knowledge sources, capital and networks, the paper discusses the characteristics of four types of peripheral regions: resilient regional service centres; locked-in specialized regions; vulnerable rural regions; and locked-in and vulnerable resource-based regions. By detailing the nuances of periphery, we systematize regions' challenges and opportunities and link these to local agency.

KEYWORDS

regional development; trinity of change agency; non-core regions; lock-in; regional policy

JEL R1

HISTORY Received 3 June 2021; in revised form 13 July 2022

1. INTRODUCTION

Economic geography has traditionally focused on the role of structural preconditions, territorial industry dynamics and systemic characteristics in regional development (Boschma & Frenken, 2006; Martin & Sunley, 2006, 2010; Neffke et al., 2011). Although the literature commonly relies on explanations based on regional¹ industry dynamics (where existing) and path-dependent patterns, emphasizing the relevance of preconditions, micro-level explanations for regional development are largely absent (Frangenheim et al., 2020; Grillitsch & Sotarauta, 2020). This is especially true outside vibrant metropolitan regions, where innovative activity and development are seen to be restricted by the nature and weakness of structural preconditions (Asheim & Isaksen, 2002; Hassink, 2010; Tödtling & Trippel, 2005). The literature on development in peripheral regions is thus biased towards emphasizing structure at the expense of agency (Sotarauta & Suvinen, 2018).

Lately, however, places that 'don't matter' have attracted increasing scholarly attention (Rodríguez-Pose, 2018). Depopulation, small firms, remoteness and organizational thinness are often used indicators to determine whether a region is peripheral (Doloreux & Dionne, 2008; Eder, 2019; Jakobsen & Lorentzen, 2015; Rousseau, 1995; Tödtling & Trippel, 2005). Eder (2019) called further for more explicit descriptions to determine which

regions are peripheral, from both a functional and a geographical perspective (Jauhiainen & Moilanen, 2012). Innovation in peripheral regions (Fritsch & Wyrwich, 2021; Grillitsch & Nilsson, 2015; Shearmur & Doloreux, 2016) has also attracted increasing attention, and Eder and Trippel (2019) have argued the need for more strategic efforts to generate innovation in these regions.

In this paper we use the term *peripheral* to refer to regions that fall outside the labour markets of large cities or metropolitan regions – in other words, as a synonym for non-metropolitan regions. This admittedly broad definition resonates with Rodríguez-Pose's (2018, p. 191) summary of the dominant narrative:

that big cities are the future and that the best form of territorial intervention is not to focus on declining places – perceived as having low potential – but to bet on what is supposed to be the winning horse: the largest and most dynamic agglomerations.

In this paper we unfold the varieties of regions that lack the agglomeration economies of big cities with a critical perspective because not all such regions are declining or have low potential. To the contrary, we aim to counter such a broad-brush categorization in thriving big cities and other territories conflated into lagging peripheries.

However, we acknowledge that the term *periphery* can be differently defined (see Pugh and Dubois, 2021, for a

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discussion of the fuzzy use of this concept). Although peripheral regions are strongly heterogeneous (e.g., in terms of competence, specialization, size and/or diversity), there has been a tendency to treat such regions as homogeneous, ‘one-sized’ and lacking endogenous resources such as knowledge, capital and networks (Eder & Trippel, 2019; Fløysand & Jakobsen, 2007; Isaksen & Trippel, 2017; Virkkala, 2007). For that reason, a more nuanced account is needed to enhance our understanding of the most important characteristics of peripheral regions. To that end, our first contribution to the literature is to discuss the varied forms of ‘places that don’t matter’.

Furthermore, recent studies have shown that agency can be an important driver in peripheral regions because actors and organizations can potentially initiate or promote emerging development paths, compensating for a lack of regional structures or creating value with the distinct local preconditions (Bækkelund, 2021; Grillitsch et al., 2022; Jolly & Hansen, 2021). Drawing on the ‘trinity of change agency’ model developed by Grillitsch and Sotarauta (2020), we clarify how the various characteristics and dimensions of agency can influence regional development in peripheral regions of different types. We develop a framework that relates dimensions of agency and regional preconditions in different types of peripheral regions. This more differentiated account of the role of agency in the periphery is our second contribution.

The paper addresses the following primary research questions:

- How and why do peripheral regions vary in terms of opportunities and challenges for regional development?
- How and why does local agency differ across peripheral regions as an influence on regional development?

To develop a typology of peripheral regions, we consider two regional characteristics – actor composition and power relations between actors – as important and theoretically distinct conditions for the emergence of human agency. Combining these two contextual conditions, we analyse and disentangle four distinct archetypes of peripheral regions:

- The ‘*resilient regional service centre*’ is characterized by relatively high diversity and services and a high proportion of public sector institutions, with access to higher education institutions (HEIs) and a relatively strong pool of human capital.

- The ‘*locked-in specialized region*’ is highly specialized, with one or two industries and sometimes lead firms. These regions are characterized by a mix of skills and strong support from regional government, but national actors also tend to provide backing for these specialized regions through nationally funded cluster programmes and other national initiatives.

- The ‘*locked-in vulnerable resource-based region*’ occupies a peripheral position in global production networks (GPNs) and is often trapped in networks controlled by actors (i.e., lead firms) outside the region. Nearby natural resources create both challenges and opportunities.

- The ‘*vulnerable rural region*’ is characterized by low levels of population, public service functions and firm presence. These factors limit resource pooling and endogenous and exogenous development opportunities.

The remainder of the paper is structured as follows. Section 2 discusses an agency perspective of regional development. Section 3 develops an agency-based typology of peripheries based on two dimensions: actor composition and power relations between actors, yielding four archetypes of peripheral regions. Section 4 discusses the challenges and opportunities for each type and how they differ in terms of the role of agency. In conclusion, section 5 summarizes our findings and highlights their contribution to the existing literature.

2. FROM NEW PATH DEVELOPMENT TO AN AGENCY PERSPECTIVE OF REGIONAL DEVELOPMENT

Agency, path creation and diversification are important current issues in economic geography (Isaksen et al., 2019). Prior firm or non-firm decisions that guide future decisions can be understood in terms of path dependence. The evolution of different industrial development paths and innovative activities that push regional or industrial actors and institutions in one direction or another (Martin & Sunley, 2006, 2010) is referred to as path development (Grillitsch et al., 2018). New path development involves the renewal of economic activities based on new knowledge, which actors in specific regional and systemic contexts interpret and utilize in different ways. However, the mainstream literature has been criticized for an over-emphasis on regional preconditions and structure and a tendency to downplay the role of agency (Bristow & Healy, 2014; Nilsen, 2017; Uyarra et al., 2017).

Scholars have shown that regional preconditions differ significantly in terms of available resources within and outside the region, and widely across metropolitan, peripheral and old industrial regions (Tödting & Trippel, 2005). There is clear evidence that in stimulating and fostering regional growth and innovation activities, one size does not fit all. The realization that there is no single ideal model of innovation and growth has prompted economic geographers to adopt a more dynamic and place-based perspective. In particular, the regional innovation system approach has been used to examine different types of region (Asheim et al., 2016) and the evolution of support systems that influence regional innovation and industrial transformation (Asheim et al., 2019). Path development can be investigated in the context of pre-existing industrial and institutional systems and how these shape current and future industrial trajectories (Isaksen & Trippel, 2017), and historical developments, contingencies and territorialized capabilities are central to explaining regional path development processes (Martin & Sunley, 2006, 2010).

Regional paths have been classified along several dimensions identifying the different forms of regional industrial path development and contributing to our understanding about the conditions facilitating or

hindering path development (Grillitsch et al., 2018). Going beyond regional and industrial preconditions for new path development, the recent literature has addressed how regional industries are transformed (Asheim et al., 2019) shifting the focus to the role of actors, agency and multi-scalar dynamics (e.g., Binz et al., 2016; Hassink et al., 2019). Recent research has also explored how the interplay between endogenous and exogenous processes influences regional industrial development (Dawley, 2014; Doloreux & Porto Gomez, 2017; Hansen & Coenen, 2015; Isaksen & Trippel, 2014). In that way, the literature on human agency also provides a broader perspective of regional development, which goes beyond a narrow focus on new industrial paths and considers wider social processes affecting regional development and the development of new industrial paths.

Emirbayer and Mische (1998, p. 963) defines agency as 'a temporally embedded process of social engagement, calling for a strong capacity to interpret past habits and future prospects'. Grillitsch and Sotarauta (2020) develop the notions of agency and structure in regional development and argue that the process of social engagement is best understood in terms of the trinity of change agency: Schumpeterian innovative entrepreneurship, institutional entrepreneurship and place-based leadership. While this approach was developed to understand regional development, the relevant actions can be performed by actors within and beyond the region (Miörner & Trippel, 2017; Njøs et al., 2017; Trippel et al., 2018).

The first type of agency (Schumpeterian innovative entrepreneurship) drives path-breaking innovations that transform places and trigger change in industrial specializations. It refers to actions that facilitate and drive change as an active break with existing paths or a wilful attempt to realize novel combinations of knowledge and resources. However, innovative entrepreneurs do not act in a social, institutional or economic vacuum. Inspired by institutional theory and economic sociology, the second type of agency (institutional entrepreneurship) acknowledges that new industrial path development often requires institutional change that is risk-taking and opportunity-oriented. Finally, regarding the third type, Grillitsch and Sotarauta (2020) argued that 'the emergence of new paths can be seen as a multi-actor construction', and 'place-based leadership is important to orchestrate actions and to pool competencies, powers and resources to benefit both the actors' individual objectives and a region more broadly' (p. 708).

Agency is linked to structural preconditions as well as changes unfolding outside the region with the concept of opportunity space, defined as 'the time or set of circumstances that make a change possible' (Grillitsch & Sotarauta, 2020, p. 713). While preconditions are traces of the past, the concept of opportunity space captures potential future developments afforded by these preconditions. This reflects the nature of human agency, where actors 'mobilize the past not necessarily to repeat or avoid what happened, but, instead, to generate new options. Likewise, people imagine new initiatives for the future which then

lead them to mobilize the past in support' (Garud et al., 2010, p. 770). The opportunity space, however, is not only region-specific, it is also actor-specific because of actors' different capabilities, networks, and resources, and time-specific due to global crises and institutional and technological changes.

The agency perspective in regional development is highly relevant from a policy perspective because it sheds light on how actors can broaden and shape the opportunity space through social engagement in place-based leadership and institutional entrepreneurship, and grasp and development opportunities through innovative entrepreneurship. The agency perspective is also emancipatory (cf. Bhaskar, 1998) because it does not give precedence to pre-given, historically developed structures, or external shocks and changes escaping the influence of local actors but it shows how and why actors reproduce and transform regions, and thereby play an active role in regional development.

3. AN AGENCY-BASED TYPOLOGY OF PERIPHERIES

'Human agency refers to intentional, purposive and meaningful actions, and the intended and unintended consequences of such actions' (Grillitsch & Sotarauta, 2020, p. 707). Human agency enriches the literature on regional economic change by illuminating how and to what extent local actors participate in regional development processes, acknowledging the potential of human agency as a key mechanism for structural change. However, human agency is also shaped by the regional and extra-regional conditions and contexts in which local actors operate (MacKinnon et al., 2019; Miörner, 2022). To further contextualize the role of human agency in this regard, we consider two theoretically distinct conditions that are important for the emergence and patterning of human agency: the differentiation of the actor composition and the skewness of power relations between actors.

3.1. Differentiation of the actor composition

Isaksen et al. (2019) showed that new path development is not solely a result of the actions of firms (firm-level actors), as regional preconditions for innovation and economic development are also shaped by non-firm (or system-level) actors, including local government and universities. From a human agency perspective, the actor composition has a more general relevance because, when acting, actors always draw on some pre-existing structures and thereby reproduce and sometimes transform the structures (Bhaskar, 1998). The structures in the context of this paper include knowledge, networks, and institutionalized relations, which give access to e.g., human and financial resources. Structures are differentiated within and between sectors. Structures differ between business, universities, public administration and civil society. They also differ between industries, between primary, secondary and tertiary education, between municipal, regional and national authorities. Hence, depending on the differentiation of the

Table 1. Typology of peripheries.

		Actor composition	
		Differentiated	Undifferentiated
Power relations	Balanced	Type I: Resilient regional service centres	Type III: Vulnerable rural regions
	Skewed	Type II: Locked-in specialized regions	Type IV: Locked-in and vulnerable resource-based regions

actor composition in regions, there will be a variation in possibilities to draw on certain types of knowledge, networks and resources in the process of new path development. A high differentiation holds potential to access a larger variety and depth of knowledge, networks, and resources. A high differentiation allows for agency to be widely distributed between individual actors. This will reduce the risk of monopolizing the regional development agenda but will require a higher degree of coordination.

The differentiation of the actor composition is an important dimension for distinguishing peripheral regions. Whereas all big city or metropolitan regions exhibit a highly differentiated actor composition, peripheries vary significantly in this regard; for instance, while some peripheries offer education at all levels, others may only provide lower education. In some peripheries, the business sector encompasses both export-oriented firms and local service providers (i.e., traded and untraded economic activities) while in other cases a few existing firms serve local needs. In some peripheries, local and regional government functions are differentiated while others lack a regional government presence and local government capacity is low. A low differentiation of the actor composition in a region tends to produce a higher vulnerability because people must move elsewhere in the pursuit of education and job opportunities, leading to depopulation and making it increasingly difficult to provide public services and related functions.

3.2. Skewness of power relations

In the present context, human agency essentially refers to actors' ability to affect regional development, which is in turn directly related to the concept of power. In a study of power in the context of regional development, Sotarauta (2009, p. 898) defined power as 'a potential to influence' and characterized influence as a process in which the actor exercising power 'makes other actors see things, people, functions, etc., differently from before and as a result do something that they would not otherwise do'. While the capacity to influence may be vested in a formal position, Sotarauta showed that in a regional development context, actors often exercise power indirectly through their networks and their ability to convince others and to introduce new ideas.

In more general terms, human agency has been described as a causal power insofar as it is only through action that structures – knowledge, networks and institutions – are reproduced or transformed (Archer, 1998; Bhaskar, 1998). Actors, depending on their knowledge, positions in networks, and institutionalization of relations, vary in their possibilities to exercise causal power. For

instance, the actions of business leaders, vice-chancellors of universities, or majors are often more consequential than the actions of individuals at lower levels of the hierarchy. This is because their position tends to make it possible to mobilize human and financial resources. Yet, also without formal positions or mandates actors can exercise agency by drawing on their knowledge and informal networks.

So, power – the potential to influence new path development in our case – is unequally distributed among actors, and that distribution depends on regional characteristics (Yeung, 2005). This is especially relevant in peripheries where a single large firm can easily dominate the labour market or where the region's economy is based on a narrow industrial specialization, as is typical in resource-based regions. In such cases, few actors tend to dominate local and GPNs with clearly specified interests, which Yeung (2005) captures with the idea of relational specificity. As Görmar et al. (2022) show in a study about four European mining regions, the possibility for local agency is severely restricted in cases of where power relations are highly skewed due to the dominance of single actors with non-local ownership. A high skewness of power relations is the key reason for lock-ins, especially the political-institutional form of lock-in described by Grabher (1993), where powerful elites protect vested interests. This engenders dependency, making it particularly difficult for peripheral regions to diversify (MacKinnon, 2011). To be sure, lock-in can be positive if the single firm or industry is growing and provides new and high-value added jobs (Martin & Sunley, 2006). Importantly, however, power relations are not skewed in this way in all peripheral regions.

Combining the two conditions of actor composition and power relations yields four types of periphery (Table 1): (1) regions with differentiated actor compositions and balanced power relations as typical in resilient service centres; (2) regions with differentiated actor compositions but skewed power relations as typical in locked-in specialized regions; (3) regions with undifferentiated actor composition and balanced power relations such as in vulnerable rural regions; and (4) regions with undifferentiated actor composition and skewed power relations as typical in locked-in and vulnerable resource-based regions. 'Vulnerable' and 'locked-in' represent tendencies that are inherent in the typology and can be validated empirically where most rural regions decline, where most regional service centres exhibit stability and even growth, where most specialized regions show a more cyclical development following the growth or decline of demand in the dominating industry, and where

resource-based regions combine the patterns of specialized and rural regions.

The characteristics of these regional types are discussed in more detail in the next section, supported by empirical examples.

4. VARIETIES OF PERIPHERY: REGIONAL CHARACTERISTICS AND PATTERNS OF LOCAL AGENCY

This section explores the extent to which peripheries can be categorized in terms of preconditions for regional development and patterns of local agency. In each case, we discuss the implications of particular regional characteristics for local agency in terms of opportunity space and change agency as outlined by Grillitsch and Sotarauta (2020). This is important because regional characteristics influence but do not determine future development (Garud et al., 2010). We elaborate which combinations of change agency are called for in different regional contexts (MacKinnon et al., 2019; Miörner, 2022). To systematize these regional types, we employ a regional innovation systems approach focussing on actors, networks and institutions (Asheim et al., 2019).

4.1. Type I: Resilient regional service centres

Despite the emphasis on metropolitan areas in both academic research and innovation policy, many smaller cities and towns thrive and grow (Ocejo et al., 2020). They are typical for regions with a differentiated actor composition and balanced power relations. To fully understand regional dynamics, it is important to look beyond purely functional links and economic output measures.

4.1.1. Actors

Regional service centres are characterized by a relatively heterogeneous landscape of actors at the firm- and system-level (firms, universities, local government, civil society), all of which contribute in different ways to regional development. Regional HEIs potentially facilitate change through enhancing labour force qualifications, potentially increase regional diversity and play an active role in local firms' innovation processes. Although less research-intensive than metropolitan HEIs, these institutions can help to address regional service centres' competence needs, and introducing new complementary competencies (Pugh, 2017). Hence, universities can engage in change agency but, as Marques et al. (2019) argued, this depends on the university's medium- and long-term alignment with local actors' needs, the presence of firm-level actors with sufficient absorptive capacity and formal institutions that give system-level actors the mandate and resources to engage in new path development.

Agency can be said to be distributed across a range of firm- and system-level actors exhibiting a medium level of economic diversity, which is lower than in metropolitan regions but higher than in other peripheral regions. As compared with more peripheral regions, regional service centres are in an advantageous position in terms of

human resources. One of their defining features is their relatively high share of public employment requiring different skillsets. This is a stabilizing factor because public employment is less vulnerable to global market changes and may create demand for local private business activities. By providing access to a relatively large pool of competent people, who often require higher education levels to perform their tasks, regional service centres tend to promote greater business diversity than other peripheral regions.

4.1.2. Networks

Networks in regional service centres stretch beyond the region and can be characterized as medium-open. To secure the inflow of competences, knowledge and information needed to supply HEIs and the labour force with the requisite inputs, connectivity is relatively broad. The classical urban sociologist Wirth (1938) defined urbanism as 'a way of life' and noted that differences in density and diversity were as important as the number of inhabitants for understanding urban life and space (Ocejo et al., 2020). It follows that small cities can play an important regional economic role as a driving force for their hinterland – both as marketplaces for goods and services and as knowledge hubs based on HEIs. Hence, regional service centres occupy an important place in innovation and production networks and connect metropolitan regions to their hinterlands.

4.1.3. Institutions

This relational understanding of regional dynamics, in which economic decisions cannot be conflated with a purely economic rationale, implies that the sense of community in regional service centres can be a powerful force, underpinning business practices that prioritize local suppliers and partners on the grounds of shorter geographical, cognitive, social and institutional distance (Boschma, 2005), which reduces transaction costs and builds and strengthens network relationships (Håkansson & Snehota, 1995). We contend that in regions of this type, tradition, culture and norms are effectively shared and structure economic and social interactions.

4.1.4. Opportunity space and change agency in regional service centres

The structural particularities of regional service centres influence the expected emergent patterns of human agency. As compared with the other types of peripheral region, regional service centres benefit from a relatively broad opportunity space by virtue of their relatively high economic diversity, substantial public sector and relatively strong educational base. Innovative entrepreneurs can draw on local resources to combine related and unrelated knowledge as sources for new path development (Grillitsch et al., 2018). Proximity and access to different sources of knowledge makes it easier to combine unrelated knowledge (Boschma, 2005). Additionally, the relative strength of the local knowledge infrastructure as compared with specialized, resource-based or rural regions should make it easier for innovative entrepreneurs to tap into

non-local opportunities for new path development (Trippel et al., 2018).

As the different actor groups in regional service centres are institutionalized within their respective systems – which provide them with resources and power – power relations among local actors are relatively balanced. For instance, even if there are several dominant firms in the region, the dean of a regional university has her own resources and legitimacy. Alternatively, the municipality that offers the greatest range of public services may be the region's largest employer, underpinning its influence and power. These scenarios have implications for place-based leadership patterns, which are most effective when they engage different actor groups, identify respective interests and capabilities, mobilize engagement and orchestrate long-term efforts across actor groups (Marques et al., 2019).

Because regional service centres are positioned between metropolitan regions and their rural hinterland, place-based leadership also involves negotiating and lobbying for regional interests at national level. This may be complemented by institutional entrepreneurship, creating a mindset in which different actor groups feel some responsibility to engage proactively in regional development for the good of all and beyond individual interests alone.

4.2. Type II: Locked-in specialized regions

Type II regions with a differentiated actor composition but skewed power relations are common in locked-in specialized regions. They share the differentiated actor structure with regional service centres, which is typical of medium-sized regions, but their industrial focus is highly specialized in one or two areas. It follows that the region's infrastructure is also specialized to meet the needs of the dominant economic activities.

4.2.1. Actors

Firm-level actors in locked-in specialized regions typically operate in a few dominant industries. Sometimes these firms form local clusters or production systems representing several stages in a production or value chain (Bellandi et al., 2018; Porter, 2000). The dominant firm-level actors mostly operate in global markets and can change and at the same time reproduce the regional path, sometimes as leaders in market niches. Hidden champions of innovation often shape the region's trajectories and sustain its competitiveness (Bessant, 2019). Regions of this type typically benefit from strong system-level actors through the regional support system, in which i.e., regional government and national actors provide strong backing for the dominant specialization through nationally funded cluster programmes and other initiatives. Regional universities or university colleges provide support to these initiatives, which support the existing industry in the region. Hence, they can be seen as actors that facilitate change but at the same time, they can reproduce actor needs by further developing the specialization in these regions. At the system-level, trade unions and business support

organizations also play an important role in this process and consolidate existing specializations.

4.2.2. Networks

Some local firms in specialized regions are global market leaders at the top of GPNs, as for instance in the case of the ship building network in Ulsteinvik in Norway (Asheim et al., 2017). In such cases, local firms have high innovation capacity, create high value jobs and tend to stay in the region because of their local roots. Networks between firms within the region and selected firms and networks globally are often strong and close. In other cases, such as the 'third Italy' (Becattini, 1991; Boschma & Lambooy, 2002), local firms that specialize in a particular industry such as textile manufacturing are key employers and create value in dense local networks with global range.

4.2.3. Institutions

The role of cognitive lock-in is important at the institutional level, where a common mindset plays a role in preserving the region's existing norms and values. This can hinder renewal that depends on existing structural preconditions. For example, evidence from Northern Italy on the emergence of new industries reveals the influence of cognitive structures as localized knowledge bases in traditional manufacturing areas while institutional structures dictate the 'rules of the game', shaping interactions through norms, regulations and cultural habits (Forrer et al., 2022).

4.2.4. Opportunity space and change agency in specialized regions

Compared with regional service centres, the opportunity space is narrower in specialized regions, and new path development typically builds on existing industrial specializations through related or unrelated diversification. As Grillitsch and Asheim (2018) have argued, this reflects (1) a vested interest in existing specializations, and (2) the possibility of creating value by combining new and existing competences, networks and resources. Vested interests related to an existing specialization also tend to skew power relations between dominant and fringe actors. As dominant actors, lead firms are the largest employers in the region and drive employment of local suppliers while local government and other intermediary organizations facilitate this relationship between lead firms and local suppliers. The associated cognitive, functional and political-institutional lock-ins can make it difficult to challenge existing development paths in pursuit of industrial diversification. To that extent, dominant firms play an ambivalent role, resisting change in prosperous markets or facilitating change if market conditions change. Some leading firms successfully combine strategies for exploiting existing markets and exploring new ones (He & Wong, 2004; O'Reilly & Tushman, 2013); in contrast, fringe actors such as entrepreneurs in other industries or civil society actors tend to work on alternative development paths (Fredin et al., 2019).

Regarding types of change agency, institutional entrepreneurship plays an important role in challenging existing worldviews (cognitive lock-ins) and dominant actors' rationales (political–institutional lock-in). Reallocating resources and redirecting attention to new economic activities depends on changing mindsets and increasing the legitimacy of activities beyond the main specialization (Binz & Gong, 2022; Forrer et al., 2022). Regional universities can play an important role in broadening the opportunity space by responding to current industry needs while also developing research and education related to future technologies that may support novel combinations of knowledge (Trippel et al., 2015). In such contexts, place-based leadership is especially important for navigating and negotiating the interests and efforts of dominant and fringe actors. Skewed power relations can undermine the interests of fringe actors, and their perspectives on regional development warrant greater attention. Ideally, this would facilitate new regional development paths without negatively affecting existing specializations. In contrast, a more diverse labour market may make it even easier for firms within an existing specialization to attract and retain qualified labour. As regards innovative entrepreneurship, the networks and established conventions in the established field of specialization tends to promote the exchange of knowledge. The policy rationale here lies in promoting the access of knowledge outside the field of specialization, which may either support upgrading existing industries, or diversifying in new fields of specialization.

4.3. Type III: Vulnerable rural regions

Regions with low levels of actor differentiation but balanced power relations are typical in vulnerable rural regions. These are small regions that lack an industrial specialization.

4.3.1. Actors

Vulnerable rural regions have few firm- and system-level actors, and lack the critical mass needed to mobilize for new path development and move beyond their existing vulnerability. These are regions that also have been described as organizationally thin (Isaksen & Trippel, 2016; Tödttling & Trippel, 2005). These regions exhibit low levels of actor diversity and often suffer employment and population decline. Studies from Australia, China and Sweden (Li et al., 2016) have shown that demographic change poses major challenges for rural areas across different contexts. Lacking HEIs and having low diversity, these areas have relatively few high-tech and service sector firms, and innovative firms operate mainly in non-local markets (Vonnahme & Lang, 2021). In general, rural regions have difficulty attracting and retaining skilled labour, aligned with a low level of public services for municipal populations.

The lack of HEIs contributes to structural decline, as young people must leave to pursue higher education, and the threshold for returning after graduation is significantly higher. Consequently, human resource capacity and

education levels are typically low, with fewer skilled workers and a relatively high proportion of older adults. However, there is some evidence that emergent local learning can empower rural communities to act collectively. In one study in rural Peru, for example, Chapple and Montero (2016) found that community-led initiatives in the tourism and service sectors can drive economic development and a positive regional narrative.

4.3.2. Networks

Peripheral regions' positioning within larger external networks means they often lack productive links with the wider world. Industrial structure is weak, and the few existing firms tend to be small. This lack of industrial scale and diversity makes it difficult to develop or maintain clusters or industrial specializations, and the absence of research and development (R&D) facilities and innovative firms can hinder absorption of new inputs (Nilsen & Lauvås, 2018).

Geographical distance between firms is also a challenge, as remoteness and poor access to core economic centres means that rural regions are functionally disadvantaged in terms of human capital, thin institutional structure and poor links to markets (Eder, 2019; Jauhainen & Moilanen, 2012). For these reasons, rural regions need new inputs to attract new resources.

4.3.3. Institutions

Regions of this type have recently been referred to as 'places that don't matter' (Rodríguez-Pose, 2018), where social and political tensions are rising because of economic struggles and despair. This leads to a 'geography of discontent' (McCann, 2020) in regions that were previously larger and more prosperous, where crises in multiple sectors have precipitated a brain drain and outward migration. People in these regions share informal norms and lose hope over time because the 'main narrative' suggests there is no future in the face of external pressures and a perceived lack of opportunities.

4.3.4. Opportunity space and change agency in rural regions

The opportunity space in rural regions can be defined as diffuse, as development opportunities are unclear because regional preconditions offer no specific advantage on which to foster emergent economic activities. In addition, change depends on a relatively small number of actors within or outside the region, who must play several simultaneous roles (Kurikka & Grillitsch, 2021). For instance, firms may need to engage simultaneously in place-based leadership and institutional entrepreneurship because the regional environment lacks capacity. However, if change actors emerge in rural settings, they are likely to be relatively influential in their regional context.

Innovative entrepreneurship plays an important and often unexpected role in the development of rural regions, as for instance in Morisson and Mayer (2021) study of the development and growth of Ledger, a French unicorn initiative in the peripheral region of Vierzon. Cases of

this kind are unexpected because innovation is typically associated with cities and metropolitan regions. However, several recent studies have highlighted innovation in peripheral regions (Doloreux & Dionne, 2008; Eder, 2019; Grillitsch & Nilsson, 2015), and a recent international comparison found no evidence that innovation (as measured by patents) is overrepresented in cities (Fritsch & Wyrwich, 2021). Contrary to the mainstream view of innovation in peripheral regions, Eder and Tripl (2019) argued the need for more strategic initiatives to generate innovation. In such regions, innovation processes are often an outcome of compensation and exploitation practices. Compensation almost always concerns accessing knowledge from outside the region due to the lack of variety and depth of knowledge bases locally. The exploitation of regional properties may be relevant for example for food production, tourism, or renewable energy. In the absence of local resources, innovative entrepreneurs must identify and pursue external opportunities, where problem awareness may trigger wider reaching innovative entrepreneurship (Bækkelund, 2021).

Place-based leadership and institutional entrepreneurship can shape the preconditions for innovative entrepreneurship and well-being in rural regions. In rural contexts, place-based leadership often focuses on basic community services and infrastructures for children, health, eldercare or broadband. Developing strong support systems for innovation and entrepreneurship may be too difficult, and these resources must be accessible from a distance (Grillitsch & Tripl, 2016).

Institutional entrepreneurship typically seeks to nurture an entrepreneurial and open-minded culture. As Westlund and Kobayashi (2013) argue, peripheral regions tend to have a high level of bonding capital, as rural social networks tend to be dense and tight. However, this can impede innovation and entrepreneurship unless coupled with an openness to external networks and potential gains from outside the region (Fitjar & Rodríguez-Pose, 2014).

4.4. Type IV: Locked-in and vulnerable resource-based regions

The regions defined by undifferentiated actor compositions and highly skewed power relations are typical in locked-in and vulnerable resource-based regions. Their business activities focus mainly on the extraction of locally available natural resources in a low-density and often rural environment. While geographical proximity to these resources is advantageous, this also makes such regions vulnerable because they are heavily locked into extracting the resources' value.

4.4.1. Actors

The dominant firm-level actor in such regions is typically one or a few resource-extracting companies. Their labour force is usually a mix of low-skilled workers and highly skilled specialists, and HEIs in the region provide access to specialized skills. This means that although local knowledge and resources are tightly connected, diversity

is low, and specialization is high because of the narrow industrial base. These regions tend to be net exporters of natural resources to global markets. In Kirkenes in Norway, where mining has been the region's engine for several decades, the region was left in disarray when mine investors chose to withdraw (Fløysand et al., 2016).

At the firm-level, much of the labour force is employed in a particular sector playing a specific role within an industrial network. Human and economic capital in these regions is committed to specialization over the long term, creating a lock-in. The significant barriers for system-level actors to engage in diversification and endogenously driven new path development include the cost of re-educating the local workforce, high sunk costs from previous investments, a lack of initiative to diversify the labour market and the commitment of human resources to existing specializations (Tripl et al., 2017).

In these circumstances, the presence of natural resources is a mixed blessing. Granted the natural advantage that these resources cannot be moved, the narrow industrial base and the fact that prosperity depends on resource stock and demand makes the region vulnerable. For instance, Australian alumina towns such as Nhulunbuy illustrate how local enterprises become globally entangled through foreign ownership and investment, which can lead to sudden decline or closure (Saxinger et al., 2016).

4.4.2. Networks

Local firms' dependence on decisions made in GPNs reduces their autonomy (Pike et al., 2017), as they are functionally locked in to external networks, often controlled by multinational corporations (MNCs). As illustrated in UK case studies (MacKinnon, 2011), this risks reducing the region to branch-plant status and overreliance on relatively low-value production or extraction. However, in times of strong demand, constructive alteration of existing rural regional development paths by new actors can enhance employment prospects and value creation (Nilsen, 2019). In some cases, MNCs also invest in higher level economic activities beyond resource extraction; for example, petroleum industry MNCs have invested in building local competences, so establishing long-term regional jobs (Nilsen, 2017). In contrast, other MNCs have located manufacturing plants in specialist regions while keeping key functions such as R&D in their 'home region'; in such cases, the industrial plant offers relatively low-skilled jobs, and economic effects vanish after the construction period.

4.4.3. Institutions

In his seminal work, Grabher (1993) noted that regions tend to suffer from three types of lock-in: (1) cognitive lock-in, in which a shared worldview is confined to the dominant narratives within the region's field of industrial specialization; (2) political-institutional lock-in, where representatives of the local elite (e.g., leading firms, local governance, educational institutions) promote their vested interests; and (3) functional lock-in, which refers to local

firms' dependencies within production networks. We contend that all three types are at play in locked-in and vulnerable specialized regions, as norms are strongly influenced by traditions that have developed over time, and it is considered almost impossible to break away from existing paths. These norms also serve to regulate uncertainty in regions of this kind, again relying on the existing lock-in.

4.4.4. Opportunity space and change agency in resource-based rural regions

In resource-based regions, the opportunity space is very narrow and sharply defined by the resources on which industry depends. The agency characteristics of specialized and rural regions combine to maximally skew power relations between the dominant firm (typically an externally owned MNC) and fringe actors who might challenge resource extraction. The dominant actor's decision makers are often located outside the region and can exert a strong influence on regional development. In contrast, fringe actors are less powerful, and local government is often forced to meet the requirements of the extracting firm. For that reason, the relationship between dominant and fringe actors is often conflictual considering their opposing interests and goals.

As in type 2 specialized regions, vulnerable resource-based regions need institutional entrepreneurship to challenge cognitive and political-institutional lock-ins. However, this can be more challenging, especially in rural resource-based regions, because highly skewed power relations make it difficult to overcome political-institutional lock-in. In combination with a reliance on relatively well-paid jobs provided by the dominant firm, this creates a particular local culture (Dale, 2002) and may even affect the local distribution of personality traits (Obschonka et al., 2018) that tend to discourage entrepreneurial activities. If resource-based activities account for the lion's share of local income, power relations will remain skewed.

Lock-ins can be alleviated by the realization that 'unusual' entrepreneurial activities can create a more diverse labour market and make the region more attractive. Place-based leadership should seek to engage the lead firm in building more value-creating activities in the region – for instance, by helping to develop knowledge-intensive suppliers. Place-based leadership is a delicate activity that involves recognizing and mediating between competing interests and ideally carving out a space for fringe actors in pursuit of a more diverse regional economy. As in rural regions, place-based leadership plays a role in establishing basic community services and infrastructure and encouraging extracting firms to finance those provisions to retain value within the region. Innovative entrepreneurship is a driver to create more value locally by grasping opportunities related to the dominant resource-based industry, as well as for potential diversification, if combined with institutional entrepreneurship and place-based leadership opening up for alternative development trajectories. Innovative entrepreneurship can be promoted with access to knowledge outside the existing

specialization and from outside the region to compensate for the low variety and depth of knowledge available locally.

5. CONCLUSIONS AND POLICY IMPLICATIONS

In this conceptual study, we have explored how different peripheral contexts can be systematized and analysed by disentangling the regional and agency characteristics of four types. In light of the acknowledged need for a clearer understanding and definition of peripheral regions (Pugh & Dubois, 2021), it seems important to avoid treating peripheries as homogeneous (Eder & Trippel, 2019; Tödting & Trippel, 2005). In addition, as little is currently known about how and why regions become peripheral, the present paper offers a nuanced disentanglement of peripheral regions' most important characteristics, dynamics, challenges and potentials.

Our first contribution (to the literature on the 'left-behind places') is to identify four distinct types of periphery. We develop the regional types from an agency perspective foregrounding two dimensions, which are important for the emergence of change agency and by which peripheral regions show substantial variation. The first captures the extent to which actors are differentiated within and between sectors, and the second captures the extent to which power relations are skewed. Combining these two dimensions, we derive four regional types, in which the opportunity spaces and challenges for emerging change agency patterns tend to produce distinct patterns. The four types are heterogeneous, and new path development and regional preconditions entail differing challenges and possibilities (Table 2). While regional service centres and locked-in specialized regions share many of the same characteristics and preconditions, the latter are much narrower in terms of specialization and dominant niche actors. In contrast, the low skill levels and low diversity of rural vulnerable regions are the antithesis of regional service centres in terms of preconditions and challenges for human agency and regional development. Finally, locked-in natural resource regions combine some of the characteristics of specialized regions and rural vulnerable regions, drawing heavily on nearby natural resources.

Our second contribution discusses the particularities of each regional type in terms of the notions of opportunity spaces and the trinity of change agency (Grillitsch & Sotarauta, 2020). The former captures the range of possibilities for regional development, which differs by regional type exhibiting a tendency of being relatively broad in regional service centres, narrow in specialized regions, diffuse in rural regions, and very narrow in resource-based regions. The trinity of change agency identifies types of change agency of relevance for regional development. It also provides for a broader perspective on regional development where place-based leadership and institutional entrepreneurship shape opportunity spaces, and innovative entrepreneurship identifies, develops and exploits opportunities.

Table 2. Types of peripheries, key regional characteristics and implications for local change agency.

	Type I	Type II	Type III	Type IV
<i>Agency-based periphery dimensions</i>				
Actor composition	Differentiated	Differentiated	Undifferentiated	Undifferentiated
Power relations	Balanced	Skewed	Balanced	Skewed
Typical for	Regional service centres	Specialized regions	Rural regions	Resource-based regions
<i>Regional preconditions per type</i>				
Population size	Medium	Medium	Small	Small
Higher education	Often relatively broad offerings	Typically present, with specialized offering	Unavailable	Sometimes present, with highly specialized offerings
Labour force	Varied sets and skill levels	High level of skills related to specialization	Low skill levels, dominated by older adults	Mix of low skill levels and potentially highly skilled specialists
Diversity	Medium	Low	Low	Low
Specialization	Medium	High	Low	High
External networks	Connecting metropolitan regions and hinterland	Part of global production networks (GPNs) (sometimes with local lead firms)	Peripheral network positions	Part of GPNs (typically involving multinational enterprises as lead firms)
Institutions	Sense of community	Common worldview preserves existing industries	Sense of community, often protective; discontent due to lack of opportunity	Vested interests promoted by elite representatives
<i>Implications for local change agency</i>				
Opportunity space	Relatively Broad	Narrow	Diffuse	Very narrow
Development outlook	Resilient	Locked-in	Vulnerable	Locked-in and vulnerable
Place-based leadership	Orchestrate efforts across actor groups and negotiate regional hierarchy (metropolitan–peripheral)	Negotiate collaboration between dominant and fringe actors	Provide basic community services and infrastructure	Engage lead firm in building local value chain; negotiate collaboration between dominant and fringe actors; provide basic community services and infrastructure
Institutional entrepreneurship	Nurture proactive engagement of all actors in regional development	Legitimize activities beyond existing specializations	Nurture an entrepreneurial and open-minded culture	Legitimize activities beyond resource-based industry; nurture an entrepreneurial and open-minded culture
Innovative entrepreneurship	Promote the combination of different types of knowledge locally and globally	Promote access to knowledge outside the existing specialization	Promote access to knowledge outside the region to compensate for low knowledge-intensity locally	Promote access to knowledge outside the existing specialization; promote access to knowledge outside the region to compensate for low knowledge-intensity locally

Using the change agency perspective in combination with the agency-based dimensions of periphery clearly foregrounds some general features relevant for policy makers in different types of regions. Policy makers

should treat peripheral regions on their own merits in terms of challenges and development potential. For regional service centres, policy implications would be to nurture regional dialogue and engagement of the

different types of actors (politicians, firms, universities, support structures, civil society) as well as between regional and national actors. Promoting the combination of different types of knowledge locally and globally will facilitate the emergence of innovative entrepreneurship. In locked-in specialized regions, there is a need for negotiating collaboration between dominant and fringe actors, legitimize activities beyond existing specializations, and promote access to knowledge outside the field of specialization. These efforts will help to diversify the regional economy. In rural regions, place-based leaders will need to focus on the provision of basic community services and infrastructure to develop the well-being in rural regions. Nurturing an entrepreneurial and open culture combined with supporting the access of knowledge outside the region will enable innovative entrepreneurship as indispensable driver for regional development in rural regions. In locked-in resource-based regions, some generic policy descriptions combined features of specialized and rural regions. It should engage lead firms in building local value chains, negotiate collaboration between dominant and fringe actors, and work to enhance basic community services and infrastructure. To promote innovative entrepreneurship, activities outside the resource-based industry should be legitimized, and entrepreneurial and open-minded culture nurtured, and knowledge exchange outside the specialization and outside the region encouraged. This is to broaden the value created from the resource-based industry and to promote new areas of economic activity creating more variation in the regional economy.

The articulated policy implications do not prescribe what local actors should do in specific cases but they constitute recommendations how to facilitate the social engagement of local actors, which is characteristic of change agency (Emirbayer & Mische, 1998; Grillitsch & Sotarauta, 2020) in different types of periphery. This is important for place-based policy approaches that aim at mobilizing local actors in the process of designing and implementing regional policies. The most prominent example of such an approach is smart specialization where priority setting is supposed to result from bottom-up participatory process including a variety of actors (Foray, 2015). However, this participatory process is challenging and prone to a number of governance traps (Sotarauta, 2018), and does arguably often fail to produce the desired transformative change (Hassink & Gong, 2019). Hence, there is a need to better understand the engagement of local actors in change processes in different types of peripheral regions, and develop relevant policy recommendations. This paper has attempted a step in this direction. It calls for research and policy approaches to go beyond 'stamping' peripheral regions as left behind due to unfavourable regional preconditions and to seek for the conditions that empower local actors to engage in processes of regional transformation considering the varieties of periphery and acknowledging that change agents are not only located in the large city regions.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

FUNDING

This work was supported by the research project REDINN, Stiftelsen Sparebank1 Hedmark.

NOTE

1. We understand regions as functional territorial contexts that offer varying conditions for growth and innovation. As such, we have adopted Boschma's (2004) definition of regions as territorial contexts rather than as administrative units, focusing on the behaviour and performance of local organizations. These, in turn, depend on the embeddedness of local actors in place-specific production and innovation networks, competence and knowledge bases, and institutional environments. As this functional embeddedness is not fixed but changes over time and across places, regions are not predefined units, and the relevant territorial context can only be identified empirically.

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