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Agency and structure in regional development: in search of a social science research programme

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ABSTRACT

As a concept, agency stretches from philosophical and meta-theoretical elaborations to studies documenting largely idiosyncratic happenings in a particular empirical context, which could be dismissed as anecdotal. In between, and the source for the recent revival of scholarly interest, lies the promise to explain transformation processes, multiplex governance, and varieties in wellbeing and development pathways, which are needed in a world overshadowed by crises. Have studies on agency and structure lived up to the promise? Only partly, we argue and suggest that we need to develop a common ontological commitment as well as adequate mid-range theories and methods coherent with such a commitment. We suggest critical realism as the backbone of such a common ontological commitment and discuss potential ways forward for a social science research programme with emancipatory potential, this is to say to contribute to our capabilities to make a difference in the world.

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Introduction

The relation between agency and structure is one of the central and lasting theoretical debates in the social sciences (e.g. Archer 1982; Giddens 1984; Jessop 2001) and has had a place also in the study of regional development and economic geography (e.g. Coe and Jordhus-Lier 2011; Plummer and Sheppard 2006; Sayer 1982). However, there has also been a critique that human agency has received too little attention in contemporary literature on regional development (Asheim, Grillitsch, and Trippel 2016; Boschma 2017; Hassink, Isaksen, and Trippel 2019; Uyarra et al. 2017). Responding to this critique, we find a resurgence of work on human agency in regional development studies and taking stock of the advancements in this recent literature is the purpose of this paper. Recent agency-oriented studies in regional development touch upon a surprising breath of topics, which have contributed to insights related to different theoretical framings and empirical contexts, including, among others:

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1. **Industrial diversification, renewal and resilience** (e.g. Bækkelund 2021; Baumgartinger-Seiringer 2022; Beer, Barnes, and Horne 2021; Benner 2022; Blažek, Kadlec, and Květoň 2023; Doloreux and Turkina 2021; Gherhes et al. 2022; Görmar 2024; Isaksen et al. 2019; Kurikka and Grillitsch 2020; Piša and Hruška 2023; Pugh et al. 2024; Stihl 2022),
2. **Decarbonizing of industry/green industry development** (e.g. Chaminade and Randelli 2020; Jolly, Grillitsch, and Hansen 2020; Sotarauta et al. 2020) and **regional energy transformations** (e.g. Chlebna and Mattes 2020; Suitner, Haider, and Philipp 2022),
3. **Governance and skewed power relations in regional development** (e.g. Döringer 2020; Flanagan, Uyarra, and Wanzenböck 2022; Görmar et al. 2022; Kristensen, Pugh, and Grillitsch 2022; Nagy, Mihály, and Tagai 2023; Stihl 2024; Weller and Beer 2022),
4. **Strategic coupling, global network building and regional anchoring** (e.g. Gong, Hassink, and Wang 2022; Grillitsch and Asheim 2023; Henry, Angus, and Jenkins 2021; MacKinnon et al. 2019; Steen, Lund, and Karlsen 2023; Wu 2022),
5. **Inclusive and sustainable development in rural or peripheral communities** (e.g. Bosák et al. 2023; Eikeland 2021; Hutchinson and Eversole 2023; Pinzón-Camargo, Ordoñez-Matamoros, and Kuhlmann 2022; Sotarauta, Kurikka, and Kolehmainen 2022),
6. **Urban development** (e.g. Gunko et al. 2021; Herzog and Hamm 2021; Sancino et al. 2022),
7. **Universities in regional development** (e.g. Eder and Döringer 2022; Nieth and Radinger-Peer 2022; Thomas, Faccin, and Asheim 2021).

In essence, these papers share a common interest to understand the necessary relationship between human agency and socially produced structures rather than a particular mid-level theory or hypothesis to be rejected or corroborated empirically. They represent the resurgence of agency in regional development studies and economic geography reflecting a growing appreciation that human agency is necessary for the reproduction and transformation of any socially produced structure (Kinossian, Grillitsch, and Nagy 2024; Sotarauta and Grillitsch 2023; Uyarra et al. 2017). They are part of a new stream of literature that has an interest in human agency, which focuses on ‘intentional, purposeful, and meaningful actions performed by human actors and the intended and unintended consequences of such actions’ (Grillitsch and Sotarauta 2020). Giddens (1984, 9) linked agency specifically to individual actors, stating that ‘whatever occurred would not have happened if that person had not intervened.’ While we do not follow his idea to that extreme, we see agency in the context of regional development as the capacity of actors (individuals, groups, or organizations) to act purposefully and significantly in pursuit of desired futures for their regions (Gregory et al., 2009).

Agency-oriented studies in regional development draw directly or indirectly on other disciplines, including organizational and institutional studies, sociology, political sciences, or management studies. It is evident that concepts and approaches as, for example, institutional work (Lawrence, Suddaby, and Leca 2009), institutional isomorphism (DiMaggio and Powell 1983) and institutional entrepreneurship (DiMaggio 1988) are relevant to engage in an in-depth discussion of the many dimensions of agency. Additionally, for example, Mills (1956) detailed analysis of ‘the Power Elite’ or Logan and Molotch’s (1986) study on growth coalitions provide agency-oriented studies with crucial theoretical

building blocks that deepen the understanding of agency in regional development. As the main purpose of this paper is to call for a more robust social sciences research programme on agency in regional development studies, we do not dig deep into the conceptualizations of the other disciplines but acknowledge their importance in the efforts to understand the agency–structure interface better. We need to satisfy ourselves with revealing the promises and limitations of the recent efforts in regional development studies and economic geography and leaving a detailed conceptual discussion for forthcoming papers.

Reflecting on the resurgence of scholarly interest, we ask in this paper: (1) *What is the promise of agency in and for regional development studies, and consequently, (2) has the emerging body of literature lived up to the promise?*

We examine the motivations for why authors have focused on agency in recent papers. We find the promise lies in a better understanding of change processes and transformations, power and multiplex governance, as well as varieties in wellbeing and development pathways. However, we argue that the body of work on agency has only partly lived up to this promise. Many contributions add on and complement structural approaches with insights about agency, instead of focusing on it explicitly. Indeed, adding agency as an additional layer to existing approaches has limitations. It may result in complex conceptual frameworks disguising the agentic processes we want to study, conceptual drift, and mixing contextual with analytical concepts. Moreover, the limitations may result in a lack of coherence between ontological commitments and theorizing, poorly connected theory and method, or overly descriptive analyses.

The bottom of these problems is that current studies lack a common ontological commitment that would define an agency-oriented social science research programme on regional development. We suggest critical realism as an ontological backbone to the study of human agency and structure, and discuss ways forward for studying agency in regional development studies. We discuss the potential contours of a common ontological commitment, recognizing that developing such a commitment needs to be a collective endeavour. We relate insights from classic work on agency in other disciplines to the particularities of studying agency in regional development. Building on the suggested contours of a potentially joint ontological commitment, we offer theoretical and methodological reflections on ways forward for studying agency and structure in regional development.

What is the promise of the resurging work on human agency and structure?

The focus on human agency is in contrast to theoretical perspectives such as actor-network theory (Murdoch 1998; Müller 2015), which pay greater attention to non-human agency and things, or the relation between non-human and human agency. Non-human things like the Covid-19 virus can have far-reaching and spatially varied economic effects, which makes investigating the impacts of Covid-19 a legitimate target for scholars in the fields of regional development studies, regional science, or economic geography. In addition, pre-existing structures, whether socially produced or natural, make specific human actions possible while hindering others. Importantly, a focus on human agency does not ignore non-human influences but shifts the attention to human actors' engagement with e.g. the challenges and opportunities related to Covid-19, in the context of pre-existing structures and the outcomes of such engagement

in terms of a change to structures over time. In a similar vein, Bristow and Healy (2014, 924f) foreground the importance of human agency for phenomena that fall into the social sciences domain:

[T]his system and structure emphasis has resulted in much less attention being paid to understanding the role of human agency in the adaptation at the heart of regional economic resilience. In part this reflects the relative newness of the theorizing around regional resilience. However, it also reflects the inevitable degree of determinism evident in translating systems and resilience thinking from the natural and physical sciences to the social world where the ingenuity, foresight and anticipatory behaviour of human agency means, for example, adaptive cycles are capable of being overridden, broken or substantively changed

Therefore, the most common and prominent motivations for using a human agency perspective in these new works in regional development studies and economic geography relate to the promises of a better understanding why change happens (or fails to happen), how power and multiplex governance processes affect regional development outcomes, and why outcomes vary despite similar structural preconditions.

Promise 1: gain knowledge about change processes and transformations

Change has been a core interest for regional development studies and economic geography for long as evidenced for instance in literature about path dependency (e.g. Martin and Sunley 2006), clusters and industry life cycles (e.g. Audretsch and Feldman 1996), or the umbrella for these approaches, evolutionary economic geography (Boschma and Martin 2010). Despite the interest in change, the literature until recently foregrounded industrial, knowledge and institutional structures, while the engagement of actors in change processes was largely ignored (Boschma 2017; Gertler 2010; Hassink, Isaksen, and Trippel 2019). The revived interest in agency is aiming to fill this void.

much can be learned about the creation and evolution of new growth paths through a broader perspective on the roles and types of social and institutional agency that are involved. (Dawley 2014, 92)

The lack of an adequate economic explanation of how new pathways are created in the first instance has led a number of scholars to turn to sociological approaches that focus on the activities of reflexive agents in new path creation. (Simmie 2012, 756)

Moreover, researchers have increasingly shifted their attention to not only understand change and adaptability but also to identify the causal powers driving change, hence aiming to assist practitioners, policymakers, or stakeholders to facilitate and promote change. These efforts undoubtedly relate to the urgent need to address societal challenges, with global warming and inequalities being often referred to, as well as the need for all actors, regions, and nations to find their place in a world of technological change and globalization (or nationalism in the future). In addition, a widespread acknowledgement has emerged that change and adaptability is a human endeavour and can thus not be understood without shedding light on what people do.

Promise 2: gain knowledge about power and multiplex governance

In the context of regional development, human agency stands out as a distinct form of agency compared to many other disciplines (e.g. business and political studies).

Instead of being primarily interested in single organizations, researchers studying regional development focus on multi-actor and multi-scalar forms of agency (Flanagan and Uyarra 2016; Huggins and Thompson 2022; Simmie 2012; Sotarauta et al. 2020). This does not preclude the possibility that single individuals and single actions are of particular importance in the investigated change process, and identification of such may be part of finding the explanation for the observed outcome. However, individual agency always needs contextualization concerning the conditions that made it possible, the engagement of other actors, and the interplay between actions and intervening conditions. The promise is that by investigating human agency at micro-levels, it might be possible to add analytical leverage to the study of constantly evolving regional development. However, regions easily escape exceedingly abstract efforts to open the black box of human agency and related power relations. As Castells (2009, 13) puts it, regions are ‘contradictory social structures enacted in conflicts and negotiations among diverse and often opposing social actors’.

Consequently, many studies aim to investigate the interconnected intentions and actions of actors from business, the public sector, higher education institutions, and civil society in cities and regions and external to them. Researchers have attempted to explain and understand how governance arrangements impact regional development and how complex power relations shape governance systems and economic development processes (Christopherson and Clark 2007; Cooke and Morgan 1998). Moreover, regional development researchers and economic geographers have taken pains to reveal how unequal power relations increase the gap between core and fallen-behind regions (Iammarino, Rodriguez-Pose, and Storper 2019). It is of vital importance to examine power relations, as they are critical in defining the region and what is seen and not seen as desired development (Pike 2007).

In taking forward this more social conception of agency, recognizing the unequal sociospatial relations in geographical political economy imparted a more explicit grasp of the different kinds and degrees of power that shape evolution in economic geography. (Pike et al. 2009, 180)

In general, studies focusing on human agency are based on the conviction that the discipline requires studies that aim to reveal the micro-level causal forces shaping meso-level development trajectories. Consequently, it is assumed to be necessary to provide detailed accounts of power relations and governance arrangements by investigating actors’ power bases, influence, interests, and intentions on regional development, opening new views on known issues.

Promise 3: gain knowledge about varieties of place and development pathways

The specificity of place and development pathways is of interest to human and economic geographers, as well as regional development policy makers. One important reference foregrounding place-specificity is the Barca (2009) report, which suggests that regional development policies need to be place-based taking into consideration local knowledge, opportunities and challenges. Also, the smart specialization approach with its entrepreneurial discovery process calls for local actors to identify niches, allowing them to differentiate and specialize in a global economy (Foray 2014). Agency-oriented studies

contribute to place-based approaches investigating how actors perceive their opportunities for development focusing on technological, institutional and market changes inside and outside a region (Kurikka et al. 2023). They also deal with how actors mobilize local and non-local knowledge and resources in the pursuit of their goals. Agency-oriented studies take place-specific preconditions into account but do not search causal powers only from them.

Agency is thus viewed as a cause why regions with apparently similar preconditions may vary in their development.

We think we know *what* a region needs to have, but we know far too little about *how* change processes to achieve these structural pre-conditions are initiated and implemented, and by whom. Why do some regions manage to change their development path, while others appear stuck in their story? There is a growing body of literature suggesting that the role of agency might hold answers to these questions. (Rekers and Stihl 2021, 89)

In more general terms, studies on agency and structure are also about appreciating the context in which actions unfold, and how the interplay of contingent events produce outcomes. For instance, Giddens (1984) extensively discussed time geography of the Swedish geographer Hägerstrand (1970) suggesting that the journeys of individuals through time and space as well as the multi-scalar context in which individuals are embedded condition agency patterns and development outcomes. Hence, studies on agency are particularly suited to capture time and space context, which is fundamental in geography, as well as to understand the varieties of development paths and outcomes in concrete territories.

Has the emerging body of literature lived up to the promise?

The emerging body of work has created insights by often complementing structural approaches in regional development studies and economic geography with the largely missing agentic dimensions. The structures most studied in the literature are socially produced and include knowledge, institutions, built environment, organizations, industries, innovation systems, global production networks, or socio-technical systems. The agency dimension often introduces a reverse in the thinking about causality, namely studying intended and unintended consequences of human actions on socially produced structures (bottom-up causation). However, many studies on agency and structure in regional development add agency as an additional layer to existing theoretical frameworks. For instance, responding to the need to add a more dynamic and agentic perspective to studies of regional innovation systems (e.g. Asheim, Grillitsch, and Trippel 2016), which typically differentiates between firms exploiting knowledge in a region and a knowledge and innovation support system, agency has been added by differentiating between firm-level and system-level agency (Blažek and Květoň 2022; Isaksen et al. 2019). Or, in the evolutionary economic geography tradition, agency has been added by investigating which types of firms, incumbents or start-ups, local or non-local, tend to be associated with industrial diversification (Elekes, Boschma, and Lengyel 2019; Neffke et al. 2018). Hence, agency is typically added as an additional layer to existing theories and concepts. While we should not ignore existing theoretical and empirical knowledge, layering theories and concepts may produce overly complicated frameworks that disguise the processes we aim to study, conceptual drift, a lack of coherence between ontology, theory, and empirics, inconsistent theorizing, or excessively descriptive analyses.

These are important issues because studies on agency and structure aim to better theorize and empirically study effects between the micro-level (actions), the meso-level (socially produced structures), and macro-level (aggregated outcomes), where the causation is both bottom-up and top-down. However, studies on agency and structure are not simply about recognizing the two-way causality. The long-standing debate about the interplay between structure and agency (Archer 1982; Bhaskar 1998; Giddens 1984; Jessop 2001; Sayer 1984) unveils meta-theoretical (philosophical), theoretical and methodological challenges, which go beyond adding an agentic dimension to existing layers of structural explanations. We argue that this is the core issue why the burgeoning work on agency only partly lives up to its promise. Living up to the promise requires a research framework that consistently binds together ontological commitments with adequate mid-range theories and empirical methodologies.

This point can be illustrated when studying agency and path dependency, and the conceptual layering and drift that is associated with it. The starting point for such studies may be the insight that self-reinforcing mechanisms (lock-ins) propel industrial development along particular trajectories (Grabher 1993; Hassink 2010). It is widely acknowledged, however, that these mechanisms do not lead to a deterministic outcome, and that we thus need to consider different forms of new path development (Martin and Sunley 2006). Then, we find that structural preconditions may imply a tendency for certain forms of path development to be more likely than others (Grillitsch and Trippel 2018), but we realize that outcomes of such development processes cannot be understood or explained without attention to the engagement of actors in such processes (Hassink, Isaksen, and Trippel 2019; Uyarra et al. 2017). This statement has the underlying assumption that agency potentially affects the development of future paths and thus can reinforce or counteract structural tendencies. However, the more power we attribute to agency, the more the initial theorizing about structural mechanisms leading to path dependency might be questioned.

The inclusion of the agency dimension might be interpreted as an incremental improvement of a path dependence theory. However, there may also come the point where theory turns out eclectic and inconsistent. This view is propagated by Garud, Kumaraswamy, and Karnøe (2010, 669f) who argue that their idea of path creation fundamentally differs from the evolutionary notion of path dependence. They maintain: 'some may like to think that path dependence and path creation are complements of each other [...] to us this is mixing ontologies' and argue that mixing of ontologies needs to be avoided. Mahoney (2000) identifies three defining features of path dependency: (i) causal processes are highly sensitive to early events, (ii) the early events are contingent, not explainable by prior events or initial conditions, and (iii) once the initial events take place, the sequences are relatively deterministic. Contradicting these defining features, Garud, Kumaraswamy, and Karnøe (2010) argue that agency is essential in constructing initial conditions and strategically manipulating the path throughout the process. Empirically, this is supported, for instance, by Chlebna and Mattes (2020) who argue in a recent agency-oriented paper that regional energy transitions are fragile at any stage and that actors' engagement is crucial for the outcome. This illustrates that it is problematic to layer agency onto structural approaches without reflecting about underlying ontological positions.

Critical realism as the proposed ontological backbone of studying human agency and structure

While studying human agency and socially produced structures is an ontological commitment to the necessity of this relationship, it remains typically implicit what such ontological commitment entails. In regional development studies and economic geography, such a commitment is often underpinned by referencing structuration theory developed by Giddens (1984). At the heart of structuration is the duality of structure. As Giddens puts it, 'the structural properties of social systems are both the medium and outcome of the practices they recursively organise' (25). Giddens emphasizes the continuity of practices: 'in and through their activities agents reproduce the conditions that make these activities possible' (3). Human actors are knowledgeable, and they reflexively monitor, rationalize, and motivate their actions in a continuous flow. Agency, according to Giddens, is mainly about doing and producing an effect and thus essentially depends upon 'the capability of the individual to 'make a difference', that is, to exercise some sort of power' (14). The consequences of the actions, however, are often unintended and researchers may then aim to trace (i) how an action triggers an unintended chain of events, (ii) how the interplay of individual actions produces an unintended pattern (e.g. segregation), and (iii) how the unintended consequences of action form the condition for further action in non-reflexive causal feedback loops (this is where actors are not aware of the consequences).

While Giddens's contribution to the structure and agency debate is undisputed, his conceptualization of the duality of structure stands partly in contrast to how the agency–structure relationship is conceptualized in critical realism, a theory of science perspective and methodological approach common in regional development studies and economic geography (e.g. Pratt 1995; Sayer 1984; Yeung 1997). Critical realism goes back to the foundational book 'A Realist Theory of Science' by Roy Bhaskar (1997), first published in 1978. It was initially coined as transcendental realism, which foregrounds one of the key achievements of Bhaskar's work, namely to cement the role of ontology in the process of scientific discovery (Danermark, Ekström, and Karlsson 2019; Sayer 1984). Bhaskar argues for the existence of a 'real' world, which must exist independently of our knowledge (referring to the intransitive dimension of knowledge), and which is different from our knowledge of the world (referring to the transitive dimension of knowledge). According to this philosophy of science, reality consists of three domains: the real, the actual, and the empirical. The empirical is what we observe and is a subset of the actual. The actual is what happens, not all of which we observe. The actual is further a subset of the real, which consists of all existing things and their causal powers. The real contains the mechanisms, which are generative for what happens (in the domain of the actual). Scientific discovery is then the process of developing knowledge about the real world and the generative mechanisms, which provide an explanation how and why things happen (Bhaskar 1997; Danermark, Ekström, and Karlsson 2019; Hedström and Swedberg 1996; Volkoff and Strong 2013).

Following a critical realist approach, agency and structure should not be conceived as a duality as suggested by Giddens but as analytically and theoretically distinct (Archer 1982; Bhaskar 1998). In addition to keeping agency and structure analytically distinct,

Bhaskar (1998, 214f) argues that ‘People and society are not [...] related ‘dialectically’. They do not constitute two moments of the same process. Rather they refer to radically different kinds of things.’ A thing for Bhaskar is defined through its properties, and ‘the properties possessed by social forms may be very different from those possessed by the individuals upon whose activity they depend.’ As regards the relation between agency and structure, Bhaskar argues that

people, in their conscious activity, for the most part unconsciously reproduce (and occasionally transform) the structures governing their substantive activities of production. Thus, people do not marry to reproduce the nuclear family or work to sustain the capitalist economy. Yet, it is nevertheless the unintended consequence (and inexorable result) of, as it is also a necessary condition for, their activity.

Understanding agency and structure as on the one hand related but on the other hand, as theoretically and analytically distinct has several important implications.

First, Archer (1982) proposes that we should consider the relationship between structure and agency as structuring over time, which is characteristic of her morphogenetic approach. The morphogenetic argument that ‘structure and action operate over different time periods is based on two simple propositions: that structure logically predates the action(s) which transform it, that structural elaboration logically postdates those actions’ (468). This sequential perspective on structure and agency has advantages in assessing how, firstly, structure affects actions (top-down causation) and how, secondly, actions affect reproduction or transformation of structure (bottom-up causation). It also avoids Giddens’ methodological bracketing, which for instance Jessop (2001) criticizes. Bracketing is an implication of the duality of structure, where investigating agency would require structure as given and vice versa. The sequential, morphogenetic approach has for instance been recently applied by Grillitsch et al. (2023) in a study of agency and economic change in regions. The authors investigate the structures at the beginning of regional development phases, the actions and external events during the development phases, and how regional economic structures changed during the phases compared to how they were at the beginning, intending to identify causal links between structure and agency.

Second, critical realism describes structures (socially produced and natural things) with what they can do or allow human actors to do because of their properties; this is to say that structures come with certain causal powers. Human agency entails actions where people mobilize powers inherent to their embodied form (e.g. their creativity, intellect, muscles) and/or which are inherent to socially produced and natural structures. Acting will often reproduce structures but sometimes change them. Bhaskar (1998, 215) suggests an essentially Aristotelian conception of human action ‘that of a sculptress at work, fashioning a product out of the material and with the tools available to her. I shall call this the *transformational model of social activity*.’ This perspective implies that human actors transform structures by using causal powers but cannot be seen as ‘true’ creators.

Consequently, the transformational model of social activity may include many types of agency. It may also include different conceptions of the relationship between change and agency, ranging from efforts to introduce small, incremental changes to efforts to introduce abrupt, radical changes (Streeck and Thelen 2005). We need to acknowledge that

human agency reaches from intentional efforts to change institutions and structures, i.e. 'institutional entrepreneurship' (DiMaggio 1988) to efforts to connect disconnected or isolated actors to interact for economic, political, and social purposes, i.e. 'brokerage'. It may renew or upgrade regional conditions and networks, thus creating a fertile landscape for structural change in the long-term.

Even though we are interested in causal powers transforming structures, we should remember that most actors work to comply with institutions and operate in the context of structures without ambitions to change them. As (Sotarauta 2017, 9) maintains, actors often 'work to position themselves, and more importantly also other agents, in the jungle of complementing and conflicting sets of institutions'. This type of institutional navigation may inform us how structures and institutions shape everyday agency. The term 'navigator' describes a particular type of agency that involves knowledge of the region's and the navigator's organization's positions in the broader context. Institutional navigation requires thoughtful choices about which venues to engage with, which partners to collaborate with, which issues to prioritize, and what decision-making strategies to employ within a complex system (Lubell and Morrison 2021).

The identification of various types of agency is expected to help us better understand the intricate relationship between change and agency and, thus, regional development and agency. The forms of agency, mentioned above as highlights, remind that the identification of nuances of human agency in regional development ought to be better rooted in a robust ontological and epistemological framework than what is the case today.

Third, having causal powers does not mean that they need to be used, or about how they are used, and to what consequence they are used. For instance, language is a structure (socially produced) that allows human actors to speak and communicate. However, language does not determine if people speak, what they are going to say, or what consequence their speaking has. Similarly, if, how and to what consequence knowledge is used is not predetermined by knowledge. In other words, pre-existing structures embody opportunities to act and opportunities for future development, which has been theorized about in recent studies on structure and agency in regional development and economic geography (Grillitsch and Sotarauta 2020; Steen 2016). This is also why outcomes are not determined but depend on purposeful and meaningful actions of sets of actors and the intended and unintended consequences of these actions.

Fourth, studies on human agency focus the researcher's attention on concrete rather than abstract space (cf. Grillitsch, Asheim, and Trippel 2018; Martin and Sunley 2022). With concrete space, we understand the actual manifestation of structure, which is reflected in the contextualization of agency in particular territories, knowledge and production networks, institutional architectures, industries, etc. The contextualization of agency in concrete space is necessary to investigate the configurations that make agency possible, and the configurations of agency and other forces that produce certain outcomes. In contrast, abstract space refers to notions such as distance and density, which may be used in the formal and econometric models. Abstraction implies ignoring the particularities of concrete territories and is a simplification used in formal model building. Formal models are powerful for identifying general tendencies. An example is Krugman's (1991) model that explains the differentiation of space in urban

industrial centres and agricultural peripheries with scale economies and transport costs. Yet, the downside of such models is that they cannot capture human engagement, which may aim at reinforcing, redirecting, or combating certain tendencies, in actual (observed) development processes.

Fifth, a commitment to critical realism also entails that for work on agency (and structure) causation is more important than regularity. The theoretical starting point is that agency per se is necessary for the reproduction and transformation of socially produced things (such as regional economic structures, global production networks, knowledge, and institutions). As mentioned, this is an ontological commitment rather than a hypothesis to be rejected or corroborated through empirical testing. Some forms of agency, like Schumpeterian innovative entrepreneurship (Schumpeter 1911) or scientific discovery (Bhaskar 1997) are transformative in nature. Such types of agency are irregular and exceptional, yet, they are key drivers of change. The causal links between transformative agency and structure can be captured by an explanatory framework entailing three instances: (i) macro–micro mechanisms that explain how the structural embeddedness of actors tend to affect their actions, (ii) micro–micro mechanisms capturing how individual actions are generated considering actors' beliefs, desires, and opportunity spaces, and (iii) micro–macro mechanisms, also framed as transformative mechanisms, which capture how the actions of individuals or sets of individuals affect structures. (Coleman 1986; Hedström and Swedberg 1996). Studies on agency may then, for instance, aim at comprehensive explanations of why transformative agency is possible (or not) in a certain time and spatial contexts and why it produces (or not) certain outcomes. They might potentially open a novel avenue to reach beyond arguments related to path dependency by revealing the institutions and agency leading to regional isomorphic patterns – mimicking each other and seeking for similar policy solutions – or breaking those tendencies (cf. DiMaggio and Powell 1983).

Finally, the focus on causation implies that studies on agency also need to go beyond the particularities of a case, and aim to identify the (generic) causes for the outcome (Danermark, Ekström, and Karlsson 2019; Hedström and Swedberg 1996). Rutzou and Elder-Vass (2019) differentiate in formation and causation stories. Formation stories represent the emergence of certain agency patterns and outcomes in particular contexts, including details on actor compositions and facts that might be considered coincidental and largely idiosyncratic. Causation stories aim to go beyond the specific case and, through substantive interpretation of theoretical, empirical, and context knowledge, identify the causal mechanisms at work. In agency-oriented studies, a causal explanation would typically be configurational (Furnari et al. 2020; Rutten 2021). This means that (i) the origin of human agency would be traced to a combination of structural relations making agency possible, and (ii) the outcome would be seen as emerging through the intertwining of multiple actions and exogenous forces (these are intervening conditions outside the sphere of influence of the actors).

Conclusions: ways forward?

In summary, the increasing interest in human agency in regional development studies and economic geography is about refocusing research on the relations and interplay

between human actions and socially produced structures. Agency is not a particular feature of a specific mid-range theory in regional development studies and economic geography, or social sciences more broadly. Instead, work on the relationship between agency and structure refers to a distinct philosophical, theoretical, and methodological approach. Research on human agency, in our view, is about a social science research programme with a common ontological commitment to (i) the necessity of socially produced structures as preconditions for human action and to (ii) the necessity of human action for reproduction and transformation of socially produced structures. We agree thus with Hedström and Swedberg (1996, 290) that in social sciences, ‘the elementary “causal agents” are always individual actors, and intelligible social mechanisms should, in our opinion, always include explicit references to the causes and consequences of their actions.’

A social science research programme of this kind holds a promise for regional development studies and economic geography to develop knowledge about social and economic change and transformation processes, the role of power and multi-actor governance in such processes, and the varieties of social and economic development pathways resulting from them. It ultimately corresponds to what Bhaskar (1998) referred to as the emancipatory potential of social sciences – the enhancement of our capability to make a difference, which we may need more today than ever facing global challenges threatening modern civilization.

We consider, however, that studies on agency in economic geography have only partly fulfilled its promise. On the one hand, agency-oriented work has provided complementary insights to existing research about, for instance, industrial path development, economic diversification, global production networks and strategic coupling, green transformations, and energy transitions. On the other hand, in most cases, scholars have treated agency as an additional layer to existing structural approaches. This theoretical and conceptual layering exposes some weaknesses in the form of overly complex conceptual frameworks, conceptual drift, lack of coherence between ontological commitments, theory and method, theoretical inconsistencies, or excessively descriptive analyses.

Developing a coherent agency-oriented social science research programme requires constructing a common ontological ground to build adequate mid-term theories and methodologies. We have suggested critical realism as the ontological backbone for studies on human agency and structure. The structure agency relationship has a particular temporality, in which structure embodies the powers that human actors can mobilize in realizing their intentions, and where the emergence of agency and its intended and unintended consequences are contingent on a time–space context. It is an ontology that provides the foundations for explaining the formation stories of the varieties of development processes, including both continuation and transformation, as well as for identifying generic causes and lessons relevant beyond a particular case (Rutzou and Elder-Vass 2019). An explicit discussion and consciousness about the philosophical or ontological commitment are essential to enhance agency-related work’s rigour and consistency. A shared commitment will most likely transform how we study agency in economic geography and what knowledge our work produces.

A joint ontological commitment also calls for reflections on adequate methods. Studies on human agency call for methods, which are suitable for investigating change

processes in various space–time contexts and involving multi-actor governance constellations.

Process methodologies are applied with the aim to understand sequences of events and their underlying complex patterns of causation as well as their potential effects in a specific time period. Therefore, process studies require to move from detailed empirical observations to more abstract models that capture the underlying generative mechanisms of a process. (Strambach and Pflitsch 2020, 7)

Sotarauta and Grillitsch (2023) suggest path tracing as a process methodology, attempting to coherently combine an ontological commitment to critical realism with insights from process tracing and structured narrative analysis.

In addition, it will be necessary to develop further (comparative) qualitative approaches. Identifying seven challenges to qualitative research on agency, Grillitsch, Rekers, and Sotarauta (2021) emphasize among others case selection and appropriately delineating the case in time and space as well as data collection and analysis covering structures and changes at multiple levels and the engagement of actors in change processes over time. Among the promising approaches are the selection of extreme cases (e.g. Morisson and Mayer 2021), two cases with similar starting points but different outcomes (e.g. Blažek and Květoň 2022; Fredin, Miörner, and Jogmark 2019), cases with similar structural breaks but different agency patterns (e.g. MacKinnon et al. 2019), or identifying the causes for different agency patterns and outcomes within the same region (e.g. Rekers and Stihl 2021). In addition, to capture the necessary and sufficient combinations of conditions for agency to emerge, or for agency to deliver certain outcomes, the work with larger sets of comparative cases is promising to strengthen configurational theorizing (Furnari et al. 2020; Rutten 2021) using for instance qualitative comparative analysis (QCA) (Ragin 1998, 2009). QCA has been applied in the field of regional development by Grillitsch et al. (2023) studying how agency has affected new industrial path development in 40 cases in the Nordics. However, it also needs to be acknowledged that large-scale comparative qualitative approaches are risky and resource intensive, which does not fit all that well with paper-output-oriented incentives in our discipline.

We will also need to develop ways to combine data and methods, which may prove essential, as an agency-oriented social science research programme pays particular attention to the causation between levels, from macro- and meso-level structures on sets of actions, and from sets of actions to meso- and macro-level structures. For instance, Thomas, Faccin, and Asheim (2021) combine extensive participant observations with interviews and a comprehensive data inventory to study how universities engaged and orchestrated regional development work, changing the ecosystem for innovation and entrepreneurship.

In that regard, it will also be necessary to reflect on the role of quantitative approaches in studies on agency and structure. It is valuable to study how individual-level properties such as personality traits (Obschonka et al. 2013), firm-level properties such as incumbency or origin (Neffke et al. 2018), or meso-level properties such as culture (Fritsch, Obschonka, and Wyrwich 2019; Huggins and Thompson 2019) can explain tendencies of actors to behave in a certain way. Quantitative methods could also be used to complement qualitative approaches, for instance, to map and select cases (Grillitsch et al.

2021). Also, developing measures that proxy agency might complement qualitative approaches. For instance, events that necessarily require strong actor involvement, such as major applications for regional development funding, could be considered as proxies for agency, and studying how they potentially affect regional development could be a way forward. However, we also need to acknowledge the (unsurmountable?) limitations of such approaches to investigate if, how, why, and to what consequences actors engage in actual and observed change processes, including surprising agency, agency going against a tendency. In any case, complementary analyses combining quantitative and qualitative approaches in new ways could enrich studies on agency and structure in regional development, catching both tendencies and exceptions and providing causal explanations for both.

Overall, we find that studies on human agency and socially produced structures in regional development studies and economic geography refer to an exciting ontological, theoretical, and methodological approach in the making, a social science research programme that has emancipatory potential contributing to our capability to make a difference in the world. We have embarked on the journey, but we need to think deeper and see beyond the known shores of regional development studies and economic geography to live up to the promise.

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