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Futures should matter (more): Toward a forward-looking perspective in economic geography

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Abstract
Although the future is an increasingly important topic for regional economic development, our knowledge of the future as a research subject has been limited. Following futures studies, we develop a perspective on a specific version of regional futures research based on critical realism. We believe that discussing regional futures could be a promising "boundary object" for scholars taking different approaches. Moreover, we argue that economic geographers' ability to engage with the future in meaningful ways is as important as their ability to engage with the past and present if the discipline is to retain its relevance in the future.

Keywords
future-oriented research, critical realism, boundary object, ontology, epistemology, methodology

I Introduction

In human history, the instinct to concern ourselves with the future has long been ingrained in our genes. Today, popular planning and design tools such as scenario planning and foresight exercises are widely used in every aspect of our lives to predict future states and their probability of occurrence. While such instruments serve the purpose of making the future more predictable, the future is increasingly experienced as a problematic open-ended category of time that cannot be fully controlled through planning practices alone (Tutton, 2017; Wenzel et al., 2020). The future is namely under increasingly pluralistic time regimes (Wagner, 2002). Tutton (2017) even refers to contemporary futures as "wicked futures" (similar to "wicked problems") because it is difficult and challenging to fully comprehend their developments and outcomes with existing technologies and cognitive tools.

It is clear that dealing with the future in one way or another is crucial to every aspect of our social life. This is also true for regional economic development. Regions are now under enormous pressure to transform their socio-economic structures and practices as major challenges such as climate change, increased regional inequality, and demographic change are increasingly threatening the well-being of human lives in many parts of the world. Against this background, the search for alternative (and hopefully better and more sustainable) futures is high on the agenda of regional stakeholders. Although economic geographers and regional scientists have increasingly played key roles in regional policy-making (McCann and Ortega-Argilés, 2013; Tödtling and Trippl,

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2005), they seem unable to propose alternative, fairer, and more sustainable futures in this uncertain time, as mainstream economic geographic work has placed strong emphasis on the path dependency and lock-in aspects of regional development (Grabher, 1993; Martin and Sunley, 2006; Tödtling et al., 2022). Furthermore, certain versions of history are constantly being (re)produced and reiterated by powerful social groups in regions, or, in Jessop's (2010) term, being "filtered" by the preexisting socio-political structures, resulting in the exclusion of otherwise possible futures that are beneficial to more people (Ormerod, 2023).

In the last few years, while scholars have increasingly pleaded for more attention to topics related to regional futures (Gibbs and O'Neill, 2018; Grillitsch and Sotaurata, 2020; Steen, 2016; Tups et al., 2023), the idea of studying regional futures in its own right remains scant. So far, little discussion has been generated on how regional actors can imagine and bring different versions of regional futures into reality. With some exceptions (e.g., Gibbs and O'Neill, 2018; Gibson-Graham 1997, 2008; Harvey, 2000; Schmelzer et al., 2022), little conceptual or empirical research has tried to engage with (alternative) futures and related future-making practices within economic geography. The understanding of regional (alternative) futures as a research object thus remains vague and untheorized at best.

The goal of this article, therefore, is to explore the scope of a future-oriented perspective for economic geographic research. In the broader social sciences (e.g., sociology), discussions of future-oriented thinking and theorizing have been going on for some decades (although they are often in a fringe status). Using insights from other areas of futures studies, we aim to tease out a perspective for future-oriented research in economic geography, particularly in the study of regional economic transformation.

The paper proceeds as follows: In Section 2, we critically evaluate research on regional economic development from a future-oriented perspective. Since increasingly things happen today can no longer be predicted and analyzed through historical knowledge and experience alone, an engagement with the future seems quite important. Based on this central argument, Section 3 outlines why thinking about the futures is relevant to understanding economic-geographical phenomena, especially when it comes to regional economic development and transformation. Section 4 then sketches a perspective for a specific version of future-oriented studies in economic geography that is based on critical realism. Four key dimensions, including philosophy of science, ontology, epistemology, and methodology, are carefully introduced. In the final section, promising avenues for researching regional futures in economic geography are suggested.

II Regional economic development and transformation: where lies the future?

1 Multi-perspective in explaining regional economic development

Regional economic development and transformation are hot topics in economic geography. Economic geographers have studied such topics from different perspectives. Evolutionary economic geography (EEG), for example, has placed great importance on the role of historically evolved regional industrial structures or knowledge capacities in determining regional economic development outcomes (Boschma and Frenken, 2006, 2018; Boschma et al., 2023; Boschma and Martin, 2007, 2010). Key concepts such as "path dependence" (Martin and Sunley, 2006, 2010; Martin, 2010) and "lock-in" (Grabher, 1993) have been shown to play an important role in determining the development potential of a regional economy. Geographical political economy (GPE) is another approach that focuses on capitalism and its geographies in explaining regional uneven development. Centered on concerns such as class and conflict, spatial division of labor, industrial restructuring, as well as the unintended effects of economic decisions and political actions (Hudson, 2016; MacKinnon et al., 2019; Massey, 1984; Pike et al., 2009; Sheppard, 2011), GPE analyzes relationships between the state, power, labor, and capital,

and it tries to capture the moving (unequal) spatial matrix of "the economic" unstable and crisis-prone processes under capitalism (Dixon et al., 2023; Hudson, 2016; Peck 2023). Complementary to EEG and GPE, other approaches such as the institutional and relational economic geography (Bathelt and Glückler, 2017; Gertler, 2010; Martin, 2010; Yeung, 2005) and the global production networks (Coe and Yeung, 2015; Henderson et al., 2002)[1] highlight other important aspects of regional economic life such as the role of formal and informal institutions, the interconnectedness between firms, knowledge organizations and governmental entities, and the interrelationships between global lead firms and regional economies. Furthermore, the recent burgeoning work on "regional industrial path development," combines the strengths of several of the aforementioned approaches (i.e., evolutionary, institutional, relational, GPE) by emphasizing aspects such as regional institutional conditions, formal and informal networks, regional support structures, and the role of human agency (Benner, 2023; Binz et al., 2016; Grillitsch and Sotarauta, 2020; Gong et al., 2022a; Grillitsch et al., 2022b; Hassink et al., 2019; Isaksen and Trippl, 2016; MacKinnon et al., 2019; Miörner, 2022; Trippl et al., 2018, 2020).

The data used in mainstream economic geographic research to guide regional economic development has mostly been historical, either in the form of statistical data (e.g., quantitative EEG studies) or narratives collected through interviews and secondary sources (e.g., most of the other mainstream approaches in economic geography). The idea that history should matter (more) has been well received by scholars within the field of economic geography (Henning, 2019; Martin and Sunley 2022). However, the perception of time as linear, or neutral Newtonian (Abbott, 2001; Sewell, 2008),in the sense that the past, the present, and the future continue in a linear way (Ormerod, 2023) is increasingly being challenged in the broader social sciences (Pavez et al., 2021; Gümüsay and Reinecke, 2022), especially when it comes to dealing with future-related issues in uncertain times. Braun (2015: 239) has provocatively noted that, despite "a robust critical literature has done much to help us understand how we have arrived at this juncture and has highlighted the deeply uneven geographies of socioecological change, it has been far less successful at imagining and engendering just and sustainable alternatives to existing political, economic and ecological practices."

Today, many emerging phenomena (e.g., the COVID-19 pandemic, the war in Ukraine, and the climate crisis) cannot be anticipated through historical explanations alone (Gong et al., 2022b). Yeung (2023b) addresses such disruptions and transformations as something that are probably going to trouble economic geographers for some time to come. The future we are experiencing now is full of uncertainty and indeterminacy (Beckert, 2016; Beckert and Bronk, 2018). While retrospective approaches may still be important for understanding the basic logic of the world, we increasingly experience the future as an open temporal category (Beckert and Bronk 2018). As Adam (2011: 592–593) rightly notes: "When the future becomes predominantly a consequence of actions and choices in the present, especially ones associated with technological innovation, then accumulated past facts cease to be reliable sources for knowledge of the future." As a result, policy suggestions made by scholars based on historical experience may lead to more frequent occurrences of problematic development outcomes, such as increasing regional inequality, populism, worsened climate conditions, and all kinds of global emergencies (Pinheiro et al., 2022; Rodríguez-Pose, 2018; Slaughter, 2012, 2015).

One typical example of such policy recommendation made by economic geographers in the European context is the suggestion to pursue smart specialization strategy (Foray et al., 2009) especially the version spelled out by Balland et al. (2019). Based on the simultaneous consideration of two historically formed economic conditions in a region, that is, knowledge complexity and relatedness, Balland et al. (2019) suggest that diversifying into more complex technologies is attractive for regional economy but has to take regional related economic activities into account. The development of complex activities is ideally suited for innovative, economically advanced metropolitan regions. However, this is usually not the case for lagging, peripheral, and smaller regions, as indicated by Hassink and Gong (2019) and Rodríguez-Pose et al. (2014). Although

the advancement of complex technologies is significantly important for peripheral areas, the broad spectrum of capabilities required for such progress often makes these considerable strides forward a challenging endeavor (Balland et al., 2019). As a result, these regions are often suggested to specialize in less complex but more related activities (so-called "low-hanging fruit" strategies), which would not be conducive to their long-term prosperity. If such a policy were implemented indiscriminately in all European regions, it would create a feedback loop of spatial inequality between advanced and lagging regions, leading to greater problems in the long run, as has been shown nicely by Pinheiro et al. (2022).

Similar critique can be observed in the UK context concerning its implementation of the "levelling-up" policies in so-called left-behind places (Jones, 2023). According to Ormerod (2023), such political discussion is often based on a biased and narrow version of history that categorizes and excludes certain social groups. Consciously or unconsciously, scholars seem to understand time as linear, which leads to their selective understanding of progress and development that determines the creation of certain versions of the future (Jones, 2023).

So what should economic geographers do if guides to the future based on what has happened in the past cannot be fully realized or their prescribed future is even more problematic than today's reality? (Brown et al., 2015) and how can regional actors become more literate about futures? (Mangnus et al., 2021) To answer these questions, we will first examine how futures have been perceived or treated by economic geographers.

2 Futures in regional development

In economic geography, scholars have taken different stances of futures in their work. EEG implicitly adopts a perspective where the future is assumed to be based on contingency-laden forms of novelty and selection in a broader landscape of variation (Boschma and Frenken, 2006; Boschma and Martin 2010; Essletzbichler, 2012; Martin and Sunley, 2017). Yet, how the future motivates, influences, and constitutes the actions of human agency, which is interwoven with the discourses, practices, and materialities of the "present," is not comprehensively examined. This then influences how they suggest regional policy-making in producing better-off regional futures. For evolutionary theorists, engaging with regional futures means finding novel ways of organizing socio-economic activities within the preexisting capitalist system (e.g., pursuing green economy, developing emerging technologies, and increasing regional economic complexity), as capitalism itself constitutes the largest selective force that economic and non-economic actors need to respond to. The dominant EEG discourse envisages incremental and reformist changes to the pre-assumed capitalism which do not challenge or undermine the dominance of neoliberal economic growth paradigm or consumption economies (Gibbs and O'Neill, 2018; Schulz and Bailey, 2014). Similarly, GPE accounts tend to view the future (implicitly) as embedded in changes related to value creation and capture, which are part of the inherent value accumulation mechanism of capitalist systems (Pike et al., 2009; Sheppard, 2011). In doing so, the future is excluded as an influencing factor and constituent of the actions of human agency that produces the capitalist relations in space. Furthermore, one key challenge of the GPE approach in engaging with the futures is to take the analysis further as an action-oriented political process (Gibson-Graham, 1997). In general, as Schulz and Bailey (2014) rightly observe, the majority of contemporary concepts and modes in mainstream economic geography and significant segments of the economic geography community continue to place primary emphasis on traditional understandings of capitalist accumulation and growth paradigms and thus pay limited attention to what futures could possibly look like beyond capitalism. In a sense, economic geographers' exploration of regional futures can be described as asking how to redesign a "better capitalism"—how to globalize, urbanize, govern better, and harness technological change for better purposes without fundamentally challenging capitalist logic (Martin, 2021b).[2]

Despite the dominance of such structural explanations which prioritize histories and the influence of long-formed (capitalist) structures, in the last two decades, increasing scholars have suggested paying

more attention to the role of human agency and especially the perceptions of futures in addition to the sensitivity we have always paid to history (Escobar, 2018; Gibbs and O'Neill, 2018; Grillitsch et al., 2022a; Kallis and March, 2018; Steen, 2016; Schmelzer et al., 2022; Tups et al., 2023). It is thus increasingly suggested that we need to consider past, present, and future simultaneously when studying regional economic development (Abbott, 2001; Emirbayer and Mische, 1998; Grillitsch and Sotarauta, 2020; Sewell, 2008).

Among others, the work on regional industrial path development has started to pay more attention to the inter-temporality of human agency in regional economic development and transformation (Grillitsch et al., 2022a; Grillitsch and Sotarauta, 2020; Hassink et al., 2019). Human agency, by its very nature, is inter-temporal (Emirbayer and Mische, 1998; Grillitsch et al., 2022a; Steen, 2016). Actors' behaviors are not only influenced by their knowledge about the past but also by their understanding of the present and their imaginations of the future (Garud et al., 2010; Hassink et al., 2019; Steen, 2016). For peripheral regions, for instance, in contrast to the purely luck-based strategy of smart specialization proposed by Balland et al. (2019), a growing number of studies have shown that these regions can move beyond the "casino" narrative and proactively shape a promising future if the inter-temporal nature of human agency is taken into account and regional actors are proactive and visionary and take the future seriously (Asheim, 2019; Carvalho and Vale, 2018; Dawley, 2014; Glückler et al., 2022; Gong et al., 2023; Kurikka et al., 2022; Pugh and Dubois, 2021). Furthermore, the engagement with the concept of "opportunity space" (Grillitsch and Sotarauta, 2020; Kurikka et al., 2022) is another clear evidence of futures being taken more seriously by economic geographers in recent years. Opportunity space by its very nature is a future-related concept, and it captures agents' deliberation about the future. "Agents reflect in a strategic manner considering how structures may evolve in the future and considering how their actions may affect this evolution" (Grillitsch and Sotarauta, 2020: 713), although there is still the issue of over what future time horizons agents consider in terms of their strategic actions. Furthermore, as crises of all kinds are occurring more frequently, scholars increasingly urge regions to embrace "transformative resilience" (Martin and Sunely, 2020), meaning that the regional future should not be a repeat of the past, but we should aim to build *forward* better, more sustainable, and more equitable. The recent normative turn in regional development and policy studies (Feola et al., 2023; Grillitsch and Asheim, 2023; Hansen, 2022; MacKinnon et al., 2022; Schot and Steinmueller, 2018; Tödtling et al., 2022; Uyarra et al., 2019) also points to the importance of imagining regional futures beyond economic growth and international competitiveness. This literature has accordingly engaged with the issue of "directionality" (Sjøtun and Solheim, 2023; Schot and Steinmueller, 2018) and "valuation" (Huguenin and Jeannerat, 2017; Jeannerat and Crevoisier, 2022) in policy-making. The directionality concept highlights that all types of innovation are not equally valuable when it comes to solving societal problems and creating a desirable future and that some innovations even contribute to creating or worsening such problems (Sjøtun and Solheim, 2023; Schot and Steinmueller, 2018). Valuation, on the other hand, points to the importance of considering sociocultural and ecological values in addition to economic value when designing innovation policy (Huguenin and Jeannerat 2017).

Finally, the long-held belief in the capitalist system as the *only* way to organize the economy at different levels has led to increasing discontent and problems in contemporary regional development (Gibbs and O'Neill, 2018; Gibson-Graham 2008; Harvey 2000; Swyngedouw, 2010). By challenging the foundations of the capitalist logic of the modern economy, environmental and poststructuralist/feminist economic geographers, and neo-Marxist geographers (Demaria et al., 2019; Gibbs and O'Neill, 2018; Gibson-Graham, 1997, 2008; Jarvis, 2019; Krueger et al., 2018; Leyshon et al., 2003; Reid-Musson et al., 2020; Schulz and Bailey, 2014) have made significant contributions to exploring various "alternative" or "diverse" production, ownership, labor and work, exchange and consumption practices that operate distinctively from hegemonic capitalism including unpaid labor, local trading systems, and worker-owned or alternative

cooperatives (Gibson-Graham 2008; Gibson-Graham and Dombroski, 2020; Leyshon et al., 2003; Wansleben and Neumann, 2023) that enable people to imagine and create different futures.

All in all, while the futures have increasingly found their way into economic geography, the understanding of regional futures from a theoretical perspective still remains vague. There has namely been a lack of in-depth theoretical discussion of the ontological, epistemological, and methodological considerations involved in such a future-oriented perspective. Before addressing such fundamental issues, however, let us first discuss why the futures should be given special consideration in understanding contemporary socio-economic phenomena or regional economic development in this particular context.

III Why engaging with regional futures is so important at this point in time?

The rationale to engage with the future in today's world has been justified by the increasingly open and indeterminate nature of futures (Beckert and Bronk, 2018). As Pohl (2023: 1) rightly observes, "more and more often, 'the impossible happens'." In the contemporary capitalist economic system, such openness or indeterminacy is the outcome of at least three main features of the system itself—its reliance on competition, its tendency to encourage maximizing behavior, and the partial liberation from inherited constraints it enables (Beckert 2016; Harvey 2000). As Boyer (2018) rightly points out, perception of the uncertainties of contemporary and future conditions, and the social and cognitive construction of future actions are especially important in times of uncertainty (Fuller, 2023).

In face of such high uncertainty, Richard Slaughter (2012, 2015) argued that we are facing a "civilizational crisis," especially in the context of climate change and environmental degradation. The emergence of COVID-19 as a global pandemic, the war in Ukraine, and the increasingly frequent occurrence of weather extremes in many parts of the world are symptoms of a problem deeply rooted in our social, economic, and political systems, a sign that the way we have been living is fundamentally flawed (Bowden, 2021). Slaughter (2012) asserts that humanity has created a "global emergency" in which urgent action is needed to prevent further tragedies. It is within this context that the discussion on futures becomes increasingly prominent (Fitzgerald and Davies 2022). In the last decade, there has seen an expansion of future-orientated activities in industry, policy, society, and academia (for an overview, see Fitzgerald and Davies 2022). For instance, the recent social movements like "Fridays for Future" school strikes for climate is an illustrative example as such.

The discussion about desirable, alternative futures is also highly relevant for the field of human/economic geography (Asheim and Dunford, 1997; Fuller, 2023; Harvey, 2000; Jeffrey and Dyson, 2021; Kallis and March 2018; Martin 2021b; Ormerod, 2023; Tups et al., 2023). While many regions of the world today continue to experience "growth," in many other places there are constant reports of problems such as increasing regional inequality and the resulting discontent and resentment of citizens (Henn and Hannemann, 2023; Lenzi and Perucca, 2021; Pinheiro et al., 2022; Rodríguez-Pose, 2012), development traps (Diemer et al., 2022), and the loss of opportunity and hope and the resulting rise of populism (Rodríguez-Pose, 2018). In China, for instance, young people are increasingly opting for the so-called "*Tangping*" strategy (literally, "lying flat" and accepting what life brings) (Economist, 2021) as they see little hope for an improvement in their life situation in the future due to all kinds of societal problems such as the gradual disappearance of the demographic dividend, lack of employment opportunities, and increasing societal inequality. Similar situation can also be observed in many other parts of the world (e.g., the hikikomori phenomenon in Japan). In this context, narratives such as "futurelessness" (Tutton, 2022) or challenge, frustration, and uncomfortableness in so-called "left-behind" places (Leyshon, 2021; MacKinnon et al., 2022; Martin et al., 2021) or "places that don't matter" (Lenzi and Perucca, 2021; Rodríguez-Pose, 2018) have increased over the last decade. It is thus extremely important to inspire regions to imagine and engage in alternative future-making practices, to project confidence and certainty within the region

itself, and to give new hope to the people who live and work there (Fuller, 2023; Iammarino et al., 2017; Tups et al., 2023).

On the other hand, as Hadjimichalis and Hudson (2014), Peck (2016), and Martin et al. (2021) provocatively note, current mainstream theories of economic geography are often ill-equipped to explain the causes of crises and their geographical effects. By and large, this reflects our field's obsession with regional "success stories" and "the nodal, the near and the networked" (Peck, 2016: 307) and its failure to recognize the nature of capitalism as a crisis-prone social system with combined and uneven development. Thus, the current crises have plunged prevailing theories of regional development into a deep theoretical crisis (Martin 2021b). It is suggested that the time is ripe for a paradigm shift in theory and that this should include a reconsideration of the normative underpinnings of us scholars. Similarly, Martin (2021b: p. 145) states "…it is my firmly held belief that a key motivation for regional studies [and economic geography], going forward, should be to direct considerable emphasis on how our discipline can help to ensure that societies 'build forward better' in a more progress, socially, regionally and locally equitable, sustainable, and resilient way." Despite its broad appeal, such a proposal to "build forward better" can easily become wishful thinking if both scholars and the general public are not equipped to think forward and envision futures differently. In other words, a "futures" turn is needed for us to be progressive in our research.

In this context, several important questions relate to regional futures need to be addressed: First, how can a sub-discipline like economic geography, which is predominantly backward-looking and bases its main arguments on selective historical data and facts, still be relevant in a time when the future is becoming increasingly unpredictable and indeterminate? (Fergnani and Chermack, 2020) Second, how can economic geographers engage with regional future-making in a meaningful and scientifically rigorous way? To date, relatively little insight has been gained on these important questions.

Although understanding alternative futures is very important for comprehending the complexity of today's regional economy and for shaping more desirable futures, the temporality and uncertainty of futures make them difficult to study (Bell and Mau, 1971; Melnikovas, 2018). How can we then study something that has not yet happened and has not taken material form in the present time? Moreover, "what is an appropriate theory of knowledge for futures studies, one that will convince even its critics of its solid philosophical base?" (Bell, 2009: 65).

To answer these questions, a deeper dive into other research fields that have engaged with future-related topics at both conceptual and empirical levels would be essential. Drawing upon the work of Wendell Bell (Bell, 2009; Bell and Mau, 1971; Bell and Olick, 1989) and others (e.g., Adam and Groves 2007; Beckert, 2016; Halford and Southerton, 2023) in sociology, and recent reflections in fields such as management and organization studies (Gümüsay and Reinecke, 2022; Pavez et al., 2021), the next section will try to sketch the theoretical foundation for a specific version of forward-looking perspective in economic geography.

IV Perspective on a future-oriented approach in economic geography

The perspective on futures research outlined here focuses on causal explanations based on critical realism. Causal explanations are important for futures studies as they enable scholars to understand better how and why things happen in certain ways (Yeung, 2023a). An important note to make is that the idea spelled out here is not meant to be the only way of thinking/doing future-oriented economic-geographical research. Rather it serves as an underlaborer for geographers interested in causal explanations (like geographical political economy, relational, institutional approaches, regional industrial path development, and so on) (Yeung, 2019b) and futures, and hopefully sheds some light on what might work better in their efforts to explore more sustainable and inclusive regional futures. In this sense, the approach laid out here might be less relevant for poststructuralist critical geographers due to their flat ontologies and emphasis on epistemologies (Whiteside, 2019; Yeung, 2023a). Nevertheless, we hope that the insights presented below will provide some food for thought for those theorists (e.g., feminists

and poststructuralists) engaged in alternative world-making to move beyond the pure "process-ing" focus on interpreting, accounting, experiencing, making sense, critiquing, interrogating, rethinking, contextualizing, and so on (Hsu, 2019; Yeung, 2023c), and instead engage at a deeper level with issues such as causal explanations (Sayer, 2004; Yeung, 2023c) and structural forces that inevitably interact with human agency (Clegg, 2006).

1 Critical realism as a philosophy for future-oriented studies

As Filipe (2010) wrote, at least three major tenets of philosophical perspectives, or meta-theories, are underpinning current social sciences, namely, positivism, postmodernism/-structuralism, and critical realism. This also applied to thinkings about futures (Bell, 1996; Patomäki, 2006).

Positivism assumes predictability and controllability of future, and future prognoses are thus based on our knowledge of present and past—finding events regularities, based on causal, law-like, and functional relations, enables precise calculation of future events by extrapolation (Bell 2009; Melnikovas 2018). Poststructuralism, by contrast, "embraces the ultimate undecidability of meaning, the constitutive power of discourse, and the political effectivity of theory and research" (Gibson-Graham, 2017: 95). Therefore, the focus of poststructuralist-informed research lies on deconstructing processes of becoming in order to reveal agency and ongoing power struggles (Boonstra and Rauws, 2021). In other words, reality for poststructuralist is "made-in-practice." Critical realism takes a middle way and assumes multiple possible futures. The future is real, although not manifested yet, it consists of multiple possibilities and actualizes through transformative events; therefore, the future can be influenced (at least to some extent) by participating actors (Patomäki, 2006), but it will not be fully decided by human actions alone, as there are still structural factors that are interacting with human agency.

Bell (2009) claims that critical realism may provide a rather distinct theoretical framework for futures studies. The unique feature lies in its ontology. Critical realists assume that many aspects of reality (and thus the future) may always remain beyond human ability to directly observe and understand (Patomäki, 2006); therefore, "truth can be known within the limits of human sense and intellect, even though it is not absolute and is fallible, conjectural, conditional, corrigible, tentative, qualitatively judgmental, and presuppositional" (Bell, 2009: 207–208). Moreover, the idea of multiple futures, which are real, but not manifested yet (Patomäki, 2006), shifts the focus from precise scientific prediction of the future to exploration of causal mechanisms and exploration of trend by construction of narratives up to a certain point in the future and creating possible development scenarios.

In human/economic geography, critical realism has been deemed by many as an appropriate philosophy for their research endeavor (Pratt, 1995; Sayer, 2000; Sotaurata and Grillitsch, 2023; Yeung, 1997, 2019a), and we argue here that it is especially suitable for thinking and understanding regional futures which feature high uncertainties. Unlike positivist views, critical realism emphasizes the *conjectural* nature of knowledge, meaning that our senses are a source, not of *certain* knowledge, but of "*reasonable beliefs*" (Bell 2009, 211). Critical realists are therefore less concerned about the commitment to certainty or certain knowledge about futures. They accept the skeptical belief that we cannot have certain knowledge, if we define knowledge as justified true belief. They accordingly redefine knowledge (relates to past, present, and future) as "conjectural" allowing for the possibility of the fallibility of their conjectures (Bell, 1996, 2009). From such a perspective, there is actually little difference in justifying beliefs in assertions about the past and present realities and beliefs in assertions about the future (Aligica, 2011).

Critical realism also differentiates itself fundamentally from the discourse-centered postmodernism/poststructuralism. Unlike postmodernist views, which believe that the reality is solely socially and discursively produced, a critical realist view assumes both that there is a reality that exists independent of our knowledge of it (i.e., realist ontology, see Yeung, 1997) and that through proper reasoning, we can test many of our ideas to see whether they are most likely true or false. While postmodernist geographers

have produced numerous work related to alternative futures/future-making by proposing concepts such as diverse economies, alternative economies, degrowth, democratic/progressive localism, and so on (e.g., Featherstone et al., 2012; Gibson-Graham, 1997, 2008, 2017; Jones, 2023; Krueger et al., 2018; Schmelzer et al., 2022), this tradition has a problem of epistemic fallacy (Bhaskar, 1998), which refers to the elimination of the intransitive objects of knowledge and thus the reduction of ontology to epistemology. As pointed out by Francis (1999), while poststructuralist analysis can show the subtle and multifaceted changes taking place in the discursively constituted possibilities for new subjectivities, it cannot disentangle the conditions of possibility for these new discursive frameworks. In Clegg's (2006, p. 318) term, what is missing "is a convincing account of how to theorize the relationship between the discursive and the structural."

Although critical realism is ontologically appealing, it may not be the most appropriate philosophy for *anticipating* futures because it focuses primarily on explanations rather than predictions (Bhaskar, 1998; Yeung, 1997, 2023c), which critical realists refer to as the "asymmetry between explanation and prediction" (Patomäki, 2017). However, the version of futures research presented here does not aim to anticipate futures but to explore what kinds of *causal mechanisms* and configurations would be required to potentially bring about particular versions of regional future that essentially include desirable development outcomes. Such causal explanations are vital to political interventions related to future-making because they allow us to "have a clearer sense of why and how carefully theorized causal mechanisms interact with contingent contexts to produce specific events and outcomes in the space-economy" and thus make things happen (Yeung, 2023c: p. 1).

2 Ontological state of the futures: the future does not yet exist, but images of the future exist

Since the future is not-yet-evidential, it differs from the past and present where factual statements can be made, observed, and falsified. According to Brumbaugh (1966: 649–650), "there is a genuine ontological difference in the kind and the definiteness of being which past facts, present opinions, and future possibilities possess." This means that there is no such a thing as "future fact"; the factual status of the future needs to be sought in present thoughts, expectations visions, and plans (Bell and Mau, 1971; Beckert, 2016). In a similar vein, De Jouvenel (1967) attempted to define the ontology of futures studies through *facta* and *futura* concepts, claiming that *facta* refers to scientific approach which primarily based on collecting data about tangible past events, so that predictions can be made on the basis of collected data using the extrapolation method. On the contrary, the concept of *futura* implies the absence of past data which could be analyzed in a conventional way. *Futura* refers to cognitive products, such as wishes, expectations, ideas, believes, and visions. In this regard, ideas or beliefs of the future are important ontological building blocks of social order (Bell, 2009). This means that the ontological status of images of the future, or "fictional expectations" (Beckert 2016), "can be established factually as a consequence of having [them] subsequently materialized" (Adam 2011: 592).

In futures studies, scholars have engaged with the concept of "images of the future" to explore the existence of the future (Bell and Mau, 1971; Bell, 2009; Morgan, 2002; Polak, 1971). An image of the future is "an expectation about the state of things to come at some future time. We may think most usefully of such expectations as a range of differentially probable possibilities rather than a single point on a continuum" (Bell and Mau, 1971: 23). Images of the future may vary in different ways. They may be more normative or more causal, more pessimistic or more optimistic, and so on and so forth. Bell and Mau (1971) suggest that it is important to understand the constitution of these cognitive constructs and how these images are created (Suckert, 2022). For instance, the authors note that images of the future are simultaneously influenced by beliefs about the past and experience of the present as well as people's experience about social causation (Aligica, 2011). Such inter-temporalities co-exist and mutually influence each other, making it more likely that a particular version of the future will dominate than others.

To better understand the futures, one can distinguish between different types of futures. Bell (1996, 2009) and Bell and Mau (1971) categorize the futures into possible, probable, and preferable ones.

First, exploring possible futures involves asking what kind of futures *can be* possible. Here, engagement with the present and the past is essential. The current capacities and potentials of individuals, groups, and society as a whole for change and development, no matter how suppressed and unrecognized they may be, are factually present (Bell, 2009). Scholars must then imagine what the futures will look like when these potentials or "space of possibilities/differences" (Gibson-Graham, 2008) are unleashed. For instance, although theories of regional development often portray peripheral regions as non-innovative and hopeless (Tödtling and Trippl, 2005), it is still possible for some peripheral regions to produce breakthrough innovations and thus become pioneers in certain complex technologies (Carvalho and Vale, 2018; Glückler et al., 2022; Gong et al., 2023). What we can do as scientists is document, mobilize, expand, amplify, and activate the knowledge, resources, human agency, and other conditions that make this potentially possible, even if we can only imagine it before it becomes fact.

Second, the study of probable futures focuses on what the *most likely* futures of a given phenomenon would be within a given time period and under given conditions (Bell, 1996, 2009). We need to know how things have evolved so far in order to understand what the futures are most likely to look like. Essentially many studies in economic geography, especially those in EEG (e.g., Balland et al., 2019; Boschma 2017), have followed this line of thinking and tried to realize the "most likely" routes of development in regions. Of course, things may not just continue as they have been as human actions have both intended and unintended consequences (Grillitsch et al., 2022a). So answering the question of what the most likely future is itself contingent.

Finally, to explore desirable futures and assess the *desirability* of alternative futures, scholars must examine, evaluate, and apply specific goals and values. This is the kind of futures that interests us. This includes exploring people's value judgments and/or beliefs that underlie their conceptions of a "good" society. Preferable futures must evaluate alternatives according to their desirability and objective standards of moral rightness. In economic geography and related fields, such a normative commitment to shaping better regional futures has been increasingly endorsed by scholars, especially in feminist interventions (Gibson-Graham, 1997; Schmelzer et al., 2022), environmental economic geographies (Bridge, 2008; Gibbs and O'Neill, 2018; Schulz and Bailey, 2014), regional development and innovation policy (Isaksen et al., 2022; Martin, 2021; Tödtling et al., 2022; Uyarra et al., 2019; Yeung, 2023a), and so on.

All in all, due to the ontological differences between the future and the past/present, we must consider further the application of critical realism to assertions about the futures. An ontological statement by critical realists on futures would thus be: "The future does not exist, but images of the future exist" (Fergnani and Chermack, 2021).

3 Epistemology of the futures: "knowledge surrogates" as a substitute of certain knowledge in futures studies

Critical realists claim that past and present can be known within the limits of our senses because there is something out there to know (Bell and Olick 1989). However, this cannot be equally applied to "knowing" the future. Nothing has happened in the future that we can know with our senses or instruments. Therefore, a conclusion based on past and present observations does not necessarily apply to future observations (rejection of linear time). But then how do we infer future knowledge?

Bell and Olick (1989) insightfully suggest the use of so-called "knowledge surrogates" as a substitute for precise, certain knowledge about the futures. Knowledge surrogates are *posits* about the future. A posit is a statement that we believe to be true even though we do not know whether it is true (ibid.). Thus, knowledge surrogates about the future are hypothetical. Our knowledge surrogates about the future are constantly subject to revision in light of new experiences. For instance, as the imagined future slowly becomes the present, part of our knowledge surrogates about the

future become evidential and can be examined with the usual instruments and tools that we use to study the past and present (Bell and Olick, 1989).

Even though one cannot accurately describe an eventual outcome based on the presumptively true prediction, critical realist's theory of knowledge (knowledge surrogates as the proxy of knowledge about the future) offers a second-best option. The important implication is that one must make such knowledge explicit, transparent, understandable, and logically coherent, so that they can be critical evaluated by others (Patomäki, 2017).

In economic geography, taking such "knowledge surrogates" as a substitute of certain knowledge means that uncertainties are embraced and turned into opportunities for future-making. The role of knowledge should not be burdened with the task of mirroring the world, especially when it comes to knowledge about the future (Gibson-Graham, 2017). Instead, as Harvey (2000) suggests, although we cannot know the futures with certainty, we can use the basic human capability repertoire (i.e., competition and struggle for existence; adaptation and diversification in environmental niches; cooperation, collaboration, and mutual aid; environmental transformation; spatial orderings; and temporal orderings) to create alternative futures. Similarly, Patomäki (2017) posits that practically adequate knowledge about the futures can draw on analogies, social organization of time and space, contrastive demi-regularities, and explanatory theories and models.

To sum up, due to the non-evidential and not-yet-existing nature of the future, our way of knowing it will not be the same as how we know about the past and the present. Following a critical realist thinking, an epistemological statement about futures would be: "To study futures is to study the knowledge surrogates about futures."

4 Methodological considerations in studying regional futures

The last dimension related to the proposed future-oriented research concerns its methodology. Here, we follow Facioni (2022) and Melnikovas (2018) in arguing that methodology should be understood not only as "research technique" but as "research process" in its entirety. Thus, the use of the term "methodology" does not only refer to the choosing and using any specific kind of research techniques and tools[3] but also to consciously thinking about how to do research about futures and future-making.

As mentioned earlier, futures are non-evidential and not-yet-existing, a central task for scholars, would then be to develop methodological strategies that make the future amenable to empirical investigation. The point here is not to achieve the same kind of scientific rigor often claimed by research focused on the past and present. Rather, we need to develop a new set of methodological tools to achieve a *speculative rigor* (Gümüsay and Reinecke 2022: 238), as embraced by critical realists, based on a disciplined imagination not only of what is feasible and probable but also of what is desirable. Indeed, we need to renew our methodological toolkit and rethink the purpose of our theorizing practices (Martin 2021b). Here, we focus on four key aspects of such methodological concerns.

4.1 Normative stances of the research subjects. The first methodological issue concerns the normative uptakes of social scientists. As Martin (2021b) rightly points out, normative questions are not much discussed in economic geography, but in dealing with future topics, our values and axiology are in fact foundational, as they influence the sort of research questions we ask, and the kind of futures that are prioritized. For Bhaskar (1979); Harvey (2000); Martin (2021); Yeung (2023a), social scientists must be involved in making better futures. In the broader social sciences, critical realism has been accepted by many scholars in social justice-oriented studies as their philosophy of science because it shines light onto the underlying or "root" causes of societal problems (Hoddy, 2019). It has enabled the development of new knowledge that can be harnessed by civil society organizations, movements, and groups in their interventions for social change for better (Hoddy, 2019). In this way, critical realism is similar to poststructuralism/feminism in the sense that scholars' normative stance is of crucial importance. Pavez et al. (2021: 462) suggest that futures scholars should engage in "generative scholarship" which refers to "the unleashing of current knowledge and ideas, grounded

research, and theoretical imagination to co-envision, co-open, and co-create new and better possibilities to enliven human organizations—within their interconnected ecosystem—and building a flourishing world." In a similar vein, Martin (2021b) calls for a progressive-melioristic turn in economic geography and a transformative vocation committed to the pursuit of equitable and just regional outcomes. Such a normative stance also requires us to engage more serious with prefigurative politics (Jeffrey and Dyson, 2021) and "bigger" issues such as uneven development, and the mechanisms and forces that contribute to such unevenness (Hudson, 2016; Peck, 2016). According to Martin (2021b: p. 151), we also need to re-examine what sort of knowledge we are producing as scholars and for whom we are producing it.

4.2 Process-sensitivity: ends versus means and starting point. The second issue related to forward-looking methodology concerns researchers' consideration of the ends and means as well as their starting point in time in engaging with the futures. To articulate and explore desirable futures, we can differentiate between two approaches based on these aspects.

The first approach which is called "projective future-making" (Laszlo 2021) starts from the present (and/or the past) and is a *means-to-ends* approach. Related approaches include the so-called "Real Utopias" approach (Gümüsay and Reinecke, 2022), "Nowtopia" (Carlsson and Manning, 2010), or the "effectuation" of future-making (Bredtved Mountford and Christensen, 2022; Sarasvathy, 2001). According to Laszlo (2021), projective future-making refers to extending the present (t_0) into the future (t_1). Essentially, such projective processes involve that the decision makers can change direction and construct the direction over time instead of knowing it from the beginning. Gümüsay and Reinecke (2022) call such a means-to-ends approach a "Real Utopias," and Carlsson and Manning (2010) refer to it as "nowtopia." It is *utopian* because it involves developing visions of future alternatives to predominant social reality. It is *real* because it is rooted in the potentialities of here and now. "We need to examine what would happen if utopian social enclaves scaled up and became widespread reality" (Gümüsay and Reinecke, 2022: p. 238). The authors argue that we could expand our methodological toolkit using future-oriented living labs or "future labs" that act as such experimental spaces for the creation of utopian thinking. This projective approach has already been applied in many of today's future-making practices, especially in fields such urban studies or sustainability transitions (Bulkeley et al., 2016; Engels et al., 2019; Frantzeskaki et al., 2018; Marvin et al., 2018).

Within economic geography, the work on alternative/diverse economies and geographies of degrowth also highlights the importance of engaging in such nowtopian cases (Carlsson and Manning 2010; Demaria et al., 2019; Schmelzer et al., 2022). For scholars from this strand of work, better futures already exist and are enacted in the present. However, they seem to be less keen in vertically "scaling up" alternative local initiatives as suggested by Gümüsay and Reinecke (2022). Rather, what they are interested in is something called "place-based globalism" (Gibson-Graham 1997): a spatiality embraces not only a politics of ubiquity (its global manifestation) but a politics of place (its localization in places created, strengthened, defended, or transformed) (Gibson-Graham 1997, 2008; Schmid, 2019).

The second approach on future-making is called the "imaginative alternatives" approach (Gümüsay and Reinecke, 2022). Starting from a future point in time, this approach is an *ends-to-means* approach. Related approaches include the "future-perfect" thinking (Weick, 1979; Fuglsang and Mattsson, 2011), "causation" in future-making (Bredtved Mountford and Christensen, 2022), or "envisioned prospection" (Laszlo, 2021). As proposed by Bell and Mau (1971) and Bell (2009), the future is not yet existing, but we can use our imaginations to help us understand it. This is exactly the starting point of the imaginative alternatives approach. By exploring developments before they are reality, these imaginaries can open up possibilities, inspire and orient action. To begin this process of imagining, scholars may engage with central grand challenges of our time (e.g., regional inequality and climate change) and imagine how solutions could be materialized and how this would impact the regional economy, or the society as a whole. Here, similar to the argument of

feminists and poststructuralists, critical realists also highlight the exploration of discourses, ideas, semiosis, beliefs, and narratives are the key (Beckert 2016; Bell 2009). Moreover, the mutual influence between the material and the semiotic dimensions of future imaginaries, which is a key concern in critical realism, also needs to be carefully explored (Jessop, 2010; Tutton 2017). Such an approach can also benefit from a future-perfect thinking (Weick, 1979, Fuglsang and Mattsson, 2011), which treats the future as something that has already happened in the future (i.e., will have been done). In particular, it requires examining the influence of the future perfect tense on orientation toward now (Kirsch, 2022).

4.3 Causal explanations. Regardless of the route (projective or imaginative) taken to study the futures, it is important to examine the causal mechanisms and configurations underlying specific spatio-economic phenomena. That is, one must map the components of an economic-geographical phenomenon in stratified reality (i.e., the real, the actual, and the empirical) and tease out the relevant objects, structures, and mechanisms for that specific phenomenon (Hoddy 2019). The notion of causality as a matter of "generative mechanisms" is one of the most characteristic features of critical realism (Sayer, 2010). Critical realists emphasize that causal "powers" are inherent in or arise from particular objects, relations, and structures. Causal powers refer to "capacities to behave in certain ways" (Sayer 2000: 11). For critical realists, causality exists as a *potentiality* that may or may not materialize under certain conditions, and it does not necessarily produce a regular pattern of events. Moreover, it is often not the case that one cause produces one effect. What is likely to happen is a whole series of causes interacting with each other, often in very complex ways, and producing a variety of effects in different circumstances (Archer et al., 1999; Peck, 2023). In other words, the futures that people have in mind may or may not occur, and the task of researchers is then to examine the mess of causality and explain the why and how questions (Yeung, 2023c).

The turn to causal explanations in regional futures studies involves different ways of thinking in the two approaches mentioned earlier: In the projective approach to futures, the researchers start with experienced outcomes (i.e., alternatives or niches that already exist at the margins of the mainstream) and seek to identify the structures and mechanisms that can potentially lead to their vertical upscaling or horizontal diffusion. As local practices expand or spread, complexity inevitably increases. A process perspective is then essential to tease out the causal mechanisms during the process (Sotarauta and Grillitsch, 2023). In contrast, for the imaginative approach, scholars start with an imagined outcome (i.e., as if this will have been achieved) and then work backward in an attempt to explain what must have caused it to happen. Here, issues of causal conjunctuality (it is the combinations of different attributes/causes that explain a concrete outcome), equifinality (there are multiple ways to a given outcome), and asymmetry (movement of a cause, say from presence to absence, does not have the same impact as moving in the other direction) must all be considered (Goertz and Mahoney, 2012).

To find out the causal powers of various entities, critical realists often combine two modes of inference of abduction and retroduction in moving back and forth from the empirical to the real (Sayer, 2010; Yeung, 1997). Abduction describes the observable objects in an abstracted and more general sense in order to produce the most plausible mechanisms (not necessarily true or false) that cause the events. It is the process of forming an explanatory hypothesis (Mingers and Standing, 2017). Retroduction, in contrast, involves identifying the basic prerequisites for what is empirically observed. It therefore relates to the question of "what properties must exist for X to exist and to be what X is?" or "what makes X possible?" (Danermark et al., 2019). The contribution of abduction provides the starting point for retroductive inferences (Ritz, 2020). The conclusion reached by abductive inference is fixing on a hypothesis that, if it were true, would explain the phenomenon in question. Retroduction then moves the inquiry further by informing the *tenability* of abductive hypotheses (Ritz, 2020).

4.4 Structure and agency. Finally, regional futures studies must also examine the interrelationship between structure and agency. As Archer et al. (1999)

note, it is important to recognize that both social structures and human actions have causal powers and that the task of the social scientist is to examine their interaction. Any explanation that focuses exclusively on either aspect is likely to be inadequate.

Futures unfold through various transformative events and junctures, which in turn presuppose certain concept- and action-dependent historical social structures (Grillitsch, et al., 2022a, 2022b; Patomäki, 2006). Under certain conditions, directional change is possible through human action. However, realizing a particular version of the future requires different knowledge and competences such as practical wisdom, lessons from the past or contemporary models, counterfactual reasoning about the possible effects of a changing context, elaboration of the causal relationships between different events, and thought experiments about the consequences of changing practices and systems (Patomäki, 2006; Sayer, 2000). Moreover, emergent causal powers can also be contradictory and conflicting (Yeung, 2023a), leading to learning processes that include telling new stories about possible futures. All of these aspects assume that the actors involved in shaping futures have a high degree of agency. Therefore, the study of agency and its connection to structural forces is essential during the unfolding of a particular version of the future.

On the other hand, Patomäki (2006), Hadjimichalis and Hudson (2014), and Peck (2016) argues that there should also be a movement toward analyzing the deeper activities, structures, and causal complexes that shape those manifest phenomena. A deeper understanding of the causal powers and liabilities of social actors and structures would reveal the potential for different outcomes. Similarly, Yeung (2023c) argues that a deeper dive into structures and causal explanations can pay dividends in practice, as more normative interventions will be possible with such explanatory knowledge. As Harvey (2000) notes, any contemporary attempt to create an alternative economy must confront the problem of how to overturn the structures that the free market itself has produced as relatively permanent features of our world. The ontological reality of a dominant economic system cannot be simply wished away (Schulz and Bailey, 2014), and therefore, alternatives should emerge from critical and practical engagement with existing institutions, structures, personal behaviors, and practices, despite this might seem daunting at times. Without engaging with the structure, the agency of human beings will be constrained ultimately as it cannot disentangle the conditions of possibility for newly proposed future frameworks (Francis, 1999). Addressing (alternative) regional futures requires various structural changes. This means asking what structural changes need to be made, for example, to the way the capitalist system operates and what kinds of regulations and laws need to be introduced by nation states and supranational organizations (e.g., the EU and UN) to ensure that the necessary structural changes take place, and what behavioral changes need to be made in the broader population. Discussion about structure and agency should therefore always go hand in hand.

V Futuring regional development: a research agenda

Although the future is an increasingly important topic for regional economic development, our knowledge of the future as a research subject has been limited so far. Following futures studies in the broad social sciences, we developed a specific version of regional futures research in and for economic geography based on critical realism. By elaborating the ontology, epistemology, and methodology underlying such an approach, we hope to provide some basic theoretical tools for scholars interested in regional futures research to engage with the future in a more rigorous way. Following Martin (2021a), who pleas for an integrative pluralism in economic geography, we believe that discussing regional futures could be a promising "boundary object" for scholars taking different approaches to have fruitful conversations with each other. Moreover, we argue that economic geographers' abilities to engage with the future in meaningful ways are as important as their abilities to engage with the past and present if the discipline is to retain its relevance in the future. A "futures" turn, in our view, is essential for our discipline at this special moment in time, and it is also crucial to the "transformative social science" that features progressive meliorism (Martin, 2021b). Again, the perspective presented in this paper is not

meant to be the only way to conduct future-oriented research in economic geography. In the rest of the section, we lay out some key aspects that require different ways of thinking for moving toward a forward-looking perspective in economic geography:

First of all, since the future does not yet exist, we must be extremely careful with our normative stance to avoid marginalizing, silencing, and ignoring minority voices, thus preventing their participation in shaping regional futures (Ormerod 2023). This requires us, as scholars, to produce not only i*nstrumental* but also *reflexive* knowledge (Martin, 2021b), meaning that we need to confront the normative underpinnings and orientation of our work. Reflexive dialogues about the knowledge we produce, as Martin (2021b: p. 153) points out, "should not only take place within our academy itself, but also between our academy and the various extra-academic audiences and publics… on which our research is conducted, to which it applies, and to which it is, ultimately accountable." Rather than uncritically assuming that the development of new industries and economic activities (green or otherwise) is beneficial to a region as a whole, we need to discuss together with our audiences more critical questions, such as what types of activities are more desirable for the future(s) of a region and the well-being of the people who live there? how conflicts between economic development and the environment and society can be more democratically addressed? how can the power to determine the future of regional development be more evenly distributed? Such a reorientation of the research questions we ask will have a fundamental impact on the specific methods and theories we use and ultimately contribute to building better regional futures, or at least a better understanding of such alternatives. In other words, we should uncover the underlying functions of existing ideas in the established order and raise our collective consciousness to make the world a better place (Martin, 2021b). Our theories must address the practical adequacy of explanations that enable us (and others) to make political interventions and changes in the spatio-economic world (Yeung, 2023c).

Second, understanding "scale" is a very important task in shaping regional futures. To make desirable futures, we need to think of spatial scale not only vertically but also horizontally and relationally. A vertical understanding of scale means that we track the local, the regional, the national, and the global and examine how certain local initiatives or phenomena can be "scaled up" to higher levels. Feminist/poststructuralist geographers prefer horizontal understandings of scale (or "flat ontologies," Gibson-Graham, 1997). For them, a feminist spatial imaginary would be: "*if women are everywhere, a woman is always somewhere, and these places of women are transformed as women transform themselves*" (ibid., p. xxvii). This means, instead of "upscaling," they are more interested in horizontal diffusion of novel practices among certain social groups located in different parts of the world. Finally, we must also consider scale as relational (Yeung, 2005, 2023a). Development is combined and uneven (Hudson, 2016). In this context, Massey's work on "geographies of responsibility" (Massey, 2004), the idea of the interconnected world by GPN researchers (Coe and Yeung, 2015), or conjunctural thinking (Dixon et al., 2023; Peck, 2023) is significant. Only by embracing such diverse understandings of scale can we emancipate ourselves from the constraints imposed by conceptual disputes and truly provide insights for meaningful policy interventions and alternative practices for shaping the futures. Particularly important in this context is that we need to view the globe as a single entity and that shaping the futures in one region should not be done at the expense of another. Here, the discussion of "problem shifting" (Van Den Bergh et al., 2015) from the global North to the South (e.g., in addressing environmental problems) is particularly illuminating. Each individual region must therefore consider the (inter) dependence of itself with other regions in pursuing its own futures. In the end, we only have one planet, and it will take the entire human effort to make our world a more sustainable and equitable place for all to live.

Finally, thematically, we see great potential to deepen our understanding of how regional futures are imagined and shaped in a variety of ways:

First, an important topic for futures research is the study of images of the future themselves, their

content, causes, and consequences (Suckert, 2022). Here, we can engage with the origins of regional imaginaries of the futures by asking, "How does a regional imaginary emerge and how does it influence material practices in reality?" We can also explore the power and politics of the formation of future imaginaries and the geographies of their institutionalization process by asking questions such as "Whose imaginary matters (more)?" and "What tensions and conflicts are evident in the realization of different imaginaries in a region?" In terms of the performativity of imagined futures, it is also important to examine how different groups of actors may (or may not) bring their visions into performance (Oomen et al., 2022: 263). We can study how different versions of future imaginaries encourage stakeholders to compete or collaborate with each other or how they are influenced by imaginaries emerging outside of the region, that is, the multiscalarity of regional future imaginaries. The interrogation of sociotechnical (technology-specific) and socio-spatial (place-specific) imaginaries and their role in co-shaping regional futures is also worth pursuing (Chateau et al., 2021).

Second, instead of focusing primarily on "success stories," economic geographers should also engage more in the exploration of the dark side of futuring, as well as affective topics such as regional failures and decline (Blažek et al., 2020), spaces of negativity and antagonism (Landau-Donnelly and Pohl, 2023), geographies of the impossible (Pohl, 2023), and hopefulness and/or hopelessness in regions (Anderson, 2006; Leino and Kulha, 2023; Tups et al., 2023). Dealing with such issues necessarily requires a political ontology of space (Landau-Donnelly and Pohl, 2023). Only by politicizing such topics can they be given more weight in the political, media, and academic discussion. For example, addressing the wicked problems of "futurelessness" (Tutton, 2022) in lagging and left-behind places and exploring how regions can reimagine their future differently and bring them into life are interesting topics to pursue (Tups et al., 2023). The concept of futurelessness offers a way to identify and analyze "unequal future-making" (Urry, 2016) in regions and to recognize that there are groups that are not well positioned to make their voices heard. How can policymakers then give regional actors new hopes when they are desperate? How can the voices of marginalized groups about the future be heard by key decision makers? And how can promising opportunity spaces in a region be proactively created and shaped to benefit not only people but also other living things and the environment? These are all important questions to which few answers exist so far.

Third, it would be an interesting project to historically trace changing perceptions of regional futures over time. We can study, both qualitatively and quantitatively, the historical dynamics of people's and businesses' perceptions of the future of particular places (e.g., through sentiment analysis as done by Ozgun and Broekel (2021) with news or policy documents) and examine how such changes in perceptions of the future influence the entry of certain technologies and industries, or the related diversification processes and ultimately impact regional development. In this context, the use of counterfactuals ("what would have been if conditions had been changed") for alternative interpretations of history (and thus the future!) would be highly interesting. In addition, we can also investigate the role of context in the emergence and realization of different visions of regional futures. By comparing regions that had similar preconditions but ended up with very different visions and development paths, or vice versa, we can examine the causal power of imaginaries that takes into account both contingencies and general mechanisms. Another highly promising research topic is to examine how distinctive collective memories of regional past can be mobilized by different social actor groups to produce different future visions of places (Feola et al., 2023).

Finally, alternative futures can also be empirically examined as a topic for regional policymaking. Here, a direct engagement with the discussion on directionality and normative turn in regional innovation (policy) would be essential (Schot and Steinmueller, 2018; Sjøtun and Solheim, 2023; Tödtling et al., 2022). Future-oriented directionality in regional policy requires policymakers to stimulate innovation and

development in certain societally beneficial domains or directions rather than others. The exploration on whether such directionality should come from top-down (the state defines a desired direction of change in the form of, e.g., "missions" to guide regional socio-economic activities, see Mazzucato 2018) or emerge bottom-up (through experimentation, negotiation, and deliberation involving a broad set of stakeholders) is an interesting question that deserves more attention. Additionally, the impact of different varieties of capitalism on the potential for regional futures within a nation is another aspect that requires thorough investigation. This exploration involves understanding how the underlying economic and political systems of a country influence the range and nature of regional development possibilities. This complex interplay between the type of capitalism and regional futures is a critical dimension in the broader discourse on economic development and policy-making.

All in all, by drawing insights from the broader social sciences, we hope that the perspective outlined in this paper can provide important inspirations for economic geographers to engage with regional futures in a more meaningful, rigorous, and fruitful way.

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Notes

1. for an overview of different approaches in economic geography, Barnes and Christophers (2018).
2. It is important to note that the main GPE work on capitalism is primarily located in the Anglo-American context, particularly in the UK. However, there are variations of capitalism both between (Hall and Soskice, 2001) and within countries (Peck and Theodore, 2007). These different versions of capitalism influence the kinds of futures that the capitalist system can imagine and produce.For discussion on concrete futuring methods and techniques, see Puglisi (2001).
3. For discussion on concrete futuring methods and techniques, see Puglisi (2001).

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