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Behavioural theory and regional development: nurturing cultures of possibility

Robert Huggins ^a and Piers Thompson ^b

ABSTRACT

This paper explores how regions can catalyse behavioural change and nurture cultures of possibility. 'Possibility' refers to emergent patterns of human behaviour resulting in alternative and improved outcomes for citizens and their regions. Drawing on concepts from behavioural economics, complexity economics and behavioural economic geography, the paper provides a comprehensive understanding of the behavioural factors underpinning regional development. Utilising these concepts, it develops a behavioural theoretical framework to explain the important role played by possibility for regional development. In particular, it is proposed that the nature of the decision-making capabilities of citizens, and the choice architectures shaping these decisions, are crucial to regional development. It is concluded that policies focused on improving decision-making and choice architectures will promote innovation, creativity and entrepreneurship within and across regions.

KEYWORDS

Possibility, behaviour, regions, development

JEL D01, O18, R10, R58, Z10

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1. INTRODUCTION

Theories of regional development have become increasingly sophisticated. They have sought to better understand the wide range of factors impacting on the development trajectories of regions and the localities within them. These theories have built upon neo-classical economics and its focus on the allocation, investment and accessibility of capital, firstly physical capital and then addressing more intangible capital in the form of human capital, technology, knowledge and the like (Bathelt et al., 2024; Huggins & Thompson, 2024). More recently, regional development theories have undertaken an institutional turn through the realisation that the effective deployment of capital requires efficient institutional arrangements (Rodríguez-Pose, 2013; 2020). Specifically, the nature of regional governance and networks may either incentivise or constrain the capability of regions to access and invest in the capital required to spur regional development through innovation, entrepreneurship and creative endeavour (Rodríguez-Pose & Muštra, 2022; Storper, 2013).

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These more sophisticated theoretical frameworks have led to advances in regional policy, especially a growing focus on the role of good regional governance and the structure of networks connecting firms and other organisations (Huggins & Thompson, 2023a). Despite such policy developments, the outcomes on the ground have often been growing inter-regional development divides in many nations, with increased inequality between a small number of leading cities and regions and the rest of these nations (Iammarino et al., 2019).

Against this backdrop, this paper seeks to develop a new theoretical explanation for the phenomenon of uneven development across regions. Its primary aim is to enhance the explanatory power of existing regional development theories by adopting a human behavioural approach to understanding the causal mechanisms driving variations in how people across different regions engage with development processes. To achieve this, the paper introduces a behavioural theory of regional development grounded in the conceptual paradigm of ‘possibility’ (Glăveanu, 2020). In this context, possibility is defined as a state in which regions exhibit emergent patterns of human behaviour that may lead to alternative and improved outcomes for the people living and working in these regions. As part of this theory building exercise, the paper positions itself within the domain of mid-range theories of uneven development, which, as Yeung (2024) suggests, are crucial for understanding the evolving nature of capitalism and its influence on the dynamics of the everyday lives of citizens across regions.

Rather than pursuing an improbable unified or universal theory of regional development, mid-range theories are far more effective in uncovering causal mechanisms that explain phenomena without resorting to ‘overzealous universalistic generalizations’ (Yeung, 2024). Furthermore, the tradition of mid-range theory building has long been associated with understanding causal mechanisms in the behavioural sciences (Weick, 1974; 1989). Across the social sciences, theory building often precedes empirical findings, guiding the identification of new research opportunities and agendas (Kilduff, 2006), which represents a further objective of the paper. Finally, the paper considers how theory building can inform new policy perspectives by examining how regions catalyse behavioural change by facilitating the types of cultures of possibility associated with positive regional development.

Overall, the paper proposes that the concept of possibility has significant utility for analysing regional development and associated policy, given that it is generally framed as being embodied in places and relational spaces of human agency (Baron, 2023; Glăveanu, 2023). It integrates a variety of perspectives from a range of disciplines to provide an understanding of the role of behavioural factors in either promoting or inhibiting regional development. Principally drawing on theories and concepts from behavioural economics, complexity economics and behavioural economic geography, it is argued that regional development is partly a function of the possibilities embodied in the very places and relational spaces which the citizens of any given region interact. In this paper, such possibilities mainly, although not exclusively, relate to economic possibilities that emerge as place-based cultures within regions and concern the potential for innovation, creativity or entrepreneurship.

Alongside the acknowledged capital and institutional determinants of development, behavioural theories of regional development have started to emerge to explain uneven development across regions. This emergence has stemmed from several key developments including the rise of interdisciplinary research across social and behavioural sciences, the development of new datasets to analyse human behaviour and psychological traits across regions, and innovative theoretical advances in economic geography and regional studies.

One important area of theoretical development stems from the field of evolutionary economic geography and its growing focus on the role of agency for regional development (Dinmore et al., 2024). Evolutionary economic geography has largely focused on providing an understanding as to why some regions are able to create new industrial and technological development paths leading to positive development outcomes, while other regions become locked into a path dependent

development process whereby they rely on the industries and technologies of the past (Martin & Sunley, 2006).

Agency-based regional development examines the behaviour of actors – be they individuals, organisations or systems of agents – that purposively seek to catalyse behavioural change in a region (Grillitsch & Sotarauta, 2020). A second strand of behavioural regional development theory addresses differences in psychological and cultural traits across regions as a means of explaining development divides (Huggins & Thompson, 2021a). However, to date there is a lack of a fully-fledged behavioural theory explaining why some regions tend to thrive while others become the sites for so called left-behind places (Rodríguez-Pose, 2018).

The key propositions of the paper are three-fold: (1) the possibilities offered by regions are a result of the interaction of the decision-making capabilities of the citizens in a region and the nature of the choice architecture from which these decisions are made; (2) the emergence of these decision-making capabilities and choice architectures stem from systems of complex adaptive behaviour within a region; and (3) the foundations of this behaviour are spatially bounded by psychological and cultural factors. Based on these propositions, the paper concludes that behavioural theory provides a framework for understanding the foundation, emergence and actualisation of possibilities within regions.

The remainder of the paper is structured as follows. Section 2 sets the context by considering the dual role of contemporary capitalism in fostering regional development through factors such as local entrepreneurship and investment but also contributing to the spatial concentration of wealth and exclusionary development. Section 3 analyses the nature of the concept of possibility and the notion of a regional culture of possibility, which is contrasted with that of a culture of learned helplessness. Section 4 presents the key components of a behavioural framework to analyse regional cultures of possibility, consisting of the outcomes, actualisation, emergence and foundations of possibility.

The paper finishes with some initial exploratory empirics from the UK context to examine the connections across components. Section 5 outlines a research agenda to begin to fill the empirical gaps in the existing knowledge of the influence of human behaviour on regional development. This includes measuring regional variability in decision-making capabilities and examining differences in regional choice architectures and decision-making processes. Section 6 addresses the policy context in terms of seeking to transform behavioural change, with an emphasis on the importance of changing choice architectures, shifting mindsets, and creating positive narratives. Finally, Section 7 draws together the overall conclusions emerging from the paper.

2. CONTEMPORARY CAPITALISM AND REGIONAL DEVELOPMENT

Evidence of the severe socioeconomic challenges faced by increasing numbers of regions, and the failure of regional development policy to address these challenges, has become increasingly commonplace (Diemer et al., 2022; Rodríguez-Pose, 2018). At the same time, there is a growing body of research indicating that the forces of contemporary capitalism are leading to exclusive modes of development and the growing spatial concentration of wealth and investment (Dijkstra et al., 2020; Rodríguez-Pose et al., 2024). However, sight must not be lost of the fact that the embedded functions of capitalism should actually promote regional development through stimulating entrepreneurship and creating finance and investment, managing economies and providing political leadership, as well as protecting and empowering workers (Casson & Rössner, 2022).

Indeed, the rise of capitalism has lifted prosperity and well-being in many regions and nations across the globe (Stiglitz, 2024). Nevertheless, the future of capitalism is under pressure as economies struggle to grow effectively and sustainably (Case & Deaton, 2020; Collier, 2018). The landscape of the contemporary political economy is changing, with some scholars suggesting that we are reaching an inflection point that is not necessarily for the good (Slobodian, 2023).

Behavioural and cultural shifts are necessarily tied to this political economy; for example deindustrialisation's impact on the labour force and the resulting pressures of economic migration on established populations (Bathelt et al., 2024). For some commentators the crux of the matter lies in the expectations of citizens in terms of the capability of national and regional economies to provide reasonable levels of prosperity and opportunities for themselves and future generations (Wolf, 2023). This has often resulted in increasing uncertainty, fear, resentment and embitterment among many members of society (Hannemann et al., 2024). Such citizens often live in places that are deprived, with many being labelled as 'left behind places' or 'places that don't matter' (Rodríguez-Pose, 2018; MacKinnon et al., 2022, 2024).

Whatever the term used to refer to these suffering places, in the future they must be at the centre of a rejuvenation of capitalism that allows them to instead become places of possibility. However, achieving this is no easy task with one of the principal features of the evolution of capitalism in the early twenty-first century being the growing economic divide across many regions within developed and rapidly developing nations (Iammarino et al., 2019). A plethora of scholarly and policy research has pointed to growing inequalities across regions in advanced economic blocs such as Europe (including the UK) and North America (Rodríguez-Pose et al., 2023).

An increasing number of regions are considered to have dropped into a 'development trap' whereby structural challenges make it extremely difficult for them to retrieve past dynamism and improve prosperity (Diemer et al., 2022). A regional development trap in the context of the European Union has been defined as a state whereby a region fails to maintain its economic vitality (income, productivity, employment) and consistently underperforms compared to national and European benchmarks (Diemer et al., 2022). At the height of the financial crisis, approximately 40% of EU regions were at risk of falling into a development trap (Iammarino et al., 2020), highlighting significant socioeconomic fragility. This proportion subsequently decreased to around 20% but still represents a substantial increase from the 5% of regions at risk in 1990 (Iammarino et al., 2020). There are similar trends found in the United States where income inequality increased by 30% between 1980 and 2016 (Iammarino et al., 2019).

The reasons underlying these trends are necessarily complex structural development problems but are most commonly considered to be related to human behavioural change along with technological shifts (Bathelt et al., 2024). Behavioural change is related to new sorting patterns whereby increased numbers of skilled workers move from poorer to more prosperous regions and cities, along with technological shifts being more responsive in prosperous and advanced cities and regions (Huggins & Thompson, 2021a).

An outcome of these changes and shifts is that many poorer regions are suffering from ingrained and difficult to change 'behavioural pathologies' with, for example, less favoured regions failing to improve rates of education uptake despite supply-side interventions (Iammarino et al., 2019). It is these regions that are most commonly the home of deprived communities, whereby decades of regional policy interventions have generally failed to alter negative path trajectories (Houlden et al., 2024; MacKinnon et al., 2024). As discussed in more detail in the next section, some research has suggested that an imperative for public policy is to develop interventions that seek to instil 'hope' as a means of addressing 'hopelessness' in these places (Tups et al., 2024).

Given the need for hope, perhaps the use of the term 'left behind' to define struggling communities is less than helpful given the negative implication that they are existing 'out of their rightful time' (Tierney et al., 2024). As indicated above, the general evidence indicates the failure of regional policy to change these fortunes. For example, despite the long-term cohesion and regional policies within the EU, the emergence of growing regional development traps in many nations points to significant policy limitations (Diemer et al., 2022). While the UK has now departed from this EU policy agenda, its own recent policies based on strategies to 'level

up' the national economy by improving the prospects of lagging localities and regions has shown little sign of progress (Coyle & Muhtar, 2023; Huggins et al., 2025). Similarly, in the United States new policies based around the development of 'opportunity zones' in struggling areas have failed to fundamentally improve the socioeconomic challenges faced by citizens in these areas (Freedman et al., 2023; Wessel, 2021).

From a theoretical perspective, theories of regional development have expanded rapidly in recent years, encompassing a range of frameworks. Key areas of focus include endogenous growth (Stimson et al., 2011), agglomeration (Storper, 2013) and various forms of intangible capital related to regional development, such as human capital and the creative class (Faggian et al., 2019; Florida, 2002a; Storper & Scott, 2009), knowledge and research capital (Rodríguez-Pose & Crescenzi, 2008), entrepreneurship capital (Audretsch & Keilbach, 2005), network capital (Huggins & Thompson, 2014), social capital (Iyer et al., 2005; Malecki, 2012) and knowledge spillovers (Andersson & Karlsson, 2007; Audretsch & Feldman, 1996; Breschi & Lissoni, 2001).

Beyond endogenous growth, institutional approaches have theorised on the inability of certain regions to develop even where there is investment in these intangibles. This perspective emphasises that effective institutional governance – both formal and informal – is a key causal explanation of regional disparities in development (Charron et al., 2014; Rodríguez-Pose, 2013; 2020). Additionally, evolutionary theories of regional development indicate the importance of processes related to path dependency, as well as the specialisation, diversity and relatedness of industries in shaping regional trajectories (Boschma & Frenken, 2006; Frenken et al., 2007).

Complementing these more process-based theories are frameworks that focus on the mechanisms through which regional development occurs. These largely point to the role of interactions and networks of activity involving firms, organisations, institutions and other agents within and across regions. These frameworks include regional innovation systems (Asheim & Isaksen, 2002; Cooke, 2004), entrepreneurial ecosystems (Audretsch & Belitski, 2021), innovative milieu (Maillat, 1998), industrial districts (Belussi & Sedita, 2012), clusters, buzz and pipelines (Bathelt et al., 2004) and learning regions (Morgan, 2007).

In line with the forms of theory outlined by Yeung (2024), the above theories and frameworks can be termed 'mid-range' as they focus on addressing the process and mechanism-based explanatory elements resulting in regional development outcomes. Therefore, they provide significant theoretical value in a field laden with complexities and contextual variety due to differences in the make-up and shape of regions. However, they often fall short of explaining the full chain of causal mechanisms at play. For instance, how can they explain why regions with similar investments in human capital often have significant differences in related outcomes? Similarly, why do regions with comparable institutional arrangements often exhibit divergent development trajectories? These questions highlight the need for an extension of theories that incorporates human behavioural factors as a key causal factor in explaining regional development differences.

From a policy perspective, one of the key problems with certain forms of intervention promoting new regional development processes, such as those stemming from theories related to innovation, creativity, entrepreneurship and the like, is that they tend to attract those individuals who already have an awareness and proclivity to engage in these processes (Lee, 2024). This suggests the need for policies to focus on issues of inclusivity and to ensure broader participation. Indeed, an emerging theme within economic policy both at national and regional level is to address fundamental human behavioural gaps by improving the capabilities of citizens across a range of differing realms concerning daily life (Abreu et al., 2024; Ramesh, 2022). This capabilities approach to development suggests that improving the ability of individuals to develop, understand and act upon their possibilities would positively support efforts to improve the future of lagging regions.

3. THE CONCEPT OF POSSIBILITY

Regions are likely to lag because they fail to create possibilities and therefore fall into a downward socioeconomic spiral, resulting in a culture of learned helplessness (Huggins et al., 2021). Learned helplessness refers to a psychological state whereby individuals or groups feel powerless to change their circumstances, often due to past experiences of failure or lack of control (Seligman, 1972; 1975). Evidence indicates that learned helplessness is often a psychocultural state that is highly costly, both economically and socially, with individuals failing to realise that there is a possible escape from suffering the restricted position within which they find themselves (Baumeister & Alquist, 2023; Seligman, 1972; 1975).

In the past, the requirement for 'good' decision-making was limited in many regions, such as post-industrial regions, due to the dependence on external investment (Blážek & Květoň, 2023). It is this reliance that has led to a culture of learned helplessness, and behaviour entrenched in a psychological framework marked by an external locus of control whereby individuals consider their lives to be in the hands of external factors rather than their own (Huggins & Thompson, 2021a). This psychocultural state in post-industrial regions has been termed 'social haunting', whereby there is a 'ghosted' affective atmosphere that endures long after the traditional industries associated with these places have disappeared (Bright, 2016; Gordon, 1997).

While much may have changed in these places over the years, it appears that a culture of learned helplessness is created in the form of limitations on cognitive and behavioural functioning often allied to a culture of dependency (Píša & Hruška, 2024). In particular, if an individual attributes their problems to external factors, solutions to these problems are also likely to be considered to come from the outside (Bright, 2016). If a culture of learned helplessness can be attributed to the behavioural conditions found in these regions, what types of culture are found in more leading and thriving places? Recent research suggests that growing and vibrant places, often cities, are based on a culture of 'possibility' (Huggins & Thompson, 2024). In this case, possibility is manifest in the form of places whereby individuals embody a cultural environment allowing them to become innovative, creative and entrepreneurial in new ways (Huggins & Thompson, 2024; Tavassoli et al., 2021).

Possibilities emerge due to the situations places such as leading cities create and offer (Storper, 2013), with these situations being defined by a 'matrix of possibilities' (Baumeister & Alquist, 2023). Therefore, human behaviour is not caused merely by realities but also by possibilities, including some that may never materialise. Given this, the future may be defined by alternative possibilities (Baumeister & Alquist, 2023), whereby the notion of possibility can be conceptualised as a place-based cultural factor. For example, regions have emergent patterns of human behaviour that can result in alternative and better outcomes for the citizens living and working in these places. This is consistent with the broader sociological and psychological conceptualisation of possibility whereby it is framed as being embodied in places, relational spaces of action and agency, and occurs in clusters of interrelated ideas (Baron, 2023; Glăveanu, 2023).

Interestingly, the concept of possibility has a long history in scholarly thinking, particularly philosophical discourse. As far back as the time of classical Greece, Aristotle considered the notion of possibility in terms of human tendencies to conceive of events as not necessarily fundamentally true or false but instead contingent or variable (Redshaw & Ganea, 2022). However, the scholarly history of possibility is rather chequered and in 1926 philosopher Raphael Demos (1926) stated that 'possibility is not a very popular concept nowadays; to the empirically-minded philosophers it seems abstract, thin, insubstantial, whereas to the rationally-minded, it seems barbarous and woolly, and its use a gratuitous complication of an already too congested metaphysical situation'. Demos (1926) goes on to argue that this is a misinterpretation as possibility is a means for better understanding change and emergence, and importantly the process and

nature of 'becoming'. Indeed, the concept of possibility is a feature of Alfred North Whitehead's (1929) process philosophy and his views on creativity and potentiality, as well as John Dewey's (1910) theories of pragmatism whereby the creative process of experience helps reveal a better understanding of 'what is possible'.

More recently, Knight and Manley (2023) highlight that possibility is a concept found in the work of scholars such as Martin Heidegger (1962), Søren Kierkegaard (1980) and Michel Serres (2020), with possibility considered to be a phenomenon that shapes notions of both the self and society, given that individuals are propelled to action, or inaction, by way of recurring and reinterpreted pasts. In many ways this resonates with the idea that regional cultures may be embedded in more or less a state of possibility or learned helplessness, with positive action being less apparent in the latter state. So how can regions move from a position of inaction or negative action to a more positive psychocultural state? Recent sociological and psychological thinking suggests the need to instil 'hope', instead of 'despair', as means of generating a sense of possibility (Freeman, 2023; Glăveanu, 2023; Solnit, 2016). This is particularly pertinent in the context of left behind places whereby despair and embitterment have become watchwords (Hannemann et al., 2024).

Transforming places from states of despair and learned helplessness to ones of hope and possibility clearly has potential implications for public policy. In a post-COVID environment the concept of possibility has started to enter the lexicon of public policy thinking. For example, Mulgan (2022; 2023) has argued that 'collective imagination' can stir different socioeconomic possibilities, with changes in systems, cultures, resources and institutions facilitating the growth of 'possibility spaces'. These possibility spaces are similar to the 'matrix of possibilities' conceptualised by Baumeister and Alquist (2023), which represent the options open to individuals. Given this, it is important to differentiate the notion of possibility from that of 'opportunity'.

As alluded to above, possibilities refer to what may be in the future but do not necessarily exist today, with opportunities representing possibilities that have already been realised (Baron, 2023). In the context of regional development, therefore, opportunity represents a specific set of circumstances or conditions conducive to action or advancement, while possibility encompasses a broader spectrum of potential outcomes, changes and transformations within a region. Opportunity arises from identifiable factors such as market demand and technological advancements, with possibility transcending any single opportunity, encompassing the matrix of scenarios and alternatives emerging over time. In this sense possibilities may precede opportunities, reflecting the inherent potential to generate new ideas and thinking even in the absence of immediate opportunities.

Possibility is the foundation upon which opportunities are built, and while opportunities are finite and context-dependent, possibilities may be infinite and in a process of becoming within open-ended dynamic and ever-evolving regional ecosystems (Huggins & Thompson, 2024). In this sense, regions are shaped by the available opportunities, most usually economic, which are bounded by a host of micro and macro-level conditions and factors. These opportunities necessarily interact with the bounded possibilities of the citizens of regions. As the following section argues, these possibilities are themselves bounded by underlying behavioural factors in the shape of cultural and psychological traits.

As Glăveanu (2020; 2023) argues, the possible is distributed with the 'locus' of possibility being the relational space of action and interaction between a person and the world. This relational space is paramount for Glăveanu (2023) due to a number of principal factors: (1) imagining possibilities needs the existence of a conducive cultural environment with embodied minds, other people, objects, and places; (2) minds and societies open to new possibilities are most likely to be defined by diversity and dialogue; (3) these first two factors allow people to think of their lives differently and to act upon them differently. In general, Glăveanu (2020) views 'culture' as constituting the wider framework for considering and discussing 'the possible'. In the context of regional development, it is interesting to note that he conceives that 'change often comes from

the periphery, in particular from those people and positions that didn't naturalize the dominant view' (Glăveanu, 2020).

Throughout history, agents of new thinking and possibilities often originated from more peripheral regions but enacted these possibilities in more urban regions due to existing opportunities (Hall, 1998; Huggins & Thompson, 2021a). Furthermore, agency is a crucial feature of the principles of emergence and interactionism that underpin the notion of possibility. Individuals develop new courses of action by both imagining and selecting possibilities, but these are broadly related to an individual's historical and sociocultural situation (Glăveanu, 2020; Martin et al., 2003). Therefore, human agency operates in a world based not only on available facts or stimuli but one of possibilities (Baumeister, 2023).

From a psychological perspective, human agency is considered to have three fundamental components: (1) efficacy – the mindset that specific goals can be accomplished in the here and now; (2) optimism – the mindset that goals can be accomplished far into the future; (3) imagination – the mindset that many goals can be accomplished (Seligman, 2023). Clearly these components represent some of the means by which human agency promotes progress but, as already indicated, this is moderated by cultural factors. Given this, Table 1 summarises

Table 1. Key aspects of cultures of possibility and learned helplessness.

Aspect	Culture of possibility	Culture of learned helplessness
Agency and empowerment	Individuals and communities feel empowered to effect change and contribute to development. They perceive challenges as opportunities for innovation, creativity and entrepreneurship.	Individuals and communities feel disempowered and lack agency to effect meaningful change. They perceive challenges as insurmountable obstacles.
Adaptability and emergence	A culture of based on adaptability and emergence, with a willingness to experiment, take risks, and embrace change. Creative problem-solving is encouraged, leading to dynamic responses to evolving circumstances.	There is resistance to change and experimentation, with a preference for maintaining the status quo. Change is discouraged, leading to stagnation and a lack of dynamism.
Mindset and attitudes	There is a dynamic mindset and positive attitudes towards change, challenges, and setbacks. Individuals and communities are resilient and view failures as learning possibilities. They are proactive in seeking solutions and seizing opportunities.	There is a fixed mindset and negative attitudes towards change, challenges, and setbacks. Individuals and communities may feel resigned to their circumstances and lack motivation to pursue alternative pathways.
Access to choices	Choices for education, employment, healthcare, and political participation are widely accessible, with efforts made to ensure inclusivity and equity. Marginalised groups have pathways for advancement and inclusion.	Certain groups or communities face marginalisation, exclusion, or discrimination, limiting their access to choices and perpetuating cycles of inequality.
Interactionism	High level of trust and collective agency and shared ownership of emerging possibilities.	Trust may be limited, with distrust inhibiting collective agency and interaction.

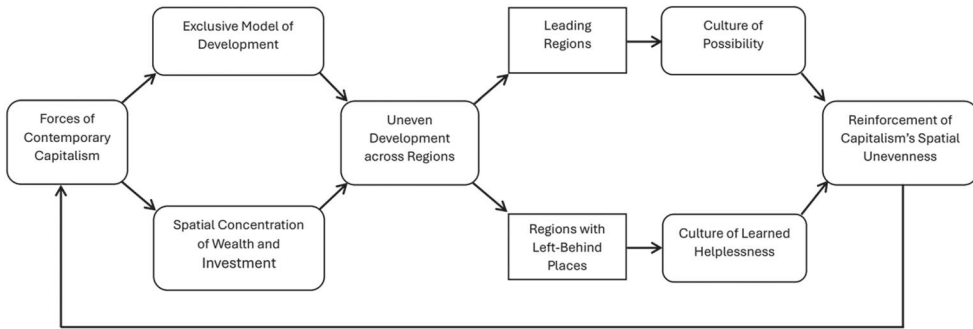


Figure 1. Contemporary capitalism and regional development.

some of the key aspects that are likely to differentiate a culture of possibility from a culture of learned helplessness in a regional context. It highlights that both human behavioural and cultural differences across regions are likely to be significant factors in determining differences in future regional development trajectories. The key challenge for lagging regions, therefore, is to evolve from a culture of learned helplessness to one of possibility.

As illustrated by [Figure 1](#), the continued divergence between the cultures of possibility found in leading regions and the cultures of learned helplessness in regions with significant deprivation will lead to a reinforcement of the already spatial unevenness of contemporary capitalism. As already indicated in [Section 2](#), the two principal forces of contemporary capitalism are: (1) the increasing development of exclusive modes of development and (2) the spatial concentration of wealth and investment. The following section establishes a behavioural theory for analysing this spatial and regional divergence through the concept of possibility.

4. BEHAVIOURAL THEORY AND REGIONAL POSSIBILITIES

In [Section 3](#) it was shown that the notion of possibility can provide a useful concept for examining contemporary regional development. Therefore, it is important to consider its various evolutionary components. In other words, if possibilities matter for regional development, where do they come from? To address this question, this part of the paper takes a behavioural approach to regional development by building a ‘possibility framework’ with four dimensions: (1) the outcomes from possibility; (2) the actualisation of possibility; (3) the emergence of possibility; and (4) the foundations for possibility.

Drawing on behavioural theories related to behavioural economics (Kahneman, 2003; Sunstein, 2017), complexity economics (Beinhocker, 2006; Martin & Sunley, 2007) and behavioural economic geography (Strauss, 2008; Huggins & Thompson, 2021a, 2023b), the framework proposes that regional development is partly a function of the possibilities embodied within a region and its citizens. As illustrated by [Figure 2](#), and touched upon in [Section 2](#), regional development is considered to be the *outcome* of possibility stemming from gains in regional innovation, creativity and entrepreneurship. While other regional possibility *outcomes* could potentially be added to the framework, these three are generally considered to be vital intangible and intellectual factors catalysing regional development (Cooke et al., 2011; Florida, 2003; Fritsch & Wyrwich, 2017).

Innovation allows regions to produce new and improved products, processes, services and business models facilitating firm growth and subsequently regional economic growth (Benner, 2024). Allied to innovation, creativity and creative work are fundamental development factors in the regional context (Chapain et al., 2013). Furthermore, creativity is a concept strongly

connected with possibility as it concerns the generation of new ideas through the expression and use of the imagination (Glăveanu, 2020). Finally, entrepreneurship and the role of entrepreneurs have become increasingly recognised as a key cog of regional development processes (Kraus et al., 2021). Entrepreneurs are to some extent major enactors of possibility through establishing the firms and organisations within which innovation and creativity can be productively expressed (Audretsch & Belitski, 2021).

4.1. The actualisation of possibility

Prior to the outcomes from possibility, it first needs to be actualised in terms of positive and tangible behavioural change in the decisions made and actioned by citizens within a particular region. As illustrated by Figure 2, the actualisation of possibility is conceptualised as a function of the interaction between decision-making and choice architectures, whereby people in more developed regions tend to make ‘better’ decisions and are also able to make choices from a wider menu of possibilities. The actualisation of possibility can be best understood through the lens of behavioural economics, which is focused on the observable behaviour of humans, especially the way they behave in accordance with ‘bounded rationality’ (Simon, 1982).

Behavioural economics represents a significant philosophical break from the majority of traditional economic thinking within which humans are considered to be perfectly rational decision-makers that choose options to maximise their satisfaction. Behavioural economics has a different point of departure arguing that humans are not always perfectly rational and are often prone to make decisions that are less than optimal (Kahneman, 2003; Sunstein, 2017). Bounded rationality is a concept based on the proposition that individuals often have limited cognitive ability, information and time, and therefore may not make choices that are in their best interests (Simon, 1982). The term was coined by Herbert Simon (1982) as a means of explaining how people possess limitations when trying to make rational decisions because of these restrictions, especially their ability to access relevant knowledge or the capability to understand that knowledge. Bounded rationality, therefore, is one of the bedrock concepts underpinning behavioural economics.

Turning to those factors influencing the boundedness of rationality, two interrelated dimensions of human behaviour are: (1) the decision-making capabilities of individuals; and (2) the choice architecture – or menu – from which these decisions are made (Thaler & Sunstein,

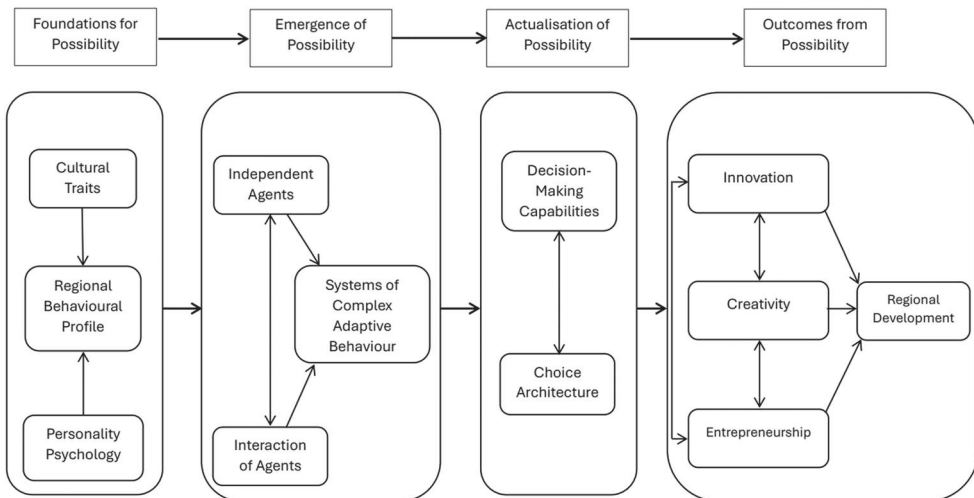


Figure 2. The regional possibility framework: a behavioural approach to development.

2008). Choice architecture refers to the design of decision environments that influence people's decisions without restricting their freedom of choice (Thaler & Sunstein, 2008). It involves structuring the presentation of choices, default options, information framing and incentives to steer individuals towards certain decisions (Münscher et al., 2016).

Choice architecture, therefore, can influence decision-making outcomes by shaping the context in which choices are made and impact on behaviour and outcomes. Decision-making processes are influenced by, for example, the availability of information, the default options in place, and the design of choice architectures within a region. The way in which choices are presented can significantly affect how decisions are made. As a result, decision-makers may shape choice architecture by designing decision environments to promote certain behaviours or outcomes.

The perceived range of possibilities determined by the design of choice architecture can relate to a whole number of spheres but in the case of regional development it may most directly concern choices relating to career, education and broader lifestyle decisions. Growing evidence from so-called left behind places indicates that citizens living in these areas are more likely to make decisions that ultimately limit their own development as well as the development of these places as a whole (MacKinnon et al., 2024; Tierney et al., 2024; Tomaney et al., 2024). Regional possibilities, therefore, stem from the relationship between decision-making and choice architecture, whereby the regional design of decision-making environments influences the perceived and actual range of available options, shaping decision outcomes and regional trajectories.

By understanding and positively altering this relationship policymakers can influence decision outcomes and promote desirable regional development trajectories. However, while behavioural economics can shed light on how decision-making and choice architecture influence possibility and regional development, it offers limited insight into the underlying factors contributing to regional disparities in decision-making effectiveness and choice architecture quality. More specifically, it does not provide the tools to understand the emergence of possibility, which is discussed below.

4.2. The emergence of possibility

As indicated in Section 3, possibility is a concept rooted in emergence and becoming, and therefore it can be closely aligned with other behavioural theories explaining the process of emergence. In particular, complexity theories provide a framework for addressing emergence whereby the behaviour of a system as a whole is more than the sum of the behaviour of individual parts (Holland, 2014; Nolfi, 2004). Systems that portray this emergent behaviour are commonly termed complex adaptive systems (Holland, 2014). These systems are complex due to the overall behaviour of the system stemming from the large number of decisions made at any given moment by many individual agents. The concept of complex adaptive systems has often been applied to understanding behaviour and behavioural change in fields such as biology but has increasingly been utilised to understand economic phenomena (Arthur, 1994).

The field that is more generally termed 'complexity economics' has shifted schools of economic thought from a distinction between what have long been labelled as the disciplines of 'microeconomics' and 'macroeconomics'. Complexity economics provides a more integrated view of the dynamics of the economy based on modelling individual human agency and the networks within which these agents interact (Beinhocker, 2006). The emphasis within complexity discourse on context, culture, the heterogeneity and bounded rationality of agentic behaviour provides a useful framework for considering how regions become capable of developing new possibilities (Castañeda, 2020). Furthermore, complexity economics can provide insights into the emergence of regional possibility and development, with the requirement for possibility indicating that regional development is itself in a constant process of becoming and emergence.

In complex adaptive systems the key components are adaptive agents with the changing interactions between adaptive agents being not simply additive but system changing (Holland, 2014),

which can be termed complex adaptive behaviour. Fundamentally, complex adaptive behaviour concerns situations whereby agents learn or adapt in response to interactions with other agents through networks that provide a platform for such interaction. It has been argued that the evolution of regional economies can be best analysed by considering them to be manifestations of complex adaptive systems (Martin & Sunley, 2012).

Along with emergence, key properties of complex adaptive systems pertinent to the regional context are: being highly distributed with open connectivity across components; having non-linear dynamics resulting from complex feedback and self-reinforcing interactions; and based on a primacy for self-organisation and adaptive behaviour (Martin & Sunley, 2007). More advanced regions tend to develop economic systems within which macrolevel behaviours emerge from and also influence the microlevel interactions of the elements of these systems, which facilitate the creation of new order. i.e., emergence (Huggins & Thompson, 2023a).

In order to examine this process of regional possibility emergence more systematically, the three-order typology of emergence developed by Deacon (2006), and applied by Martin and Sunley (2012) to consider the evolution of regional economic landscapes, is useful: (1) first-order emergence is the basic class of emergent phenomena whereby interaction between potential system components grows to produce aggregate system patterns and behaviours that emerge with ascent in scale; (2) second-order – also termed morphodynamic – emergence refers to the nature of self-organising emergence whereby micro-level configurational structures become amplified to determine more macro-configurational structures; and (3) third-order – developmental/evolutionary – emergence refers to emergent mechanisms and systems that produce influences that impart continuity or divergence from previous developmental states.

These differing levels of order can be used to analyse the extent to which a region is able to foster the emergence of possibility and the extent to which this is likely to be actualised through complex adaptive behaviour. Building upon this, and as illustrated by Figure 2, the emergence of possibility in the regional context is based on the interactions of individual human agents, which are manifest by behavioural change within a regional complex adaptive system.

Fundamentally, the changing network of these systems determines decision-making and choice architectures dynamics. Regions, therefore, can be conceptualised as a complex adaptive systems whereby the interplay of agents, networks, and emergent properties determine decision-making dynamics and choice architectures, and impact upon regional development trajectories. In other words, the people with whom individual agents in a region interact, or equally important do not interact, determines the framing of choices and the decisions these individuals make, which subsequently shapes the matrix or structure of possibilities within a region.

The focus on agency represents a neo-endogenous approach to examining the process of regional development, which takes a behavioural position to addressing the factors that enable or inhibit such development (Dinmore et al., 2024; Newey, 2024). Therefore, if the network and agentic dynamics of regional complex adaptive systems result in differences in the emergence of possibility across regions, it is necessary to consider the likely behavioural foundations that lead to this variation.

4.3. The foundations for possibility

New developments in behavioural economic geography have provided growing evidence that the psychological and cultural traits found in regions are significantly related to their development trajectories (Huggins & Thompson, 2021b, 2023b). These traits underpin the ‘behavioural profile’ of a region, with this profile acting as the foundations for possibility within any region. This recent stream of research in the field of behavioural economic geography has sought to address these foundations based on a school of thinking focused on either psychological factors (Garretsen & Stoker, 2023; Mewes et al., 2022) or cultural factors (Tubadji & Nijkamp, 2015; Weckroth & Kemppainen, 2016).

The psychological school of thought finds strong evidence that the socioeconomic development of regions is associated with the personality psychology of those citizens residing in these regions. In particular, studies have suggested that those citizens who, on average, have higher levels of personality traits such as conscientiousness, openness and extraversion may make a greater contribution to regional and local economic development outcomes (Fritsch et al., 2019; Lee, 2017; Obschonka et al., 2015). From the perspective of the emergence of possibility, some personality traits such as openness and extraversion may allow individuals to form the networks associated with complex adaptive behaviour (Mewes et al., 2022). Furthermore, they may be more likely to have lower levels of traits such as neuroticism and possess the agency to enter such networks (Lee, 2017).

Instead of focusing on individual personality traits, the cultural school of behavioural economic geography addresses the way in which people behave as a result of their background and group affiliation. Rather than concerning individual behaviour, the cultural school of thinking addresses systems of meaning within and across ascribed and acquired social groups (Hofstede, 1991). In recent years, there has been a growth in studies that have examined the influence of what is termed 'community culture' on regional development (Huggins & Thompson, 2015). Aspects of such community culture includes attitudes to engagement with education and work, social cohesion, caring for others, respect of and adherence to social rules and collective action. If strength in particular forms of community culture are associated with development across regions, it can be proposed that the cultural make-up of regions may impact on the emergence or otherwise of possibilities.

While these psychological and cultural schools of thought have remained somewhat distinct, new research has found that the interaction of psychological and cultural factors may underlie the intention to behave in a particular manner (Huggins & Thompson, 2021a; 2021b; 2023b). In other words, behaviour across regions is conditioned by the interdependency of the personality traits of individuals and the community cultural environment in which these individuals are embedded (Fischer, 2017). Huggins and Thompson (2021a) argue that this interaction results in the phenomenon of what they term 'spatially bounded rationality'. This refers to the computational and cognitive limitations experienced, on average, by individuals in a particular region resulting in differing forms of human information processing (Huggins & Thompson, 2021a; Kahneman, 2003; Simon, 1982). The extent and nature of these limitations is likely to vary across regions impacting on the capability for possibilities to emerge within these regions. Although there is limited evidence to support this proposition, as indicated above there is significant evidence of differences in both the psychological and cultural behavioural profile of regions and local areas within them (Huggins & Thompson, 2021b, 2023b).

For regions within the UK, Huggins and Thompson (2021b) develop a methodology to measure both personality and cultural profile differences across localities. The personality profile is labelled COE as it consists of localities with high prevalence of individuals that are relatively conscientious, open and extravert (COE). Table 2 presents the top and bottom ranked localities across England and Wales on the COE personality index. It shows that localities in the more prosperous regions of London and South East England dominate the top of this index, while the bottom of the index includes more entries from less prosperous regions such as Wales and the East Midlands of England.

The cultural profile is termed EDI as it consists of localities which have higher numbers of individuals engaged in education and work, along with high levels of diversity and individualistic (non-collective) attitudes. Table 3 presents the top and bottom ranked localities in England and Wales on the EDI cultural index. In this case the differences are even more stark with the top 10 ranked consisting purely of localities in London, while at the bottom it consists of localities solely from Wales. This begins to hint at differences in the foundations of possibility across regions. However, it does not indicate the extent to which these differences are associated with the emergence, actualisation and outcomes of the regional possibility framework illustrated by Figure 2. As a means of addressing this Table 4 presents an index of the top and bottom ranked localities

Table 2. Top and bottom 10 localities as ranked by the conscientious, open and extravert personality profile (COE).

Rank	Locality	Region	COE
1	Kensington and Chelsea	London	3.18
2	Hammersmith and Fulham	London	2.95
3	Islington	London	2.80
4	Westminster	London	2.72
5	Richmond upon Thames	London	2.68
6	Hackney	London	2.53
7	Camden	London	2.51
8	Windsor and Maidenhead	South East	2.49
9	Lambeth	London	2.48
10	Elmbridge	South East	2.37
:	:	:	:
320	Crawley	South East	-1.58
321	Carlisle	North West	-1.62
322	Ceredigion	Wales	-1.72
323	Chesterfield	East Midlands	-1.75
324	Bolsover	East Midlands	-2.22
325	Barrow-in-Furness	North West	-2.28
326	Blaenau Gwent	Wales	-2.64
327	Barking and Dagenham	London	-2.82
328	Merthyr Tydfil	Wales	-3.00
329	Boston	East Midlands	-3.66

Notes: Source – Huggins and Thompson (2021b); The City of London and Isles of Scilly are excluded from the analysis due to issues of missing data and extreme values for these atypical and small (geographical and population) localities.

(the same set of localities as covered in Tables 2 and 3) based on measures relating to networks, innovation, creativity and entrepreneurship, which is termed the NICE index.

This index is formed from four sub-indices reflecting networks, innovation, creativity and entrepreneurship respectively. The network measure provides an indication of potential differences in the emergence of possibility, while the innovation, creativity and entrepreneurship measures are an indication of the outcomes of possibility. The four sub-indices are given an equal weighting within the overall NICE index. Future work examining the linkages between possibility emergence and outcomes may provide more insight into these weightings. Within the sub-indices all indicators are standardised, and an equal weighting applied.

The network sub-index is based upon the network capital measures developed by Huggins and Thompson (2017), incorporating the estimated ties between regional enterprises and other enterprises, both within and outside the region, and the research and development (R&D) intensity of enterprises. The innovation sub-index utilises R&D tax credit data to capture innovative activities being claimed for by enterprises in the tax year 2019/20. The creativity sub-index draws upon conceptions of the creative class (Florida, 2002a). In terms of entrepreneurship, measures consist of gross firm births, gross firm deaths and net firm births. The Appendix and Table A1 in the online supplemental data provide a summary of the rationale for the inclusion of individual indicators, weightings and data sources.

Table 3. Top and bottom 10 localities as ranked by the engaged, diverse and individualistic cultural profile (EDI).

Rank	Locality	Region	EDI
1	Newham	London	3.46
2	Westminster	London	3.15
3	Croydon	London	3.01
4	Tower Hamlets	London	2.95
5	Lambeth	London	2.75
6	Southwark	London	2.54
7	Brent	London	2.52
8	Hammersmith and Fulham	London	2.47
9	Haringey	London	2.33
10	Wandsworth	London	2.26
:	:	:	:
320	Bridgend	Wales	-2.35
321	Blaenau Gwent	Wales	-2.38
322	Caerphilly	Wales	-2.39
323	Torfaen	Wales	-2.46
324	Swansea	Wales	-2.47
325	Pembrokeshire	Wales	-2.48
326	Carmarthenshire	Wales	-2.65
327	Anglesey	Wales	-2.72
328	Neath Port Talbot	Wales	-2.81
329	Rhondda, Cynon, Taff	Wales	-2.88

Notes: Source – Huggins and Thompson (2021b); The City of London and Isles of Scilly are excluded from the analysis due to issues of missing data and extreme values for these atypical and small (geographical and population) localities.

As shown by Table 4, localities for the UK's most economically advanced regions – London, East of England and South East England – head the NICE index, while localities from the less economically advanced northern parts of England and Wales are at the foot of the index. While multivariate modelling is required to determine the extent of the association and the causal relationship between the foundations of possibility and the NICE measure, the scatter charts illustrated by Figures 3 and 4 show a significant positive relationship between the NICE measure of possibility and both the personality and cultural indices. However, as well as the requirements for further modelling to determine significance and causality, there are obvious limitations in terms of analysing the regional possibility framework as a whole as there are a range of important gaps. In particular, and crucially, there are no measures for the actualisation of possibility in terms of either the nature and quality of decision-making and choice architecture. These limitations are discussed further in the following section.

5. RESEARCH AGENDA

The above sections have outlined the role of the concept of possibility in understanding regional development trajectories and futures (Section 3). They have also theorised on key aspects of human behaviour as a means of understanding and explaining why some regions offer more possibilities than others (Section 4). There are clear empirical gaps in providing evidence and

Table 4. Top and bottom 10 localities as ranked by the networks, innovation, creative and entrepreneurship (NICE) index.

Rank	Locality	Region	NICE
1	Cambridge	East of England	2.43
2	South Cambridgeshire	East of England	2.15
3	Camden	London	1.84
4	Islington	London	1.73
5	Hackney	London	1.71
6	Westminster	London	1.71
7	Oxford	South East	1.54
8	Kensington and Chelsea	London	1.45
9	Hammersmith and Fulham	London	1.38
10	Tower Hamlets	London	1.34
:	:	:	:
320	North Lincolnshire	Yorkshire and Humber	-0.66
321	Eden	North West	-0.67
322	Hartlepool	North East	-0.68
323	Boston	East Midlands	-0.69
324	Anglesey	Wales	-0.69
325	Carlisle	North West	-0.69
326	North East Lincolnshire	Yorkshire and Humber	-0.70
327	Blaenau Gwent	Wales	-0.73
328	Blackpool	North West	-0.74
329	Merthyr Tydfil	Wales	-0.76

Notes: The City of London and Isles of Scilly are excluded from the analysis due to issues of missing data and extreme values for these atypical and small (geographical and population) localities.

insights on behavioural approaches to regional development and the unevenness of innovative, creative and entrepreneurial possibilities across regions. This section sketches out an agenda for future research that provides further depth and knowledge to address these gaps, indicating the requirement for both quantitative and qualitative approaches.

To begin with, there appears to be three fundamental areas that require exploration. First, there is little knowledge as to how differences in human behaviour and possibilities actually influence regional development processes. As already indicated, access to capital and resources and the presence of high quality institutions are likely to impact on regional development. This suggests the need to empirically analyse regional differences in human behaviour alongside regional variations in the capability of capital access and institutional quality.

Second, if we wish to analyse differences in human behaviour we first need to measure such behaviour. There is no substantive research addressing regional differences in decision-making capabilities, although emerging work on agency in regional studies has started to unpack this issue (Sotarauta & Grillitsch, 2023). Furthermore, there are few studies that have sought to examine differences in choice architecture, especially those related to innovative, creative and entrepreneurial possibilities.

Third, if choice architecture is partly a function of the nature of networks within systems of complex adaptive behaviour, there is a need to empirically examine these networks. Clearly,

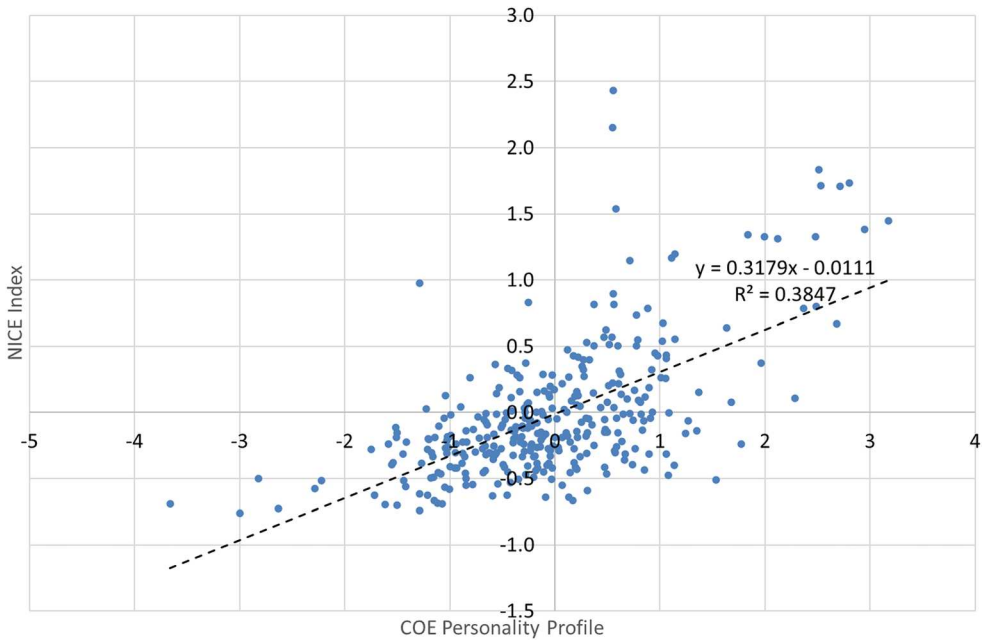


Figure 3. Relationship between conscientious, open and extravert (COE) personality profile and the networks, innovation, creativity and entrepreneurship (NICE) index.

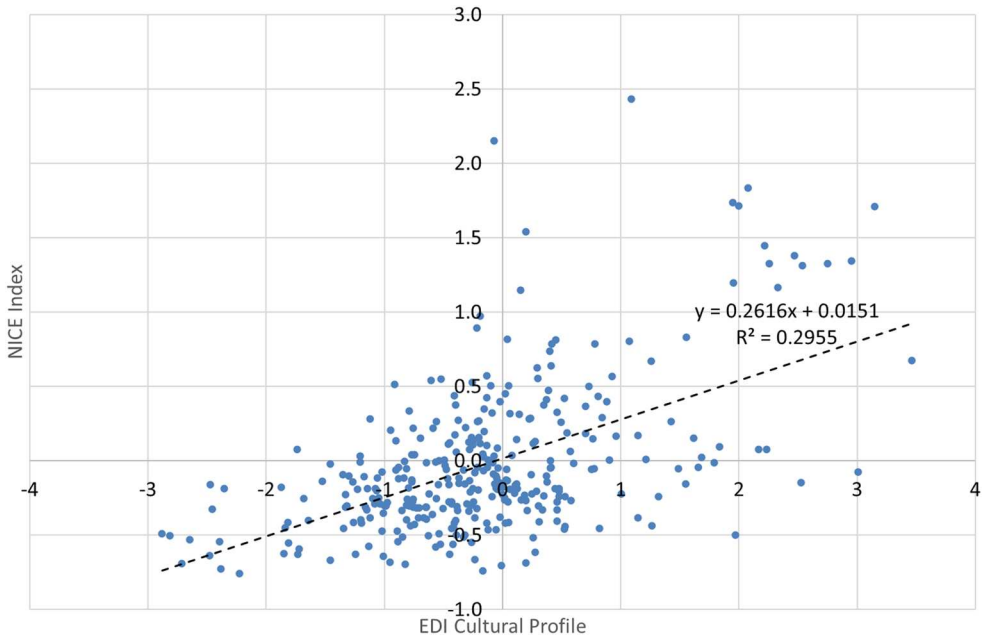


Figure 4. Relationship between engaged, diverse and individualist (EDI) cultural profile and the networks, innovation, creativity and entrepreneurship (NICE) index.

there is already a wide-ranging literature in the fields of spatial economics, economic geography and regional studies analysing networks at different levels, usually at the firm and organisational level. These have furthered an understanding of the role of relational geography in

promoting regional development. However, beyond certain strands of research – such as the field of regional entrepreneurship – few studies have examined the role of interpersonal networks that catalyse the interaction of agents from all parts of society, and which subsequently impact on the nature of regional complex adaptive systems, choice architectures and decision-making capabilities. This offers a promising avenue to connect with research from the field of social network analysis as a means of empirically exploring the complexities of these systems, architectures and capabilities. Recent research has begun to address social networks from the perspective of personality psychology, along with research analysing networks in terms of economic and social inequalities (Burt, 2010; 2012; Jackson, 2024). Building links with this work would provide fertile ground for operationalising the complexity framing within behavioural theory.

These three interrelated research themes are themselves necessarily complex and based on quite intangible features of regions that are not easy to access or make transparent. However, in terms of taking this research agenda forward there are a range of potentially fruitful avenues including: behavioural experiments; social network analysis; agent-based modelling; big data analysis; and narrative analysis. All are potentially difficult to implement and execute effectively, but conducting experiments to observe how individuals within and across regions make decisions in different contexts would provide new insights into spatial behavioural variety. Such decisions could concern a range of contexts such as educational and career choices.

Mapping and analysing social networks to identify key agents, the degrees of connectivity between them and others, and the information flowing through these networks would allow an understanding of regional complex adaptive systems and give an indication of the nature of differences in choice architecture across regions. Furthermore, the development of agent-based models to simulate the behaviour of individuals within these networks and systems would allow an exploration as to how differences in resources and their allocation across regions, along with changes in institutional arrangements, are likely to impact on human behaviour and the dynamics of possibility and learned helplessness over time. Harnessing big data sources, such as transactional data, social media data or online behaviour data, would allow an analysis of patterns of decision-making within regions, particularly patterns of decision-making related to innovation, entrepreneurship and creativity across regions.

Further exploring contextual factors, such as economic conditions or social networks would begin to allow an identification of trends and anomalies in decision-making. Finally, analysing community narratives would lead to uncovering themes related to both possibility and learned helplessness, in terms of how individuals perceive their agency and the constraints on such agency. This range of potential research routes will require mixed methods with both quantitative and qualitative approaches alongside sophisticated modelling techniques. If undertaken effectively, they would provide a fresh attempt to unravel the riddle of regional development and to better explain why places evolve along the continuum between cultures of possibility and cultures of learned helplessness.

6. FROM PERIPHERALITY TO POSSIBILITY: POLICY CONSIDERATIONS

The above makes clear that further research is required but the analysis and arguments laid out in the paper already point to number of important policy considerations in supporting efforts to move lagging regions and left behind places from the socioeconomic periphery nearer the cultural core of possibility. Crucially, there is a requirement to change the mindsets of the public and in cases that of policymakers. Furthermore, there is a need to create a positive narrative change with a focus on success and achievement rather than failure.

Behavioural change, however, is not easy and may require the reframing of entrenched narratives (Roessler, 2024). Given this, such behavioural change is best approached by addressing the interrelated factors of better decision-making and improved choice architectures. More generally, the promotion of individual agency and self-efficacy should be the starting point for cultivating an inclusive culture of possibility. The initial outputs should be: (1) broadening and widening horizons, (2) raising expectations and (3) the capability to make positive decisions and to action them.

To achieve these outputs, policymakers must focus on changing choice architectures by ‘nudging’ people towards the possibility for innovative, creative and entrepreneurial careers be it either within their locality or beyond (Sunstein, 2017). Alongside these changes in choice architectures there must be heightened efforts to instil ‘possibility thinking’ particularly through working with local and regional education systems (Craft, 2015). Such an approach would support the promotion of inclusivity by establishing channels of connectivity and networks to produce new dialogues across all communities within a locality or region, especially the marginalised. Furthermore, it would ensure respect for cultural diversity across communities. Finally, this focus on changing choice architecture and changing mindsets would facilitate new local and regional narratives by actively highlighting examples of success and positive development by individuals and communities within a particular locality or region.

With respect to changing local choice architecture and stimulating positive nudges, more policy research work is required so that policymakers can both understand and enable the process of choice architecture change. The three key elements relating to this change are: (1) decision information – (re-)framing choices by providing information through a variety of channels; (2) decision structure – (re-)framing choices by changing the arrangement of options and the decision-making format, which includes setting defaults; and (3) decision assistance – (re-)framing choices by individuals through further assistance to help them follow through with their intentions (Münscher et al., 2016).

A wealth of interventions and subsequent research has indicated the success of changing choice architectures in the realms of health and well-being, but little work has addressed the role of nudges in terms of enhancing personal agency and self-efficacy, particularly within and across places (Banerjee et al., 2024). This is an area where local and regional authorities could intervene with relatively small levels of investment by better highlighting careers and educational opportunities to those citizens who may not have clear visibility of such possibilities.

The concept of possibility thinking was originally developed by Craft (2015) but echoes earlier work by Bruner (1986). It has largely been applied to educational settings and supports the capacity of individuals to see potential possibilities rather than limitations, with a focus on creativity and creative expressions (Cremin et al., 2006). This approach has been found to be successful in promoting innovation, problem-solving and self-determination among learners (Craft, 2015). Furthermore, research has indicated that these attributes can be nurtured through specific strategies, including giving learners time and space to explore, encouraging agency and building a respectful, dialogic environment (Glăveanu, 2020).

While human capital generation is clearly a known factor associated with regional development (Faggian et al., 2019), it is surprising that education features so scantily within much of the relevant literature. Possibility thinking suggests that the type of education received by individuals, particularly in terms of creative content, will be an indication of their scope to be aware of their possibilities. Therefore, it appears wise for economic development policymakers to engage more closely with local education systems. Furthermore, a sensitive issue that cannot be addressed in any significant depth here is the likely variation in teacher quality across regions and localities, which will depend on the relative level of prosperity in these places (Hanushek, 2011). For a host of reasons, schools in deprived communities are often unable to recruit the

best teaching talent, and this is an area where further policy research is required (van der Pers & Helms-Lorenz, 2019).

Recent research on possibility thinking has begun to extend the potential for such thinking more broadly beyond educational contexts to a range of organisational settings requiring innovative and creative thinking as a means of cultivating possibility (Beghetto, 2023). The general thrust of these approaches is the role of dialogue and collaboration – networks – in fostering new creative and innovative thinking. Local and regional policymakers are at the heart of networks responsible for local and regional development. As part of this network orchestration and management capacity, policymakers should ensure scope for possibility thinking techniques within their remit in order to unearth new possibilities (Huggins & Thompson, 2023a). To an extent, this resonates with the thinking behind policy initiatives such as the EU's regional innovation smart specialisation programme (Foray, 2014).

A final possibility policy area is to change regional and local narratives to highlight success and the potential for further positive socioeconomic development. Through changes in choice architectures and a furthering of possibility thinking, emerging success stories should be championed as a steer to the future. As Harding and Rosenberg (2005) argue, there is a requirement to consider the 'histories of the future' as a means of fashioning new narratives. In recent years, there are a number of cities and regions across the globe that have begun to successfully create narratives around new possibilities.

Research on the cities of Dortmund and Duisburg in Germany; Bilbao in the Basque Country of Spain; Lille, in northern France; Newcastle in New South Wales, Australia; Windsor in Ontario, Canada; and Pittsburgh in Pennsylvania, USA have begun a process of transformation away from decline to a narrative based around new development paths with significant possibilities (Frick et al., 2023). Similarly, there is evidence of new narratives emerging in more geographically peripheral and lagging regions, such as Arendal-Grimstad (Norway), Arjeplog and Arvidsjaur (Sweden), La Pocatière (Canada), Ljusdal (Sweden), Mühlviertel (Austria), North East Romania, Pomorskie and Malopolskie (Poland), and the Portuguese Centro Region, which have made significant positive changes in their economic trajectories leading to the documentation of new narratives (see Huggins and Thompson (2023a) for the original sources of these cases).

Of course, it should be emphasised that these positive regional stories have not been based solely on behavioural change, but also on improved institutional and governance arrangements (Rodríguez-Pose & Muštra, 2022), as well as the capability to access adequate capital and resources. Therefore, the nurturing of cultures of possibility should be based on behavioural change policy in tandem with due concern to institutional and investment factors. Finally, it should be noted that while the above policy agenda mainly focuses on the behaviour of citizens in regions, behavioural political economy theory suggests there is often less than optimal decision-making behaviour by those politicians responsible for local and regional development, which may stymie the implementation and impact of place-based policies such as those outlined above (Bourdin, 2024).

7. CONCLUSION

In conclusion, this paper develops a behavioural theory of regional development grounded in the concept of possibility, with a view to offering new explanatory power to understand the uneven development of regions. By situating itself within mid-range theories, it proposes causal mechanisms of human behaviour that drive regional development dynamics. It identifies new research opportunities, emphasising the importance of nurturing cultures of possibility. Furthermore, it contributes to policy discussions by exploring how behavioural change can catalyse positive regional development outcomes.

Overall, it is clear that ongoing socioeconomic challenges in lagging regions and deprived communities within them, along with the limited success of regional development policies in addressing these disparities, requires new ways of understanding the process of economic development. The contradictory nature of contemporary capitalism, which both supports and undermines regional development, is leading to increased spatial inequalities across many nations. This may represent an inflection point in the global political economy that does not bode well for the future prosperity of disadvantaged regions.

To address these challenges, this paper has focused on examining the significant role of behavioural change in shaping regional development outcomes. It has argued that unmet economic expectations have contributed to social resentment and embitterment in places labelled as left behind, leading to an entrenched culture of learned helplessness. This contrasts with the culture of possibility that drives positive socioeconomic outcomes in leading regions. The aim of both regional development theorists and policymakers, therefore, should be to understand how these cultures of possibility can be best nurtured. The regional possibility framework established in this paper provides a starting point for understanding how key levers of regional development such as innovation, creativity and entrepreneurship emerge and are actualised.

Behavioural economics, complexity economics and behavioural economic geography indicates that decision-making processes, and the choice architectures from which these decisions are made, play a central role in regional development processes. Regions possess their own bounded rationalities and such spatially bounded rationality contributes to suboptimal decision-making and limitations on creating possibilities, which continue to hinder both individual and wider progress in many regions. These rationalities stem from a dynamic process of possibility emergence based on the networks and systems of complex adaptive behaviour formed by individual agents within a region. Furthermore, this behaviour is founded upon the behavioural profile of a region in terms of its dominant psychological and cultural traits.

While some research finds empirical evidence of these connections and causalities, there is a significant research agenda that should further examine these regional behavioural processes. The principal areas for attention are to establish new methods to measure regional differences in decision-making capabilities and choice architectures, especially in relation to innovation, creativity and entrepreneurship. Coupled with this, there is a requirement to better understand and measure interpersonal networks within and across regions, and subsequently their impact on choice architectures and decision-making capabilities. There is also a need to consider a wider research agenda by examining the key known primary sources of regional development in the form of the interaction between human behaviour, capital access and institutional quality.

Finally, from a policy perspective, forward thinking regional development interventions should integrate strategies aimed at improving decision-making and choice architectures to promote innovative, creative and entrepreneurial career paths. These strategies should nurture individual agency and self-efficacy, starting with broadening horizons, raising expectations and enabling positive decision-making. This is likely to require close engagement with local education systems to create possibility thinking, particularly in deprived communities where education and teacher quality may vary significantly. Similarly, regional policymakers should make better use of 'nudging' techniques to guide people towards careers and opportunities they might not otherwise consider, thereby enhancing their agency and self-efficacy.

Part of this new policy thinking is the need for strategies that change regional and local narratives in a meaningful way, focusing on success stories and positive development outcomes. One potential barrier to this policy agenda is that there may be challenges due to suboptimal decision-making by politicians. Therefore, there should be a wide range of stakeholders from all parts of society involved in policy formulation. This would ensure informed and rational policymaking relating to place-based strategies. To conclude, distinguishing between cultures of possibility and cultures of learned helplessness across places, and the behavioural reasoning behind their

emergence and embeddedness, offers a means for a deeper consideration and understanding of regional development dynamics.

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