

## Neuroliberalism

Whitehead, Mark; Jones, Rhys ; Lilley, Rachel; Howell, Rachel; Pykett, Jessica

DOI:

[10.1177/0309132518777624](https://doi.org/10.1177/0309132518777624)

License:

Creative Commons: Attribution (CC BY)

*Document Version*

Publisher's PDF, also known as Version of record

*Citation for published version (Harvard):*

Whitehead, M, Jones, R, Lilley, R, Howell, R & Pykett, J 2018, 'Neuroliberalism: Cognition, Context, and the Geographical Bounding of Rationality', *Progress in Human Geography*.  
<https://doi.org/10.1177/0309132518777624>

[Link to publication on Research at Birmingham portal](#)

### General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

### Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact [UBIRA@lists.bham.ac.uk](mailto:UBIRA@lists.bham.ac.uk) providing details and we will remove access to the work immediately and investigate.



# Neuroliberalism: Cognition, context, and the geographical bounding of rationality

Progress in Human Geography

1–18

© The Author(s) 2018



Article reuse guidelines:

[sagepub.com/journals-permissions](https://sagepub.com/journals-permissions)

DOI: 10.1177/0309132518777624

[journals.sagepub.com/home/phg](https://journals.sagepub.com/home/phg)**Mark Whitehead, Rhys Jones and Rachel Lilley**

Aberystwyth University, UK

**Rachel Howell**

University of Edinburgh, UK

**Jessica Pykett**

University of Birmingham, UK

## Abstract

Focusing on the rise of the behavioural sciences within the design and implementation of public policy, this paper introduces the concept of neuroliberalism and suggests that it could offer a creative context within which to interpret related governmental developments. Understanding neuroliberalism as a system of government that targets the more-than-rational aspects of human behaviour, this paper considers the particular contribution that geographical theories of context and spatial representation can make to a critical analysis of this evolving governmental project

## Keywords

behaviour change, context, irrationality, neoliberalism, neuroliberalism

## I Introduction: Geography and neuroliberal government

The insights of the behavioural sciences have long been complicit within the acts of modern government (see Foucault, 2008 [2004]; Mettler, 2011; Nolan, 1998; Rose, 1985, 1998). As a result of the emergence of behavioural economics, the last ten years have seen a conspicuous increase in the relative influence of these sciences within public policy-making (see Oliver, 2013a, 2017; Mettler, 2011; Shafir, 2013; Sunstein, 2013; World Bank, 2015; World Economic Forum, 2018: 56–7). In this regard, the UK has been in the behavioural

vanguard. After coming to power in 2010, the UK's Coalition Government instigated a systematic engagement with behavioural forms of intervention and established a Behavioural Insights Team (Behavioural Insights Team, 2011a, 2011b; Halpern, 2015; Hilton, 2015; see John et al., 2011; Jones et al., 2013). But these behavioural developments have not been

---

## Corresponding author:

Mark Whitehead, Department of Geography and Earth Sciences, Aberystwyth University, Llandinam Building, Penglais Campus, Aberystwyth SY23 3DB, UK.

Email: [msw@aber.ac.uk](mailto:msw@aber.ac.uk)

confined to the UK. The Australian government's Public Service Commission (2007) has been actively promoting the use of behavioural psychology within the design of public policy. In the USA, the Obama administration established the White House Social and Behavioral Sciences Team, which worked with various federal agencies to explore the effective application of behavioural insights within public policy design.<sup>1</sup> Meanwhile countries as diverse as the Netherlands, Germany, Japan, Canada, Singapore, Guatemala, and Lebanon have all been active in the development of public policies that are informed by the behavioural sciences. At an international level, organizations including the European Commission, UNICEF, the World Bank, the OECD, EuropeAid, the World Economic Forum, and USAID are utilizing the insights of the behavioural sciences to address issues as diverse as loan repayments, fertilizer use, HIV/AIDS, and a range of public health and hygiene initiatives (see European Commission, 2013; Lunn, 2014; OECD, 2017; World Bank, 2015). In this paper, we propose a critical framework within which to analyse these governmental developments and consider the particular contributions that geographers can make to this project.

The contemporary mobilization of the behavioural sciences within the practices of government is routinely described through the technical nomenclature of behaviour change, or behavioural insights. Critical analyses have attempted to interpret related strategies through the notion of the *submerged state* (Mettler, 2011), or psychologically rebooted systems of governmentality (Jones et al., 2011). In this paper, we argue that the concept of *neuroliberalism* provides an alternative perspective through which to situate and critically analyse these novel modalities of behavioural government. We claim that while supporting critical interpretations of emerging forms of behavioural government, neoliberalism can signal a move beyond relatively narrow concerns over

the manipulative nature of related forms of power (as with accounts of the *submerged state*), while reworking the established assumptions of human subjectivity that undergird theories of governmentality.

Engin Isin (2004) was the first to suggest the concept of neoliberalism. For Isin, neoliberalism is '[a] rationality of government that takes its subject as the "neurotic citizen" and involves an orchestrated attempt to "govern through neurosis"'. Isin developed the concept of neoliberalism as a response to work on neoliberal governmentality (see Dean, 1999; Rose, 1999) that emphasized the subjective capacities of self-reflection, calculation and rationality (Greco and Stenner, 2013).<sup>2</sup> For Isin, neoliberalism was important to the extent that it drew attention to the orchestration of emotions, desires and affects within the establishment of governmental power. While inspired by the work of Isin, our use and interpretation of neoliberalism is a particular one. For us, neoliberalism denotes systems of government that are primarily characterized by the mobilization of novel cognitive strategies, emotions, and pre-cognitive affects as a way of securing preferred forms of social conduct while ostensibly supporting liberal orthodoxies of freedom.

We thus utilize the concept of neoliberalism to describe the increasing capacity of states, corporations, and non-governmental organizations to govern through a series of more-than-rational registers of human action (including habits, heuristics, emotions, affects, and social and environmental contexts), and to skilfully fuse behavioural power with liberal notions of freedom. Critically, in this paper we do not see neoliberalism as an ontological replacement of neoliberal government. Instead we are concerned with the varied ways in which neuropolitical developments shadow and interconnect with neoliberalism. In these contexts, we suggest that neoliberalism embodies three dimensions: (1) a series of new *scientific and intellectual perspectives* on the nature of the

human condition and how people should be governed; (2) an emerging, if still incoherent, set of *government practices* that connect behavioural power and liberalism; and (3) a context through which to analyse behaviourally informed styles of liberal government.

We believe that neoliberalism provides a framework for connecting together and evaluating the cumulative impacts of the behavioural, psychological, and neuro sciences on the governmental targeting of more-than-rational life. In this paper, we focus primarily on a particular aspect of neoliberalism, namely the impacts of behavioural economics on public policy. Behavioural economics reflects a creative fusion between cognitive psychology and economics, which has challenged many of the core assumptions of rationality associated with neo-classical economic thinking (Berndt, 2015). While representing only one expression of neoliberalism, behavioural economics has arguably been the most influential school of new behavioural thinking when it comes to actually existing governmental policy.

In addition to introducing the concept of neoliberalism, a central aim of this paper is to explore the contributions that geographical scholarship can make to the area of inquiry neoliberal government defines. The behavioural questions raised by the idea of neoliberalism are directly, but often disjointedly, addressed within a broad swathe of existing geographical scholarship (see Avineri, 2012; Barr and Prillwitz, 2013; Berndt, 2015; Boeckler and Berndt, 2012; Carter, 2015; Gill and Gill, 2012; Jones et al., 2011, 2013; Pykett et al., 2011; Strauss, 2008, 2009; Whitehead et al., 2011). Drawing on this body of scholarship, we argue that an important dimension of any critical theory of neoliberalism is an appreciation of its spatial parameters and assumptions. In particular, this paper reflects on the contribution that geographical scholarship can make to two important, if often overlooked, aspects of neoliberalism: (1) the *spatial qualities* of *behavioural context*;

and (2) *geographical representations of irrationality*. Focusing on these two perspectives, this paper uncovers key geographical contradictions and limitations that characterize neoliberalism.

This paper commences by unpacking the idea of neoliberalism. The second part of this paper explores the question of *behavioural context* in relation to place-based attempts to improve public health. The third section focuses on the application of neoliberalism within international development policies and the problematic representations of irrationality this involves. The discussion in this paper has been informed by extensive documentary research and over 100 interviews conducted with policy-makers, academics, and other parties associated with the use of behavioural insights throughout the public, private and non-governmental sectors over a nine-year period.<sup>3</sup>

## II On neoliberal government

Neoliberalism is best thought of in three interconnected ways: as a theory of human subjectivity and action; as an ontological expression of emerging government forms; and as a context for analysing emerging systems of behavioural government. We recognize that the suggested multi-dimensional forms of neoliberalism could lead to the obfuscation of the term and promiscuity in its application (see Clark, 2008). The dangers of obfuscation are, within our estimations at least, worth the risk. We claim that thinking of neoliberalism in these multi-dimensional ways enables the simultaneous identification, association, and critical analysis of a series of disparate, but connected, governmental developments. This section outlines the different forms of neoliberalism in turn.

### I Neoliberalism I: Theoretical project

Put most simply, neoliberalism is a form of behavioural government that is predicated upon

novel theories of human subjectivity and action that challenge neoliberal orthodoxies. Neoliberal systems of government are based upon visions of human behaviour that assume rational traits of motivation and action (see Becker, 1962). The so-called rationality assumption that sustains the neoliberal project asserts that people act on the basis of deliberative calculation and in the contexts of relative social isolation and self-interest (see Cohen, 2014). The presumption of rational human behaviour is *sine qua non* to the optimal allocation of resources and the avoidance of economic collusion, which are central to the neoliberal vision of society (Friedman, 2002). While recognized as a highly idealized interpretation of human behaviour, the rationality assumption is still seen by many to offer a close enough approximation of aggregate social conduct to be able to justify and support neoliberal systems of government (cf. Thaler, 2015). Two processes have served to undermine the *necessary myth* of human rationality upon which neoliberalism rests. The first are a series of emerging studies at the interface of psychology and economics (this interdisciplinary space is now commonly referred to as behavioural economics; Heukelom, 2011, 2012; Oliver, 2013a, 2017; Sent, 2014). Second are a number of real-world crises that exposed the fallacious behavioural assumptions of neoliberalism.

The first concerted challenge to the rationality assumption emerged out of the pioneering work on human decision-making by the polymath Herbert Simon. Simon challenged the presumption of rational action through the principle of *bounded rationality*. According to Simon, the bounding of human rationality was the product of both limited human cognitive capacities, and the fact that the real-world contexts in which we live rarely furnish us with the information we need to make optimal decisions (Simon, 1957). The early theoretical work of Herbert Simon was advanced during the 1970s and 80s by a group of psychologists and

economists who were interested in the empirical foundations of economic decision-making. The most prominent members of this new thought collective were Daniel Kahneman, Amos Tversky and Richard Thaler (Lewis, 2016; Sent, 2014; Thaler, 2015). Together these writers would help to lay the foundations for the field of behavioural economic study (see Sent, 2014). Behavioural economics challenges neo-classical economic theory on the basis of its presumption of rationality, and because of its collective neglect of empirical studies into actually existing human behaviours (Oliver, 2013a: 7; Strauss, 2008, 2009). Through empirical studies of economic decision-making in a range of contexts, behavioural economists demonstrated consistent deviations from the behaviours expected within neoclassical economic orthodoxy (Kahneman, 2012; Kahneman et al., 1982; Thaler, 2015; Thaler and Sunstein, 2008). These *deviant behaviours* generally include a tendency to follow the social herd; to prefer status quo to behavioural change; and to prioritize present over future needs (John et al., 2011). These systematic behavioural patterns were often acknowledged within economic theory but dismissed as ‘true but unimportant’ or ‘supposedly irrelevant factors’ (SIFs) (see Thaler, 2015). Over time, however, behavioural economists have provided ever more detailed studies of these cognitive biases and behavioural heuristics, which have made them difficult to ignore.

If behavioural economics provided a key scientific basis for neoliberalism, its popularization was clearly driven by a series of interconnected crises of neoliberal society. Central among these crises was the Credit Crunch of 2008, and subsequent Great Recession (Akerlof and Schiller, 2010). According to Akerlof and Schiller, the Sub Prime Crisis and Credit Crunch embodied the global aggregation of the irrational behaviours (particularly the misapprehension of risk) that behavioural economists had been describing for two decades (see also

Deutsche Bank, 2010; Boeckler and Berndt, 2012). Given that neoliberal theory could not account for its own failings, increasing credence was given to the notion that the crisis could be a product of the supposedly irrelevant behavioural factors it had routinely ignored. Following neoliberal interpretations of the economic crises of neoliberalism, a series of problems within neoliberal society are now being read in similar behavioural terms. It is now, consequently, common to see climate change (Marshall, 2015), obesity (De Ridder et al., 2013), gambling (Gobet and Schiller, 2014), and global poverty (Mullainathan and Shafir, 2013; World Bank, 2015) being explained through the sciences of neoliberalism (Leggett, 2014).

It is our contention in this paper that neoliberalism has emerged as both a scientific rebuke to the assumptions of neoliberal economic thinking and a set of practical responses to its observed crises. We assert, however, that far from being a rejection of neoliberal thinking, neoliberalism embodies a creative adaptation of the market-oriented norms of neoliberalism. Moreover, we claim that the geographical assumptions of neoliberalism are central to its ability to simultaneously critique and revalorize market-oriented systems of government and behaviour. Before we explore this point further, it is necessary to outline the practical forms and manifestations of neoliberalism as an actually existing system of government.

## 2 Neoliberalism II: Government practice

If the scientific foundations of neoliberalism can be located in behavioural economics, its practical inspirations derive from the principles of libertarian paternalism (or nudge, as it is commonly known) (see Thaler and Sunstein, 2008; Sunstein, 2014). Libertarian paternalism has two primary components. Its paternalist instincts are based upon the behavioural economic insights that humans often act irrationally

against their own best interests and therefore require certain forms of support in decision-making processes. It is libertarian to the extent that it seeks to ensure that an individual's freedom (usually expressed in their right to choose) is not undermined by behavioural government (Sunstein, 2014). To put things another way, libertarian paternalism embodies a practical expression of neoliberal government to the extent that it acknowledges (and exploits) human irrationality to serve collective behavioural goals (its *neuro*-logical component), while seeking to preserve aspects of human autonomy (its *liberal* aspect).

As a governmental project, libertarian paternalism has three key tropes: its *targets* (including emotions, habits, automatic forms of decision-making, and social norms *inter alia*); its *vectors of operation* (for example, peer-networks, choice environments, anchoring, data framing, and contagion); and its *methodologies of evaluation* (including randomized control trials, sentiment analysis, and *non-critical audit*). These tropes come together in a range of initiatives, which seek to reshape the choice environments that shape people's everyday life, in order to make it easier for people to make decisions that support purportedly more healthy, financially secure, and environmentally sustainable lives (Thaler and Sunstein, 2008). The second half of this paper will consider precisely what related neoliberal strategies involve through a discussion of two policy areas: public health and international development. At this point, however, it is pertinent to observe that neoliberal policies have been employed in a broad range of public policy areas (see Behavioural insights Team, 2011a, 2011b, 2012; Social and Behavioural Sciences Team, 2016).

While neoliberalism has been associated with the reshaping of the forms and functions of key areas of *front line* public policy, it has also offered a framework for evaluating government actions and failures in back office

operations within the *deep state* (see Galley et al., 2013; World Bank, 2015). The Canadian government and the World Bank have both considered the different ways in which the scientific insights associated with neoliberalism could be used to combat predictable forms of irrationality and error exhibited by governmental personnel (Galley et al., 2013; World Bank, 2015). In more concrete terms, Oliver (2013b) has suggested that neoliberal insights could be used to better understand and correct governmental overreaction to crises. In his analysis of the UK government's response to the Swine Flu pandemic, for example, Oliver suggests that the 'overreaction' that was observed (and which saw the National Health Service spend £1.2 billion (1% of its total annual budget) on prevention treatment) was a product of *ambiguity aversion*: a psychological tendency to overestimate the impacts of things that have a significant amount of uncertainty surrounding them (2013b: 16–31).

### 3 Neoliberalism III: Towards a critical framework

In addition to acting as a reference point for new theories of human subjectivity and government practice, we argue that neoliberalism could offer a basis to develop a critical theory of emerging processes of behavioural government. When we speak of a critical theory of neoliberalism we are referring to something analytically specific. A specifically critical theory of neoliberalism could offer three important analytical perspectives on emerging systems of behavioural government: (1) an interdisciplinary perspective; (2) an abstract orientation (with a particular concern with identifying contradictions in totalizing governmental practices); and (3) a focus on how things could be different (Brenner, 2009). It may seem strange to talk of a critical theory of neoliberalism as being interdisciplinary, given that the neoliberal project is already an inherently interdisciplinary

affair. In keeping with critical studies more generally, however, a critical theory of neoliberalism would entail a form of interdisciplinarity that moves beyond the predominantly technocratic and positivist zones of the psychological and design sciences. It is a form of interdisciplinarity that combines positivist questions of efficacy with broader metaphysical questions of purpose and ethics. More specifically – and as we argue below – it is an interdisciplinary project that would benefit in very specific ways from an engagement with key concerns within human geography, and the interdisciplinarity that is itself evident within the discipline of geography.

A critical theory of neoliberalism would also entail a decidedly abstract form of analytical orientation. The abstract orientation of a critical theory of neoliberalism is important because it interrupts the narrow empiricism that characterizes much of the science and practices of contemporary behavioural government. As with neoliberalism, neoliberal government appears set on establishing what Davis has referred to as a *political physics* which 'seeks to replace moral rules [...] with scientific rules [...] shift[ing] questions of normativity elsewhere, into the spheres of expert procedure and methodology' (2014: 15). This is a brand of empiricism that denies the existence of that which cannot be measured in the quantitative moment of the psychological and economic sciences. Denying the metaphysical context within which behavioural government is conducted closes off key moral debates and reduces the scope within which it is possible to discern the role of non-local forces in shaping observed behavioural patterns (this is an issue we return to in our discussion of *behavioural context* below).

The final key dimension of a critical theory of neoliberalism is the emphasis it brings to the *contingency of the present* – or how things could be different. While contingency may be a common theme within many branches of

contemporary social sciences, the sciences and practices of neoliberalism appear to leave only limited scope to explore the malleability of the present. While neoliberalism is clearly predicated on a project of change, this change is limited in two key ways. First, neoliberalism often operates in denial of the opportunity that individuals have to shape their own behavioural destiny in creative and empowering ways. Second, as a set of scientific and government practices neoliberalism is an exceptionally conformist project to the extent that it remains actively disinterested in the role that broader forms of social transformation can play in facilitating and shaping behaviour change (John, 2018: 10).

At this point it is important to consider the connections and parallels that exist between neoliberalism and perhaps the most significant critical theory of behavioural government of the last decade: governmentality. Theories of neoliberal governmentality have already been deployed in order to develop critical perspectives on the systems of behavioural government that are associated with neoliberalism (see Jones et al., 2011). It is our contention that as a distinctly liberal system of government, which seeks to govern (at both an individual and population level) in and through systems of personal freedom, neoliberalism embodies an adapted form of neoliberal governmentality (Foucault, 2008 [2004]; 2007 [2004]). As a regime of governmentality, neoliberalism also reflects the continuing desire to provide forms of biopolitical care for a population (Foucault, 2008 [2004]).<sup>4</sup> It is, however, now well established that neoliberal governmentality is a system of government that seeks to 'minimize costs and maximize profits' (Cook, 2016: 142). The minimization of costs is, in part, achieved on the basis of a reduced role for governments within the provision of collective forms of welfare. The maximization of profits is secured within neoliberal governmentality on the basis of individuals taking ever greater responsibility

for reflective forms of self-government, and personal improvement, which enhance both their productivity and wellbeing (Rose, 1999). It is on these terms of reference that neoliberalism expands the potential scope of inquiry associated with neoliberal governmentality. First, neoliberalism raises questions about neoliberal assumptions that individuals can effectively self-govern through systems of reflexive rationality. In this context, neoliberalism supports the further development of theories of governmentality that consider how irrationality becomes an object of self-governing reflexivity, and a target for new systems of biopolitical government. Second, and in the context of the Credit Crunch and Great Recession, neoliberal perspectives question whether a non-interventionist state is actually cost effective within society. To these ends, the critical theory of neoliberalism proposed in this paper builds on established concerns within theories of governmentality, but also seeks to draw particular attention to how the governing of irrational behaviours is being informed by new theories of both the self and the state.

### **III Neoliberalism in critical geographical perspective: Context and spatial representations of irrationality**

In one of the most detailed discussions of the relationship between geography and behavioural economics, Kendra Strauss explores the creative overlaps that exist between (economic) geography and neoliberal theories of human nature (Strauss, 2008). Strauss's analysis is interesting because it not only considers the utility of incorporating behavioural economics into geography, but also why this process has been so ponderously pursued. According to Strauss, behavioural economists' assault on the rationality assumption of neo-classical economics mirrors behavioural geography's attempts to 'humanize the economic' in the early 1970s



(2008: 137–8). The fact that behavioural geography has subsequently been rejected within critical economic geography – in favour of more socially and culturally embedded accounts of economic activity – has, however, made it difficult for an effective dialogue to be established between geography and the neoliberal sciences. Strauss claims that the insights of behavioural economics could now be used to draw renewed (and nuanced) attention to behaviour at a time when critical economic geography has lost sight of the individual (2008: 138). In what remains of this paper, we consider the potential for establishing a dialogue between various strands of critical geography and neoliberal inquiry, and the potential contributions that geography could make to the development of a critical theory of neoliberalism.

### *1 Neoliberalism and the problem of context*

One of the key nexus points between geography and neoliberal thought is the notion of context. Context matters in neoliberal thought in two main ways. First, the behavioural subject at the heart of the neoliberal project is one that is inherently context dependent. Unlike homo economicus, who exists in a form of frictionless space and of desert-island like isolation, the neoliberal subject's gestalt is contextual (Cohen, 2014) (although, as we argue below, neoliberalism deploys an ultimately thin understanding of context). The neoliberal citizen's behaviour is seen to be shaped by social context (and in particular peer pressure and herd instincts), material environments, decision-making frames, and the general push of the world around them (Kahneman, 2012). Second, context is the primary vector for neoliberal attempts to change and regulate human behaviour (Thaler and Sunstein, 2008). Consequently, through the careful development and orchestration of choice architectures in everyday environments of various kinds (including

school canteens, doctors' surgeries, streets, and staircases), neoliberalism pursues behavioural government not by changing the subject directly, but by subtly altering the surrounding world (as a route to ultimately changing behaviour). Neoliberalism's focus on context – and in particular the notion of choice architectures and environments – not only reflects the epistemological assumptions of emerging behavioural insights but is central to the political orientation of the neoliberal project (see Sunstein, 2014). Changing contexts in order to change behaviours is politically significant to neoliberals to the extent that it enables them to preserve the liberal values of personal freedom and choice: while the behavioural context may change, the opportunity for personal autonomy remains (Sunstein, 2014).

A concern with context has also been a defining characteristic of geographical inquiry since the inception of the discipline. Geographers routinely embrace the methodological mission of contextualizing more generalized insights concerning the nature of power, knowledge, and being within space. More specifically, the *contextual approach* within geography has consistently sought to interpret social life through an ontological commitment to the world as a series of evolving connections between people and things in space and time (Simonsen, 1991). According to Strauss (2009), although behavioural economists have sought to build more holistic and contextually oriented accounts of decision-making (which includes intuition, emotion, and imagination *inter alia*), their epistemological and methodological assumptions tend to critically limit 'the theorization of the context of decision making' (p. 303). Strauss goes so far as to say that, within behavioural economics at least, 'context itself is underdetermined and remains largely untheorized' (2008: 143). In order to better understanding the limitations of the contextual interpretations associated with neoliberalism it is instructive to consider an example of neoliberalism in (contextual)

practice. An appropriate example is provided by Carter's analysis of the fusing of nudges and neoliberalism in the US Blue Zones initiative.

According to Carter, the Blue Zone Project 'is a place-based, community centred, and commercial health promotion enterprise' that has been implemented in a growing number of US states and cities (2015: 374).<sup>5</sup> The Blue Zones project is based on the assumption that if we spend 90% of our time in the same everyday places, changing these places, and what we do in them, is central to living a healthy life (Blue Zone Project, 2017). At the heart of the project is the desire to transform places in such a way that it becomes easier to be healthy. The Blue Zone project reflects a geographical expression of neoliberalism to the extent that it uses small environmental adaptations so as to *gently bias context* in order to promote behaviours that support good physical and mental health (Carter, 2015: 375–6). A central vision within this neoliberal environmental strategy is to *deconvenience everyday spaces* (2015: 377). The Blue Zones Project's contextual strategy involves '[cities] build[ing] more sidewalks; citizens pledg[ing] to "deconvenience" their lives, for example by walking more and using shovels instead of snowblowers; school cafeterias, supermarkets, and restaurants were persuaded to offer healthier menu items [...]' (2015: 377). The Blue Zone Project uses neoliberal tactics in two key ways: (1) it targets environmental contexts as the basis for behavioural government; (2) in seeking to enable people to 'mindlessly move [their] way to better health' (Blue Zone LLC, 2013) it targets the human unconscious (Jones et al., 2013).

Carter develops an interesting, contextually-oriented critique of this particular form of neoliberal programme. According to Carter:

BZP [Blue Zone Project] promotes a thoroughly desocialized discourse about creating healthy communities. The BZP assiduously avoids contemplation of thorny structural determinants of

health, such as income and wealth, educational attainment, employment status, or race and ethnicity. (2015: 380)

Carter's critique suggests that while neoliberal policies re-contextualize human behaviour in certain ways (particularly with regard to the development of local physical infrastructures and community norms), they continue to decontextualize it in other ways (specifically class, race and ethnic relations). Carter's analysis resonates with other critiques of neoliberal policies (see Jones et al., 2013; Strauss, 2008, 2009). What these geographical critiques have in common is that they recognize neoliberalism's attempts to re-contextualize behavioural problems (such as health), while they also draw attention to the broader neoliberal tendency to de-socialize understanding of these issues.

Carter's analysis of the shortcomings of neoliberalism has much in common with Strauss's (2009) attempts to build a contextually based rapprochement between geography and behavioural economics. According to Strauss, while behavioural economics (and by extension neoliberalism) supports a fairly anaemic contextual perspective:

[a] *geographical* conception of context as the decision-making environment encapsulates the permeable and mutable scales implicated in the decision-making 'moment'. Thus, the articulation of space and place as part of the conceptual working through of the notion of context must include the scalar range of individual experience: from the individual to the global, from the intimate to the distanced, from embodied to disembodied forms of experience. (2009: 308–9)

Strauss thus asserts the importance of incorporating an appreciation of processes that operate at multiple contextual scales (including embodied experience, physical locality, company practices, national policies, and global financial markets) (2009: 308–9). Geographers have similarly argued that more attention should be paid to where these contextual scales

meet – connecting situated and embodied practices with the geo-historical *contextual rationalities* in which the neurosciences have emerged as dominant explanatory frames for a range of social and policy phenomena (Pykett, 2015). Crucially, this perspective (in keeping with Carter's) does not suggest that neoliberal insights (particularly at the level of human cognition of choice environment) are not of value to geographical enquiry but that, on their own, they can only offer limited forms of explanation for human conduct (and its capacity to be governed).

From this perspective, it is instructive to consider the more specific connections and divergences that exist between neoliberalism and geographical approaches to context. A helpful point of departure for this endeavour is Simonsen's (1991) geographical analysis of the contextuality of human action and life. In her attempt to reinvigorate the notion of context within geographical inquiry, Simonsen counters overly structuralist accounts of human life by introducing more subjectively oriented interpretations of action. Drawing on broadly Lefebvrian and Giddensian frameworks of social time and space, Simonsen identifies three dimensions of contextual temporality: *longue durée* (best understood in relation to trans-generational forms and institutions); *lifespan*; and the *durée of daily life* (in particular routines and habits) (1991: 427). Paralleling these, Simonsen proposes three aspects of contextual spatiality: *institutional spatial practices* (namely the structural and collective production of space); *place* (the sphere of the human attachment of meaning to space and the conscious appropriation of the surrounding environment); and *individual spatial practice* (the zone of spatialized habits, physical presence, and routine interaction) (1991: 428). Crucially, Simonsen claims that it is at the intersection of these different dimensions of context that the 'concrete production of social individuals' occurs (1991: 429). To put things perhaps more simply, it is

not so much that individual action is conditioned by context, but that subjectivity (in both its conscious and unconscious forms) is itself a product of contextuality.

Neoliberal approaches to temporal context tend to ignore the *longue durée* concerns that frame human action. The possible exception to this is the neoliberal interest in social norms. While social norms could be interpreted as inter-generational contextual phenomena, they tend to be approached within neoliberalism as relatively recent and highly malleable social conditions. Neoliberal policies do display some sensitivity to the *lifespan* dynamics of context, particularly in relation to recognizing how particular moments in life (such as moving home, having your first child, or going to college) provide opportunities for behavioural modification; or how our inability to effectively relate to our future selves prevents effective planning for our future needs. The sensitivity to lifespan displayed by neoliberal policies tends, however, to focus more on how our biography provides opportunities for isolated behavioural prompts (i.e. life-stage interventions), rather than recognizing how lifespan experiences shape our behavioural orientations in more continuous ways. Neoliberal approaches to temporal context tend to focus predominantly on the *durée of daily life* where our habits, routines, and customs become the target of behavioural interventions. Critically, however, neoliberalism's concern with the temporalities of daily life (from commuting to work to our bedtime cycles) tends to ignore the ways in which these behavioural patterns are an emerging part of the unfurling of inter-generational and lifespan contexts.

In relationship to the key dimensions of spatial context, neoliberalism tends to underestimate the *institutional spatial practices* that shape geography over relatively long periods of time and over large spatial scales. Neoliberal government's lack of concern with *institutional spatial practices* is demonstrated most

clearly by its tendency to assume the ease with which space can be transformed, and a predisposition to focus on changing choice architectures at relatively small scales. Neuroliberalism has a somewhat duplicitous relationship with the contextual power of *place*. As evidenced in the discussion of the Blue Zone Project above, neuroliberalism's emphasis on the creation of unconscious environmental cues to action tends to mean it downplays the significance of conscious social attachments to place (Carter, 2015). In other iterations, however, neuroliberal policies actively engage in the production of visibly meaningful places (in direct contrast to the ubiquitous non-spaces of modernity) as prompts for certain forms of behavioural action (this is particularly evident in policies which target anti-social behaviour of different kinds) (see Jones et al. (2013) for an analysis of the DIY Streets movement in the UK). The primary spatial focus of neuroliberalism's contextual strategies is the sphere of *individual spatial practice*. When combined with its focus on the *durée of daily life*, this means that neuroliberalism's contextual project tends to focus on the most proximate spatial and temporal determinants of human conduct.

There are several key insights that can be gained from a consideration of neuroliberalist contextual assumptions. The first is that within neuroliberalism context tends to be used as a tool of behavioural government and not as a hermeneutic framework for behavioural inquiry. This is precisely why we see such a strong contextual focus on the micro times and spaces of daily life and individual spatial practice. When neuroliberalism does concern itself with meso-level contextual horizons, such as lifespans and place-formations, it tends to do so in order to change short-term conduct, and not to better understand longer-term drivers of human action. Neuroliberalism's lack of concern with macro-level contextual considerations is significant not only because of the clear

epistemological lacuna it generates, but also because of what it tells us about the political orientation of the project – and its likely efficacy as a system of behavioural government. Politically it signals the relatively conformist nature (neuroliberalists prefer the term *radical incrementalism*) of the neuroliberal project, as it ignores key strategic and structural determinants of social life. According to Simonsen, 'the problem of contextuality is closely related to the problem of the mediation between structure and agency' (1991: 43). Neuroliberalism's focus on the micro-contexts of life does not just mean that it underestimates the power of more-than-local forces in conditioning human agency, but that it overemphasizes the agency of government projects to meaningfully shape conduct through context.

This paper asserts that the theorization of context is one of the key contributions that geography and geographers can make to critical analyses of neuroliberalism. Ultimately, this could lead to a more radical recasting of how we understand the relationship between human behaviour and context that challenges simplistic depictions of behaviour as isolated moments that can be easily ascribed to discrete actors. According to the work of Strauss (2008, 2009), however, context offers more than a route for critical geographical scrutiny of neuroliberal government. Context can also offer an interdisciplinary conduit through which emerging psychological insights into human cognition can enlighten geographical inquiry, while geographical concerns with time and space can inform neuroliberalism. For Strauss, this interdisciplinary project is about more than a theoretical dialogue, it is also a basis to promote multi-method studies of cognition and context, as the logical deductive experimentalism of psychology is fused with the forms of quantitative and qualitative methods that support geographical inquiry into multi-scalar contexts (Strauss, 2008: 312; see also Clark et al., 2012).

## 2 Neuroliberalism and the geographical representations of irrationality

The previous section focused on the ways in which neuroliberalism situates human behaviour at the interface of our cognitive limitations and contextual circumstances. This section focuses on another key, if often implicit, geographical dimension of neuroliberal thought and action: the geographical representations of irrationality. While the contextual drivers of human irrationality are openly discussed within neuroliberal discourse, neuroliberalism carries with it generally unacknowledged assumptions about the spatialization of irrationality. These spatial imaginaries of irrationality often invoke notions of backwardness and marginality (Berndt, 2015; Jones et al., 2013). Moreover, neuroliberal geographical imaginations of the irrational often also carry with them assumptions concerning the normative value of market integration and compliance (Boeckler and Berndt, 2012). Focusing on the application of neuroliberalism within international development policy, and building on the work of the economic geographer Christian Berndt, this section explores the fusing of geographical imaginations with neuroliberal visions of the irrational.

Various strands of international development policies are displaying the hallmarks of neoliberalist thinking and action. Recent research has revealed that prominent international development organizations including USAID, UNICEF, EuropeAid, the WHO, UNESCO, the United Nations Development Programme, and AusAid are utilizing neuroliberal styles of policy to support their international development work (Whitehead et al., 2014). This research has revealed that related initiatives have been applied in a wide range of policy areas, including the promotion of fertilizer use, public health initiatives (particularly those combating HIV/AIDs and diarrhoea), and various saving and investment schemes (Whitehead et al., 2014).

A key moment in the emergence of a neuroliberal international development policy regime was the publication of the World Bank's 2015 World Development Report, *Mind, Society and Behaviour*. This report directly challenges the neoclassical rationality assumptions that formed a crucial part of the Bank's neoliberal past and suggests ways in which the insights of the behavioural and psychological sciences could be applied to a range of development issues including poverty alleviation, early childhood development, and climate change mitigation (World Bank, 2015: 4–5).

What is particularly interesting about emerging neuroliberal development policies are the ways in which they creatively fuse psychological insights into the nature of human irrationality with imaginations of space and assumptions about market processes. The recent work of Berndt has focused specific attention on these interconnected themes (see Berndt, 2015; see also Boeckler and Berndt, 2012). Berndt has studied key international policy documents produced by the World Bank, OECD, and FAO, which seek to apply the insights of behavioural economics to anti-poverty initiatives in rural settings. We believe that the appropriate elaboration of Berndt's work has significant implications for the development of a geographically informed critical theory of neuroliberalism.

At the centre of Berndt's analysis is a recognition of the different comprehensions of the impoverished citizen that characterize neoliberal and neuroliberal world views. Neoliberal development policies treat those in poverty as if they have nothing behaviourally special about them: namely, that they can perform their role as rational actors within systems of market exchange as competently (or indeed incompetently) as the wealthy (2015: 577). Neuroliberalism (and the behavioural economic research it is often based upon) suggests, however, that 'the poor' are marked by distinctive behavioural shortcomings, that are a product of the cognitive toll that impoverishment places upon them.

These neoliberal assumptions are clearly evidenced in the World Bank's *Mind, Society and Behaviour* report. The Report states that '[w]hen individuals are under cognitive strain, it is even more difficult to activate the deliberative system. Poverty, time pressure, and financial stress all can cause cognitive strain' (World Bank, 2015: 27).

In order to demonstrate the cognitive limitations associated with poverty, the World Bank discusses the example of sugar cane farmers in India. The Bank reflects on cognitive tests that were carried out on these farmers before and after harvest periods: with pre-harvest periods being associated with the accumulation of debt and immediate post-harvest periods associated with an easing of financial strain (2015: 27; see also Mani et al., 2013). These tests revealed that not only did the farmers perform less well in cognitive processes during periods of poverty, but that the difference in scores between pre- and post-harvest performance was roughly the same as three-quarters of the deficit that an individual accrues when they lose a whole night's sleep (2015: 27). Neoliberal solutions to such cognitive problems revolve around the use of psychological devices that can make it easier for farmers to act in their own long-term interests, even when their immediate impoverishment makes this difficult. The World Bank thus supports the use of framing, anchoring, re-setting defaults, simplification techniques, and peer pressure within development policies related to the promotion of fertilizer use, loan products, and agricultural investment (World Bank, 2015: 26–75).

It is reasonable to assert that the particular psychological costs of poverty are now well-established within development economics and policy-making (see Mullainathan and Shafir, 2013). While acknowledging the behavioural problems that are generated by poverty may be a welcome challenge to neo-classical assumptions, there are political and ideological dangers that reside in the connections that are

being forged between irrationality and poverty. Exposing the links between irrationality and poverty can often result in subtle shifts in the equations of causality that connect these two conditions. It is thus one thing to recognize that poverty produces forms of irrationality (which can perpetuate poverty in the long term), but it is quite another to assume that the neoliberal mitigation of irrationality is enough to tackle the longer-term contextual drivers of global poverty. Berndt describes this policy change as 'a shift of attention from the market to the market subject, that is from market failure to behavioural failure, and from market regulation to behavioural engineering' (2015: 569).

It is our contention that the emerging connections that are being made between poverty and irrationality open up the possibility for a distinctively geographical critique of neoliberal poverty alleviation policies. According to Berndt, behavioural policies are producing new geographical imaginations of irrationality which, rather than questioning the operation of markets, are able to reaffirm markets as the solution to enduring regimes of poverty (2015: 584). Berndt asserts that these geographical representations of irrationality see:

On the one side [...] the 'poor', reduced to 'indigenous', 'local' and 'traditional' knowledge, populating a world characterized by small scale and traditional agriculture. On the other side we have 'the non-poor', trained and educated, involved in large-scale production using sophisticated farming methods. On the one side are poor small-holders, on the other entrepreneurial farmers. Dualist representations like this are particularly strong the closer ones get to the implementation stage. (2015: 579)

Such representations of irrationality see neoliberalism take an overt geographical form, with certain (non-market oriented) places becoming associated with forms of indigenous irrationality, while other, more entrepreneurial, locations are seen as bastions of reason. Such

geographical imaginations are in many ways not so much neoliberal as *neurocolonial*, to the extent that they not only connect poverty with irrationality but ‘traditional societies’ with a lack of reasoning capacity. It does appear that the World Bank is wary of neoliberalism becoming neurocolonial. They consistently emphasize that the cognitive limitations identified within neoliberal sciences are as much a feature of World Bank staff as those that they work with (2015: 4). At the same time, however, the report emphasizes the persistent inabilities of development professionals to grasp the mental models of the poor (2015: 180–90).

What is most significant about neoliberalism’s emerging geographical imagery is what it tells us about the spatial assumptions of such policies. While the distasteful neurocolonialism of such representations may catch the attention, this can distract from the epistemological work that such imaginaries do. It is not just that neoliberalism appears to equate irrationality with local, traditional and indigenous spaces, but it suggests that these spaces actively inhibit cognitive development. According to Berndt, many neoliberal policies are predicated on the assumption that it is because these spaces do not expose inhabitants to market forces that rationality is unable to develop (Berndt, 2015: 581). This reveals an assumed *geographical bounding of rationality*. The notion of the geographical bounding of rationality adds a problematic spatial dimension to the concept of bounded rationality that emerged at the beginning of the neoliberal project (Strauss, 2008). The geographical bounding of irrationality in this way serves important political and economic purposes. First, it disconnects evident irrationality and poverty in one place from the impacts of market development in another. From a critical geographical perspective, this fails to recognize the uneven geographies of economic development that emphasize the necessary connections between market success in one place, and under-development in another. Second, it

asserts that the solution to the problems associated with the spaces of impoverished irrationality is exposure to market forces. In addition to representing a form of structural adjustment policy operating at a neurological level, this assertion makes troubling assumptions about the very nature of rationality. Equating rationality with market-oriented reasoning not only denies the possibility that reason may be found in non-market oriented actions (such as reciprocity and care giving), it also fails to recognize how irrational actions can actually reflect sensible adaptive responses to particular circumstances (Gigerenzer, 2014).

Ultimately, the emerging connections that are being made between international development policies and understandings of irrationality signal critical contributions that geographers can make to the analysis of the spatial imaginaries of neoliberalism. These are contributions that not only draw attention to emerging patterns of neurocolonialism but also the geographical bounding of rationality. To these ends, geographers can play an important role in exposing the arbitrary assumptions concerning reason, irrationality, and market forces that often flow from neoliberal discourse.

## IV Conclusion

This paper has had two primary aims. First, it has proposed and unpacked the notion of neoliberalism as a context for analysing emerging forms of behavioural government. Second, it has explored the particular contributions that geography can make to the critical analysis of neoliberalism and the systems of psychological power with which it has become associated. In relation to the first aim of this paper, our analysis has outlined the main ways in which neoliberalism could contribute to the study of emerging systems of behavioural government. In one context, neoliberalism offers an integrative framework for connecting together a series of scientific insights and governmental

techniques through which it is becoming increasingly common to use psychological techniques to govern people in free societies. The integrative potential of neoliberalism represents an important starting point in attempts to try to make sense of the proliferation of new strategies for behavioural government. In another context, it has been proposed that a critical theory of neoliberalism could offer a valuable context in and through which to analyse emerging systems of behavioural government. Developing a critical theory of neoliberalism appears to be particularly significant given the ethical issues that related practices raise, and the lack of metaphysical perspective that is evident within the sciences of neoliberalism. The policies associated with neoliberal styles of government often celebrate their lack of abstraction and assert their pragmatic orientation. A critical theory of neoliberalism can, however, help to expose the likely practical failings of such systems of government, as well as revealing their conformist inability to address engrained forms of uneven development and injustice.

In relation to the second aim of this paper, our analysis has introduced existing work that has sought to connect geographical concerns with neoliberal processes. Particular attention has been drawn to the questions of context and geographical representations of irrationality. The analysis presented here reveals that while neoliberalism is a contextually oriented project, its mobilizations of contextual factors ignore (inadvertently or otherwise) long-term temporal issues and large-scale spatial processes. Through a consideration of existing analyses of neoliberal policies for international development, this paper has also explored an apparent lack of awareness of the forms of geographical representations they promote, and the neurocolonial and neuro-responsibilizing undercurrents they support. What unites these critical geographical perspectives on context and spatial representation is that they reveal the

ways in which geography, in particular, plays a crucial role in enabling neoliberalists to justify their actions on the basis of the failures of markets, only to use their policies to promote market norms.

Ultimately, this paper proposes that the notion of neoliberalism offers geographers a novel perspective on emerging forms of psychological power and potentially valuable insights into human motivation and action. Furthermore, we claim that geographers have much to offer evaluative and critical interpretations of neoliberalism. It appears likely in the combined wake of the crises of neoliberalism, and the enduring power of market systems, that neoliberalism (in various forms and guises) is going to grow in influence. In this context, we believe that geographers have a particularly important role to play in exposing the spatial limitations and contradictions of the neoliberal project.

### **Declaration of conflicting interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

This research was funded by the UK's Leverhulme Trust and Economic and Social Research Council.

### **Notes**

1. The work of this team was bolstered by the Presidential Executive Order – Using Behavioral Science Insights to Better Serve the American People. This Executive Order that was issued by Barack Obama in 2015 compels federal agencies to fully realize the benefits of behavioural insights.
2. Drawing on Horney's (1991 [1950]) theories of neurosis, Isin's work had two primary goals. First, he draws attention to the role of certain forms of emotions, desires and affects within the orchestration of governmental power. Second, and mobilizing Horney's more sociologically oriented theory of neurosis, Isin explored the broader political and economic origins of emotional power, and thus challenged the narrow exploration of anxiety that was common within the psychological and



the neurological sciences (see Greco and Stenner, 2013).

3. The full transcripts of some of these interviews, and related interview schedules and ethical consent forms, are available to download at the UK Data Service: <http://reshare.ukdataservice.ac.uk/851870/>
4. It is interesting to note that in his 1978 lecture series at the Collège de France, entitled 'The Birth of Biopolitics', Foucault anticipated a form of neoliberal governmentality (Foucault, 2008 [2004]: 268–71). According to Foucault, the emerging realization within neoliberal economics in the 1960s that the body of actions defined as 'irrational' actually reflects a surprisingly predictable set of non-random acts had significant implications for how it might be possible to govern liberal societies (pp. 269–70). Foucault essentially discerns within the economic study of irrationality the potential for a new model of psychologically imbued neoliberal governmentality that would emerge 30 years later (p. 270).
5. The title Blue Zones comes from Dan Buettner's 2008 book *Blue Zones*. In this book Blue Zones refer to those places in the world – such as Sardinia and Okinawa – where life expectancy is on average much higher than the rest of the world (the colour blue is significant here only to the extent that it is the colour that he used to mark out these 'longevity hotspots' on maps; Carter, 2015: 376).

## References

- Akerlof GA and Schiller RJ (2010) *Animal Spirits: How Human Psychology Drives the Economy and Why It Matters for Global Capitalism*. Princeton: Princeton University Press.
- Australian Public Service Commission (2007) *Changing Behaviour: A Public Policy Perspective*. Canberra: Australian Government.
- Avineri E (2012) On the use and potential of behavioural economics from the perspective of transport and climate change. *Journal of Transport Geography* 24: 512–521.
- Barnett C (2008) Political affects in public space: Normative blind-spots in non-representational ontologies. *Transactions of the Institute of British Geographers* 33: 186–200.
- Barr SW and Prillwitz J (2013) A smarter choice? Exploring the behaviour change agenda for environmentally sustainable mobility. *Environment and Planning C* 32: 1–19.
- Becker G (1962) Irrational behavior and economic theory. *The Journal of Political Economy* LXX: 1–13.
- Behavioural Insights Team (2011a) *Behaviour Change and Energy Use*. London: Cabinet Office.
- Behavioural Insights Team (2011b) *Better Choices: Better Deals. Consumers Powering Growth*. London: Cabinet Office.
- Behavioural Insights Team (2012) *Applying Behavioural Insights to Reduce Fraud, Error and Debt*. London: Cabinet Office.
- Berndt C (2015) Behavioural economics, experimentalism and the marketization of development. *Economy and Society* 44: 567–591.
- Blue Zone Project (2017) Make the healthy choice the easy choice. Available at: <https://www.bluezonesproject.com/> (accessed 22 September 2017).
- Boeckler M and Berndt C (2012) Geographies of circulation and exchange III: The great crisis and marketization 'after markets'. *Progress in Human Geography* 37(3): 424–432.
- Brenner J, Peck J and Theodore N (2009) Variegated neoliberalization: Geographies, modalities, pathways. *Global Networks* 10: 182–222.
- Brenner N (2009) What is critical urban theory? *City* 13: 198–207.
- Carter ED (2015) Making the Blue Zones: Neoliberalism and nudges in public health promotion. *Social Science and Medicine* 113: 374–382.
- Centre d'analyse stratégique (2011) *'Green Nudges': New Incentives for Ecological Behaviour*. Paris: Centre d'analyse stratégique.
- Clark GL, Strauss K and Knox-Hayes J (2012) *Saving for Retirement: Intention, Context, and Behaviour*. Oxford: Oxford University Press.
- Clark J (2008) Living with/in and without neo-liberalism. *Focaal* 51: 135–147.
- Cohen D (2014) *Homo Economicus: The (Lost) Prophet of Modern Times*. Cambridge: Polity Press.
- Conly S (2013) *Against Autonomy: Justifying Coercive Paternalism*. Cambridge: Cambridge University Press.
- Cook J (2016) Mindfulness in Westminster: The politics of meditation and the limits of neoliberal critique. *Hau: Journal of Ethnographic Theory* 6: 141–161.
- Crampton J and Elden S (eds) (2007) *Space, Knowledge, Power: Foucault and Geography*. London: Ashgate.
- Davis W (2014) *The Logics of Neoliberalism: Authority, Sovereignty and the Logics of Competition*. London: Sage.
- De Ridder DTD, De Vet E, Stok FM, Adriaanse MA and De Wit JBF (2013) Obesity, overconsumption and

- self-regulation failure: The unsung role of eating appropriateness standards. *Health Psychology Review* 7: 146–165.
- Dean M (1999) *Governmentality: Power and Rule in Modern Society*. London: Sage.
- Deutsche Bank Research (2010) *Homo economicus – or More Like Homer Simpson*. Frankfurt: Deutsche Bank.
- Du Plessis E (2011) *The Branded Mind: What Neuroscience Really Tells Us about the Puzzle of the Brain and the Brand*. London: Kogan Page.
- European Commission (2013) *Applying Behavioural Sciences to EU Policy-making*. Luxembourg: Publication Office of the European Union.
- European Union (2016) *Behavioural Insights Applied to Policy – European Report*. Available at: [http://publications.jrc.ec.europa.eu/repository/bitstream/JRC100\\_146/kjna27726enn\\_new.pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC100_146/kjna27726enn_new.pdf) (accessed 16 March 2016).
- Foucault M (2007 [2004]) *Security, Territory and Population: Lectures at the Collège de France 1977–78*, trans. Burchell G. Basingstoke: Palgrave-Macmillan.
- Foucault M (2008 [2004]) *The Birth of Biopolitics: Lectures at the Collège de France 1978–79*, trans. Burchell G. Basingstoke: Palgrave-Macmillan.
- Friedman M (2002) *Capitalism and Freedom*. Chicago: University of Chicago Press.
- Galley A, Gold J and Johal S (2013) *Public Service Transformed: Harnessing the Power of Behavioural Insights*. Toronto: University of Toronto Press.
- Gigerenzer G (2014) *Risk Savvy: How to Make Good Decisions*. London: Allen Lane.
- Gill N and Gill M (2012) The limits to libertarian paternalism: Two new critiques and seven best practice imperatives. *Environment and Planning C: Government and Policy* 30: 924–940.
- Gobet F and Schiller M (eds) (2014) *Problem Gambling: Cognition, Prevention and Treatment*. Basingstoke: Palgrave Macmillan.
- Greco M and Stenner P (2013) Happiness and the art of life: Diagnosing the psychopolitics of wellbeing. *Health, Culture and Society* 5: 1–18.
- Halpern D (2015) *Inside the Nudge Unit: How Small Changes Make a Big Difference*. London: WH Allen.
- Harvey D (2005) *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Heukelom F (2011) What to conclude from psychological experiments: The contrasting cases of experimental and behavioural economics. *History of Political Economy* 43: 649–682.
- Heukelom F (2012) A sense of mission: The Alfred P. Sloan and Russell Sage Foundations Behavioral Economics Program, 1984–1992. *Science in Context* 25: 263–286.
- Hilton S (2015) *More Human: Designing a World Where Humans Come First*. London: WH Allen.
- Horney K (1991 [1950]) *Neurosis and Human Growth: The Struggle towards Self-realization*. New York: W. W. Norton & Co.
- Isin E (2004) The neurotic citizen. *Citizenship Studies* 8: 217–235.
- John P (2018) *How Far to Nudge: Assessing Behavioural Public Policy*. Cheltenham: Edward Elgar.
- John P, Cotterill S, Moseley A, Richadson L, Smith G, Stoker G and Wales C (2011) *Nudge, Nudge, Think, Think*. London: Bloomsbury.
- Jones R, Pykett J and Whitehead M (2011) Governing temptation: Changing behaviour in an age of libertarian paternalism. *Progress in Human Geography* 35: 483–501.
- Jones R, Pykett J and Whitehead M (2013) *Changing Behaviours: On the Rise of Psychological State*. Cheltenham: Edward Elgar.
- Jones R, Pykett J and Whitehead M (2014) The geographies of policy translation: How nudge became the default policy option. *Environment and Planning C: Government and Policy* 32: 54–69.
- Kahneman D (2012) *Thinking Fast and Slow*. London: Penguin Books.
- Kahneman D, Slavic P and Tversky A (eds) (1982) *Judgment under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.
- Leggett W (2014) The politics of behaviour change: Nudge, neoliberalism, and the state. *Policy and Politics* 42: 3–19.
- Lewis M (2016) *The Undoing Project*. London: Penguin.
- Lunn P (2014) *Regulatory Politics and Behavioural Economics*. OECD Publishing. Available at: [http://www.keepeek.com/Digital-Asset-Management/oecd/governance/regulatory-policy-and-behavioural-economics\\_9789264207851-en#page3](http://www.keepeek.com/Digital-Asset-Management/oecd/governance/regulatory-policy-and-behavioural-economics_9789264207851-en#page3) (accessed 17 March 2014).
- Mani A and Mullainathan Shafir E (2013) Poverty impedes cognitive function. *Science* 341: 976–980.
- Marshall G (2015) *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*. New York: Bloomsbury.
- Mettler S (2011) *The Submerged State: How Invisible Government Policies Undermine American Democracy*. Chicago: University of Chicago Press.

- Mullainathan S and Shafir E (2013) *Scarcity: Why Having Too Little Means So Much*. New York: Times Books.
- Nolan JL Jr (1998) *The Therapeutic State: Justifying Government at Century's End*. New York: New York University Press.
- OECD (2017) *Behavioural Insights and Public Policy – Lessons from Around the World*. Paris: OECD.
- Oliver A (ed.) (2013a) *Behavioural Public Policy*. Cambridge: Cambridge University Press.
- Oliver A (2013b) Ambiguity aversion and swine flu. In: Oliver A (ed.) *Behavioural Public Policy*. Cambridge: Cambridge University Press, 16–31.
- Oliver A (2017) *The Origins of Behavioural Public Policy*. Cambridge: Cambridge University Press.
- Pykett J (2015) *Brain Culture: Shaping Policy through Neuroscience*. Bristol: Policy Press.
- Pykett J, Jones R, Whitehead M, Huxley M, Strauss K, Gill N, McGeevor K, Thompson L and Newman J (2011) Interventions in the political geography of 'libertarian paternalism'. *Political Geography* 30: 301–310.
- Rose N (1985) *The Psychological Complex: Psychology, Politics and Society in England, 1869–1839*. London: Routledge and Kegan Paul.
- Rose N (1998) *Inventing Ourselves: Psychology, Power and Personhood*. Cambridge: Cambridge University Press.
- Rose N (1999) *Powers of Freedom: Reframing Political Thought*. Cambridge: Cambridge University Press.
- Sent E-M (2004) Behavioural economics: How psychology made its (limited) way back into economics. *History of Political Economy* 4: 735–760.
- Shafir E (ed.) (2013) *The Behavioural Foundations of Public Policy*. Princeton: Princeton University Press.
- Simon H (1957) *Models of Man: Social and Rational*. London: John Wiley and Sons.
- Simonsen K (1991) Towards an understanding of the contextuality of modern life. *Environment and Planning D: Society and Space* 9: 417–431.
- Social and Behavioural Sciences Team (2016) *Social and Behavioural Sciences Team 2016 Annual Report*. Washington, DC: National Science and Technology Council. Available at: <https://sbst.gov/download/2016%20SBST%20Annual%20Report.pdf> (accessed 20 July 2017).
- Strauss K (2008) Re-engaging with rationality in economic geography: Behavioural approaches and the importance of context in decision-making. *Journal of Economic Geography* 8: 137–156.
- Strauss K (2009) Cognition, context, and multimethod approaches to economic decision making. *Environment and Planning A* 41: 302–317.
- Sunstein C (2013) *Simpler: The Future of Government*. New York: Simon and Schuster.
- Sunstein C (2014) *Why Nudge: The Politics of Libertarian Paternalism*. New Haven: Yale University Press.
- Tallis R (2011) *Aping Mankind: Neuromania, Darwinitis and the Misrepresentation of Humanity*. Durham: Acumen.
- Thaler R (2015) *Misbehaving: The Making of Behavioural Economics*. London: Allen Lane.
- Thaler RH and Sunstein CR (2008) *Nudge: Improving Decisions about Health, Wealth and Happiness*. London: Yale University Press.
- Whitehead M, Howell R, Jones R, Lilley R and Pykett J (2014) Nudging all over the world: Assessing the global impact of the behavioural sciences on public policy. Available at: <https://changingbehaviours.files.wordpress.com/2014/09/nudgedesignfinal.pdf> (accessed 16 June 2016).
- Whitehead M, Jones R and Pykett J (2011) Governing irrationality, or a more-than-rational government: Reflections on the re-scientization of decision-making in British public policy. *Environment and Planning A* 43(12): 2819–2837.
- World Bank (2015) *Mind, Society and Behavior: World Development Report*. Washington, DC: World Bank Group.
- World Economic Forum (2018) *Global Risks Report 2018*. Available at: <https://www.weforum.org/reports/the-global-risks-report-2018> (accessed 10 April 2018).

### Author biographies

**Mark Whitehead** is a Professor of Political Geography.

**Rhys Jones** is a Professor of Human Geography.

**Rachel Lilley** is a Researcher and Trainer in Behaviour Change and Mindfulness.

**Rachel Howell** is a Lecturer in Sociology/Sustainable Development.

**Jessica Pykett** is a Senior Lecturer in Human Geography.