

1 **Can the market be tamed? A thought experiment on** 2 **the value(s) of planning**

3 **Abstract**

4 In many contexts across the globe the scope and remit of planning is being limited. Much of the
5 academic literature identifies this tendency as arising from a tension between planning as a state-
6 regulatory activity and the tenets of neoliberalism – particularly free market competition. In this
7 essay we seek to explore the degree to which this perceived incompatibility between planning
8 and the neoliberal order is genuinely real by running a thought experiment. We hope to show
9 that thinking about the development process in this way points to alternative ways of imagining
10 the scope and remit of planning – and how the normative principles at the core of the activity
11 might be reconciled, or even extended, within the context of a neoliberal polity.

13 **Introduction**

14 In many contexts across the globe the scope and remit of urban and environmental planning is
15 being limited (Gunder, 2016; Gunn and Hillier, 2012; Hrelja, 2011; Holman, Mossa and Pani,
16 2017; Mäntysalo and Saglie, 2010; MacCullum and Hopkins, 2011). As an activity that has
17 statutory regulation at its core it often grates against the now more or less fixed neoliberal
18 orthodoxy that posits the market as locomotive of progress against bureaucracy as a brake on
19 development (Brenner and Theodore, 2005; Fisher and Gilbert, 2013; Jones, 2012). Although
20 the specific anatomy of the neoliberal order varies from nation to nation some core similarities

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6 21 have been catalogued and planning's corresponding incompatibility with these principles
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8 22 identified (for example, Lovering, 2009).
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11 23 For some academics interested in making the case in favor of planning, corresponding attempts
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13 24 to diminish the professional activity to make way for the market have been understood as an
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15 25 'attack' (Lord and Tewdwr-Jones, 2014). Others have highlighted the continuing public interest
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17 26 justification that spawned planning in the first place (Campbell, 2012). In some cases (Campbell
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19 27 and Fainstein, 2012) the defence of planning, quite correctly, points out that the environment
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21 28 (widely construed) is a very complex asset that is not well captured by those analyses of planning
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23 29 that categorise it as a restrictive drag on economic growth (Cheshire and Sheppard, 2005; Nathan
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25 30 and Overman, 2011). This point has been extended by research that has sought to investigate
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27 31 much more fully planning's specific 'added value' (Adams and Watkins, 2014; Adams and
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29 32 Tiesdell, 2010). The net result of work in this vein has been to challenge the logic that real estate
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31 33 markets would respond effectively to market signals if it was not for the planning system.
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33 34 Correspondingly, the argument has emerged that there may be value in thinking of planning as a
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35 35 'market maker' (Lord and O'Brien, 2017) and that planning may be conceived as an important
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37 36 foil to the neoliberal hegemony rather than explicitly incompatible with it.
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41 37 But what would this type of planning look like? Could we imagine ways in which a modernised
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43 38 planning might combine these 'market making' aspects with its normative ends and professional
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45 39 ethics: the public interest, social inclusion, environmental sustainability, balanced development?
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48 40 An important strain in the literature would suggest not. A sustained body of work has emerged
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50 41 on the incompatibility of planning's social and environmental goals with the core attributes of
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52 42 neoliberal capitalism. The result is that an earlier proposed 'sustainability fix' (While, Jonas and
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54 43 Gibbs, 2004) has, following thoroughgoing empirical investigation, given way to scepticism that
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6 44 a balance can be struck (Bina, 2013; Georgeson, Caprotti and Bailey, 2014; Gibbs and O’Neil,
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8 45 2014; Krueger and Gibbs, 2007; O’Neil and Gibbs, 2016). For an area of public policy which is
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10 46 charged with precisely this task of taming the market, this question is particularly germane to
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12 47 planning. Although rarely confronted explicitly in the planning literature some, such as
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14 48 Campbell, Tait and Watkins’ (2014), have posed the question directly: “Is there space for better
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16 49 planning in a neoliberal world?” (see also, Legacy, Lowe and Cole-Hawthorne, 2016). At one
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18 50 remove Holman, Mossa and Pani’s (2017) work has made a significant contribution through an
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20 51 exploration of the empirics of this question by looking at planning reform in England to explore
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22 52 the points of convergence and divergence between planning’s economic and ethical value(s).

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26 53 In this paper we hope to further this debate by exploring from first principles the relationship
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28 54 between how planning systems function at a human level and the outcomes they might entail. In
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30 55 this respect our aim is to advance the literature on planning’s capacity to effect meaningful
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32 56 change in business decision making by exploring the intersection of “how real estate developers
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34 57 think” (Brown, 2015) and how they might act and, correspondingly, any influence planning
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36 58 might have in this regard. In this respect our contribution is to the nascent work that seeks to
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38 59 develop a ‘behavioral insights’ take on planning (Bond et al., 2016; Ferrari et al., 2011; Jackson
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40 60 and Watkins, 2008; Lord, 2009, 2012).

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44 62 **The development process: rationality, belief and human behaviour**

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49 63 There is now a huge corpus of research on the development process, much of it inspired by
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51 64 various branches of economics. Perhaps the best example of this crossover comes in the shape
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53 65 of transaction cost approaches that seek to understand the development process through the

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6 66 lens provided by the New Institutional Economics (Alexander, 1992, 2001; Lai, Ngar Ng and
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8 67 Yung, 2008; Webster, 2005). For adherents this framework provides a persuasive way of reading
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10 68 off outcomes from the governance arrangements and the interaction of the prevailing set of
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12 69 institutions (widely construed to include formal codes and informal norms of practice) that exist
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14 70 in a particular context. However, its *post-hoc* vantage point and the primacy accorded to the rules
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16 71 and institutional players of the game - as opposed to the *interpretation* of those rules that result in
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18 72 the human behaviors of those who people the institutions (or act individually) – have meant that
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20 73 not all are convinced. Fischer’s (1977:322) early unease remains relevant: “Transaction costs
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22 74 have a well-deserved bad name as a theoretical device, because solutions to problems involving
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24 75 transaction costs are often sensitive to the assumed form of the costs, and because there is a
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26 76 suspicion that almost anything can be rationalized by invoking suitably specified transaction
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28 77 costs.”
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32 78 In response some researchers have turned to game theory. Perhaps the fundamental motivating
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34 79 factor encouraging the infusion of this school of economic thought into planning research is the
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36 80 recognition that the markets that planning regulates are really quite peculiar. The development
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38 81 process, irrespective of contextual setting, is overlaid with specific qualitative features that speak
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40 82 very closely to the questions with which game theory (and behavioral economics) deal: the
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42 83 decision making process pits hypothetical development against unpriced public goods, usually
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44 84 environmental assets; buyers and sellers may take a very long time to negotiate a mutually
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46 85 agreeable settlement; the decision to develop is (almost always) irreversible and creates landscape
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48 86 altering externalities that cast a decades-long shadow; and the issue of local democratic control is
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50 87 a relevant consideration in many settings. These observations alone point to the limitations of
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52 88 econometric estimations of planning’s costs devoid of any corrective for the effect the activity
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6 89 has on the *quality* of market conditions or the things it achieves that lie outside the parameters of
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8 90 any given model.
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11 91 In those cases where game theory has been applied to planning-orientated questions the focus
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13 92 has usually been on the specific microeconomics of urban transformation, particularly questions
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15 93 of land readjustment and compensation policy (Samsura, van der Krabben and van Deemen,
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17 94 2010, 2015). At one remove, others have shown the utility of using concepts from game theory
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19 95 to think about the dissemination of information and how this affects the strategies employed by
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21 96 all those who have any conceivable role in the development process (Kaza and Hopkins, 2009).
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23 97 The shared underlying logic of research in this vein suggests a fundamentally altered way of
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25 98 thinking about the economics of land-use planning more widely.
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29 99 Alternative approaches to thinking about the development process have encompassed the use of
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31 100 'big data' and econometric methods to simulate (aspects of) the production of the built
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33 101 environment (Brotchie, Sharpe and Toakley, 1973; Gómez-Antonio and Hortas-Rico, 2016;
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35 102 Jiang, Deng and Seto, 2013; Reades, 2014), systems- and complexity theory-inspired approaches
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37 103 (Chadwick, 1978; Hillier, de Roo and van Wezemael, 2016) and others that single out variations
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39 104 in agential power and the chronology of the process as holding explanatory power (Farías and
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41 105 Bender, 2010; Gar-On Yeh and Wu, 1996; Landis, 1995; Yigitcanlar and Teriman, 2015). At
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43 106 the intersection of these contributions sits an array of research which combines insights from
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45 107 consonant approaches - such as agent-based modelling (ABM), which seeks to marry the impulse
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47 108 to simulate with an appreciation of human agency (Batty, 2005). The promise of this approach is
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49 109 yet to be fully realized as the application of agent-based modelling to the development process is
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51 110 in its infancy (Baptista et al., 2016; Levy, Martens and van der Heijden, 2016).
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6 111 There are exciting developments in, and at the confluence of, all these approaches. However,
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8 112 although the various ways of thinking about the development process sketched out above offer
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10 113 rich insights into the specifics of the development process from place to place we lack a
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12 114 thoroughgoing epistemological framework that would allow us to make part-whole connections
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14 115 across the, often, case-based empirical literature. Indeed, perhaps the single most important
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16 116 overriding message that emerges from the literature as a whole is that it makes little sense to talk
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18 117 of *the* development process when there are such huge variations between contexts: for example,
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20 118 the discretionary system of the UK, US zoning arrangements and Chinese statutory orchestration
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22 119 are systemically very distinct with huge variations in both legal framework and norms of practice.
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25 120 This point is well made in the classic statements of planning as a context-specific activity
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27 121 comprising multi-agent negotiations (and other communicative acts) (Forester, 1999; Healey,
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29 122 1997). Therefore, to develop any kind of theoretically nuanced understanding of the
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31 123 development process that prevails in any particular context means engaging with the human
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33 124 psychology of decision making.

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36 125 This presents a very specific challenge in two respects. Firstly, in theoretical terms we have to be
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38 126 able to accommodate an understanding that participants in the development process may be
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40 127 acting on the basis of their beliefs about one another. By extension these beliefs alone may have
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42 128 a significant bearing on individual (and collective) action and the outcomes that might result.
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44 129 Secondly, we need to be able to translate this understanding into empirical investigation. This
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46 130 would allow us to develop behavioral insights into the specifics of the 'planning game' that plays
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48 131 out in any particular context.

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51 132 In this paper we hope to address the first question: how could we theorise counterparty
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53 133 interaction in the development process to elucidate the importance of the beliefs that each forms
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6 134 about the other(s)? In so doing we hope to make the case that market intervention in the form
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8 135 of urban and environmental planning could have an effect on how developers think that in turn
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10 136 shapes how they act. We argue that this vision of planning as a market actor that regulates
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12 137 beliefs opens the door to imagining the sorts of planning system that could have a meaningful
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14 138 impact on business decision making. To do this we use the medium of a simplified thought
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16 139 experiment. This approach has become the principal way of thinking about the underlying
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18 140 philosophical question – what we can know of other minds – and can be seen in classic examples
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20 141 such as the ‘brain in a jar’ (see also, Avramides, 2001; Ryle, 1949). The thought experiment
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22 142 allows us to explore from first principles under what circumstances we might come to have true,
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24 143 justified beliefs about cognition, behavior and language in others. The specific nature of the
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26 144 thought experiment is a scenario – not always one that must closely mirror reality (as with the
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28 145 ‘brain in a jar’) – that provides a framing device to explore a specific question often pertaining to
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30 146 a fundamental principle of epistemology, metaphysics, logic or ethics. Thought experiments
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32 147 often take a greatly simplified or superficially contrived format to allow us to test the limits of
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34 148 some imagined state, for example, Hardin’s original iteration of the *Tragedy of the Commons* (and
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36 149 developments thereupon) serve perfectly to illustrate this point (Hardin, 1968; Cole, Epstein and
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38 150 McGinnis, 2014; Feeny et al., 1990).

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43 151 The medium of the thought experiment is well-aligned to our objectives in this paper as we seek
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45 152 to explore from first principles the effects of belief on the development process, how beliefs
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47 153 might affect outcomes and how beliefs might be shaped through regulation. As established in
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49 154 the foregoing discussion there cannot be said to be any singular real world with respect to the
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51 155 development process: there are myriad approaches taken that vary wildly from place to place.
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53 156 So, our aim is explicitly not to give a fine-grained rendering of how affecting beliefs might alter
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6 157 how the development process might work out in any specific location. We fully acknowledge
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8 158 that behaviors and the beliefs that motivate them are to some extent a reflection of the rules of
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10 159 the game established in a particular context. Instead our aim is to consider the problem in the
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12 160 abstract through a simplified thought experiment that removes the issue of empirical context.
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15 161 In what follows we run a thought experiment that follows the well known folk game “Going to
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17 162 the Party” and in structural terms begins by mirroring the traditional rendering (for example see
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19 163 Perea, 2012). The purpose of the thought experiment is to explore how, even in a simplified
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21 164 scenario involving just two participants, a range of possible outcomes can be imagined *dependent*
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23 165 *upon what each participant believes regarding the other*. Each outcome is rational and reasonable: a set of
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25 166 potential ‘states of the world’ (Rasmusen, 2006). Which set of outcomes is preferable is wholly
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27 167 normative and would require prescription - an answer to the separate but not unrelated question
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29 168 of what *should* be the underpinning goals of a system designed to mediate competing ends *vis a vis*
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31 169 how our environment is governed. It is our contention in this paper that it is the value - *and in*
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33 170 *the values* - of a planning system to appreciate that a range of potential outcomes are possible, that
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35 171 they are belief-driven and that planning has the agency to seek to manage the beliefs that shape
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37 172 the process towards one of these end states.
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41 173 Although we have explicitly and deliberately not sought to develop a thought experiment that
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43 174 exactly mirrors a specific case from the material world we have started, as with all thought
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45 175 experiments, from some principles that we are interested in exploring. Firstly, we seek to
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47 176 investigate how decision makers engaged in the development process might order their
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49 177 preferences over a range of potential sites; secondly we seek to investigate how these preferences
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51 178 are affected by beliefs. More specifically, we hope to uncover how, what has long been argued to
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53 179 be a core, foundational feature of neoliberalism – competition (Wigger and Buch-Hansen, 2012,
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6 180 2013) - might affect decision making. In this thought experiment we set out to identify how the
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8 181 desire to gain an advantage by diminishing competition, a central principle of business strategy
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10 182 (Porter, 1979; Gunther McGrath, 2013), might play out in the development process where
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12 183 aversion to competitive rivalry has a clearly spatial dynamic (Bulan, Mayer, Tsuriel Somerville,
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14 184 2009; Xu and Yeh, 2005). Building from this we begin with three uncontroversial propositions
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16 185 that frame the thought experiment:

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19 186 1. Developers prefer some sites to others.
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25 188 2. Developers prefer to limit competition within the context of their spatial preferences
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27 189 (defined under 1);
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33 191 3. Developers will formulate beliefs about one another's spatial preferences that
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35 192 ultimately affect 1 and 2.
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39 40 41 194 **The thought experiment**

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44 195 Imagine a city that has four vacant sites for redevelopment: A, B, C and D. A is a 'prime'
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46 196 location; B and C incrementally less desirable and D, a deprived inner city neighbourhood, is
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48 197 deemed to have the least development potential as a profitable location. There are two main real
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50 198 estate developers in our city run, respectively, by Mark and Cecilia. Mark has a well-defined set
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52 199 of preferences with respect to the development opportunities in the city: he favours Site A to
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6 200 Site B; B to C and C to D; however the situation he dislikes most is when Cecilia competes with
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8 201 him for a site.

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11 202 Mark's preferences can be set out in tabular form:

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14 203 **TABLE ONE ABOUT HERE**

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17 204 The table above simply sets out Mark's position with respect to how he ranks the desirability of
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19 205 acquiring each development opportunity; he derives most satisfaction from the acquisition of
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21 206 Site A and then transitively ranks the following three sites in descending order. However, a
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23 207 coincidental choice by Cecilia is the outcome he likes least: when Cecilia chooses to compete
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25 208 with him the desirability of that site diminishes to zero for Mark.

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28 209 This ranked order of preferences (4,3,2,1,0) - utilities in the language of economics - represents
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30 210 Mark's satisfaction with any of the possible outcomes of site acquisition; the full range of 'states
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32 211 of the world' that might prevail.

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35 212 All other things being equal it is clear that Mark's preferred option is Site A. This is the best
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37 213 choice for Mark so long as he believes that Cecilia will make any choice other than Site A. If
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39 214 Mark believes that Cecilia has similar tastes to himself, and that she will likely pursue Site A too,
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41 215 the choice of Site B would be rational as the absence of spatial competition means this will yield
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43 216 a better outcome (expected utility, 3) compared to one where both Mark and Cecilia make the
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45 217 same choice for Site A (expected utility, 0).

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49 218 How about Site C? If Mark believes that Cecilia will choose Site A clearly the only rational
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51 219 choice for Mark is Site B. But what if he believes Cecilia has a preference for one of the other
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53 220 sites? The strict ordering of the utilities would mean that Mark should go with his strongest
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55 221 preference, Site A, the one that yields him the greatest utility (4).

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6 222 Is it the case, therefore, that there are no circumstances under which Sites C or D could be a
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8 223 rational choice for Mark?
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11 224 To this point we have worked solely on the basis that Mark is certain in his belief about what
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13 225 Cecilia might do. However, beliefs rarely function in this way. Instead we might believe *to a*
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15 226 *certain extent* that we can forecast what, for example, a competing property developer might do.
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17 227 For example, on reflection, Mark might arrive at the belief that he has a 60% expectation that
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19 228 Cecilia will choose Site A and a 40% probability that she will choose Site B. If Mark holds this
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21 229 belief about Cecilia's actions his expected utility can be summarized as a 60% chance that
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23 230 following his own strict preferences will result in he and Cecilia competing for the same site (Site
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25 231 A) the outcome of which would be totally unsatisfactory to Mark (utility, 0) and a 40% chance
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27 232 that Mark will succeed in obtaining Site A without having to compete with Cecilia (because she
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29 233 will have gone for Site B) thus realising his most preferred outcome and a utility of 4. This field
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31 234 of possibilities produced by Mark's beliefs could be summarized as:
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38 236 Site A: $(0.6) 0 + (0.4) 4 = 1.6$
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43 238 By extension if Mark chooses Site B he expects with probability 0.6 to have avoided competition
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45 239 with Cecilia and, therefore, to enjoy a utility of 3. Similarly he anticipates a 40% chance that they
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47 240 will have both opted for Site B, the presence of competition resulting in an expected utility of 0.
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49 241 Again, this could be summarized as:
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6 243 Site B: $0.6 (3) + 0.4 (0) = 1.8$
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11 245 If Mark opts for Site C he expects with certainty that he will not be competing with Cecilia as he
12 246 expects with equivalent certainty that she will only be interested in Sites A and B. Looking again
13 247 at Table 1 we see that the expected utility to Mark of choosing Site C is 2: greater than the
14 248 expected utility resulting from his beliefs about Cecilia's preferences with respect to either Site B
15 249 (1.8) or Site A (1.6). Site D is still the least preferred of Mark's non-competing options with an
16 250 expected utility of 1. In summary, Mark now prefers C to B to A to D: a very different ranking
17 251 to the one he started with before we formulated his beliefs as probabilistic expected utilities. We
18 252 note that to make the point, we have intentionally kept the analysis as simple as possible. One
19 253 may, however, argue that Mark's belief have been arbitrarily specified without respecting the
20 254 strategic interaction between the two players, Mark and Cecilia, and the consistency between
21 255 beliefs and actions. To address this point, we demonstrate in the appendix to this paper that
22 256 Mark's belief is consistent with Cecilia's strategy and is part of a Bayesian Nash equilibrium in a
23 257 game where Mark is uncertain about Cecilia's preference regarding the four development sites.
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40 258 **Interpretation**

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43 259 This thought experiment illustrates how, even under the terms of a simplified game, rational
44 260 choices made by market participants under competition are a function of their beliefs about
45 261 others. It also illustrates how this may result in patterns of behavior that run contra to what one
46 262 might expect when beliefs are not considered: in the thought experiment it is Mark's beliefs
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48 264 preferred site.
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6 265 So what should we make of this more widely? We can probably imagine scenarios where it may
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8 266 be in our collective societal interests that developers arrive at the conclusion that their less-
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10 267 preferred sites are the ones that they should pursue. This may be achieved by encouraging the
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12 268 necessary belief set on the part of competing developers to allow that conclusion to follow
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14 269 rationally. For regulatory planning this would mean helping to install within developers a belief
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16 270 profile consistent with the conclusion that investing in what would otherwise be their least
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18 271 preferred sites, often inner city neighbourhoods which have been neglected, would be the logical
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20 272 thing to do. This would mean a greater, not lesser, role for planning. Moreover it would mean a
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22 273 more economically active position for planning (Adams and Tiesdell, 2010): enhancing the
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24 274 desirability of C- and D-type sites by creating the perception that the right to develop might be
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26 275 more readily achieved over sites which, on first principles, would be more desirable to the
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28 276 developer but where development is less viable, because of competition and/or a diminished
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30 277 probability of consent. Alternatively we could potentially conceive of more fundamental ways of
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32 278 achieving progressive outcomes through planning working with/harnessing neoliberalism's
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34 279 competitive impulses. For example, bundling sites at either end of the spectrum could be
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36 280 arranged in such a way that the right to develop Site A was accompanied with the obligation to
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38 281 develop Site D. Such a strategy would be unequivocally behavioral-economic. Its outcomes
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40 282 might also be considered to give more socially preferable outcomes. Similar observations may be
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42 283 made with respect to environmentally more, over less, sustainable locations.
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47 284 In the example in this paper we have simply introduced two competing players, Mark and
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49 285 Cecilia, without any planning agency to mediate or coordinate their activities. Such an agency, a
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51 286 'market maker' for land and property, would occupy a strategically vital role. It would be able to
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53 287 animate markets, shape their conditions and potentially, depending upon its power, reach and the
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6 288 skills of those who people it, affect the beliefs and, therefore, the decision making of developers.
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8 289 For example, in this thought experiment we have not considered what might be entailed if Mark
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10 290 and Cecilia seek to cooperate and coordinate their actions in some way. A planning agency that
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12 291 had the power to diminish the likelihood of this outcome and maintain competitive market
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14 292 conditions or manipulate them, perhaps through encouraging competition for sites A and B
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16 293 while diminishing the likelihood of competition for sites C and D, would have a hugely
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18 294 significant bearing on the perceived desirability of sites. The corresponding effect such an
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20 295 agency might have on limiting developers' choice sets and, critically, developers' beliefs about
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22 296 one another's preferences would also have profound effects on market conditions. Depending
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24 297 upon the ethical criteria by which such a system is held to account it could potentially privilege
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26 298 'better' outcomes in a neoliberal world in which competition is reified (Campbell, Tait and
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28 299 Watkins, 2014).

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32 300 So powerful are beliefs as a determinant of how markets function in practice that the importance
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34 301 of this role of market making intermediary in creating or installing beliefs can barely be
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36 302 overstated. If we change the utility profile of Mark's preferences to make Sites A and B more
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38 303 strongly favoured than Sites C and D, but leave all other aspects of the thought experiment
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40 304 unaltered, the implied logical course of action for Mark becomes quite different:

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46 306 **TABLE TWO ABOUT HERE**

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52 308 Now, although the strict ranking remains the same, Mark favours Site A quite a bit more strongly
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54 309 than any other. Under this revised set of preferences Site C can no longer be an optimal choice

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6 310 for Mark. He prefers Site A sufficiently more strongly that, with the same field of beliefs as
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8 311 before about Cecilia, his expected utilities become:

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$$\text{Site A: } (0.6) 0 + (0.4) 7 = 2.8$$

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14 313
$$\text{Site B: } (0.6) 4 + (0.4) 0 = 2.4$$

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17 314 The strength of Mark's preference for Site A now means that despite his belief that Cecilia also
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19 315 favours this site and his very strong aversion to competition with Cecilia he will favour the
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21 316 pursuit of this site to the others.

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24 317 **Extension and Conclusions**

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27 318 Although this is only a simplified thought experiment it serves to reveal some significant points
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29 319 regarding the importance of beliefs in shaping outcomes. Evidence from behavioral economics
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31 320 shows that if a belief is widely held and with sufficient conviction we may identify the emergence
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33 321 of a normalising form of behavior which results in 'herding'. This formation of a commonly
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35 322 held belief extends far beyond the terms of the traditional neoclassical understanding of a wholly
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37 323 and perennially self-interested economic decision maker. For example, a connection may be
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39 324 explicitly traced between social pressures and expert opinion in creating and reinforcing the
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41 325 instinct to herd (Baddeley, 2013): highly relevant considerations with respect to real estate
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43 326 transactions where social invocations to 'get on the property ladder' and mutually reinforcing
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45 327 expert opinions abound. Under conditions such as these the establishment of herding has been
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47 328 understood as a collective psychological precursor to the irrational escalation of commitment
48
49 329 common to many bubble markets where a premium is assigned to some asset(s) as a function of
50
51 330 the prevailing belief that it is universally understood to be highly-prized (see, for example,
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53 331 Roberts and Henneberry, 2007 on developers' potentially irrational preference for capital cities).

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6 332 This creation of a socially normalized, limited ‘worldview’ (juxtaposed with the game theory
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8 333 understanding of multiple possible states of the world) seems to be a tendency common to
9
10 334 humankind (Ostrom, 2014).

11
12
13 335 More widely it is far from clear that the politically most popular neoclassical analyses of how real
14
15 336 estate markets function can be translated into realisable policy ends. For example, the view that
16
17 337 building more residential units in areas of extreme demand, such as the New York/tri-state area
18
19 338 or London/South East England will stabilise or lower house prices through reconciling the
20
21 339 mismatch between undersupply and excess(ive) demand is a potentially greatly oversimplified
22
23 340 conclusion (see Marom and Carmon, 2015 for a review of housing policy in these two specific
24
25 341 areas). The focus on the bricks and mortar of under supply at the expense of the behavioral
26
27 342 psychology of demand in an over-heating market is in keeping with the *ceteris paribus* assumption
28
29 343 common to neoclassical economics. But all things are not equal. Omitting the psychology of
30
31 344 human economic decision makers produces very partial analyses that explain little of the
32
33 345 irrationality of some real estate market outcomes. Building many more new houses in locations
34
35 346 where demand is strongest may do very little to lower or stabilise prices (assuming this is the true
36
37 347 objective): not if the ‘Site A’ logic for, say, Greater London is sufficiently strong as a prevailing
38
39 348 set of beliefs. We may simply build a great many very expensive new homes, probably to rather
40
41 349 low standards - “rabbit hutches on postage stamps” (Evans, 1991) - in areas of environmental
42
43 350 jeopardy (in this English context particularly in relation to flood risk) that remain out of reach
44
45 351 for many/most. From this perspective the answer to resolving the affordable housing situation
46
47 352 may require a fuller engagement with the beliefs and expectations of those who play the
48
49 353 ‘planning game’ (Lord, 2012).

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6 354 To carry this conclusion through to an alternative policy prescription we can return to the point
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8 355 at which this paper opened: the status of a planning system. Although now seemingly friendless
9
10 356 in political circles, planning is perhaps the only viable way of animating real estate markets in
11
12 357 such a way as to challenge or subvert the belief structures that have given rise to one of the most
13
14 358 pressing social problem in many developed countries: urban centres of population where
15
16 359 housing is too expensive for all but the most wealthy. To illustrate, if we could remake planning
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18 360 so that its enactment is cognisant of effects on real estate markets we might imagine Mark and
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20 361 Cecilia playing a different game, one in which planning controls created a 'state of the world'
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22 such as this:
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29 364 **TABLE THREE ABOUT HERE**
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34 366 To run the thought experiment through to its conclusion if Mark believes that Cecilia has a 50%
35
36 367 probability of choosing Site A, a 30% preference for Site B and favours Site C to a degree of
37
38 368 20%, under this new set of preferences, every possible site becomes a potentially rational choice
39
40 369 for Mark, including the otherwise least-preferred option, Site D. His expected utilities become:

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44 370 Site A: $(0.5) 10 = 5$

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47 371 Site B: $(0.7) 9 = 6.3$

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49 372 Site C: $(0.8) 8 = 6.4$

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52 373 Site D: $(1) 7 = 7$
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6 374 The order that Mark began with has been symmetrically reversed. His optimal choice is to go
7
8 375 for the site he initially favoured least, Site D, because the fear of spatial competition with Cecilia
9
10 376 is now greater relative to a less strongly ordered set of preferences. Surely this would be the end
11
12 377 goal for any planning system: harnessing the competitive impulses of a neoliberal world to
13
14 378 encourage better outcomes for areas that would otherwise be disadvantaged? Of course in
15
16 379 practice Mark's beliefs may moderate over time. We may need to use Bayesian methods to
17
18 380 understand how he updates his beliefs in light of information he gleans from Cecilia, for
19
20 381 example, if commitment to a course of action is escalated as a result (Gilroy and Hantula, 2016).
21
22 382 Equally Cecilia may use signalling and screening strategies in an attempt to affect Mark's beliefs
23
24 383 about her. She may bluff, or double bluff; she may obfuscate; she may dissimulate and
25
26 384 prevaricate. And so may Mark (see, Benz, Jäger and van Rooij, 2016; Polnaszek and Stephens,
27
28 385 2013). We invite others to extend and develop the thought experiment such as we have done
29
30 386 here and in the Appendix to this paper.

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34 387 With so many moving parts, even in this greatly simplified thought experiment, there may be
35
36 388 value in having a referee. An objective and impartial third party who can set and enforce the
37
38 389 rules of the game explicitly to engineer behavioral outcomes may turn out to be a very important
39
40 390 market participant. This would be particularly true if we are ever to make the Site Ds of the
41
42 391 world – deprived neighbourhoods, complex but environmentally sustainable sites - locations
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44 392 where developers might rationally choose to invest. Conceiving of planning in this way suggests
45
46 393 an alternative form of urban and environmental regulation that will entail a fuller dialogue with
47
48 394 behavioral economics and 'mechanism design' (for example, Börgers, 2015). These schools of
49
50 395 thought have had a profound effect on other aspects of public policy (for example, Halpern,
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52 396 2015; Loewenstein, 2015; Madrian, 2014). Taking a cue from this literature and thinking again
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6 397 about beliefs, values and the epistemic underpinnings of how we animate the markets that
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8 398 produce the built environment may help us arrive at a clearer view regarding the role and value
9
10 399 of planning in these markets.
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14 15 16 401 **Appendix**

17
18
19 402 Consider a game of incomplete information where Mark and Cecilia independently and
20
21 403 simultaneously choose a development site from the set $\{A, B, C, D\}$. If their choices coincide,
22
23 404 they both obtain a payoff of 0. It is known to both players that Mark's payoffs when choosing A,
24
25 405 B, C, D alone are 4, 3, 2, and 1, respectively. However, *ex ante* there are two possibilities for
26
27 406 Cecilia's payoffs. With probability 0.6, Cecilia has the same payoffs as Mark's. With probability
28
29 407 0.4, Cecilia's payoffs when choosing A, B, C, D alone are 3, 4, 2, and 1, respectively. Note that
30
31 408 Cecilia prefers site B the most in this case. Note also that Cecilia's payoffs, or in game theoretical
32
33 409 terms types, are Cecilia's private information while Mark only knows the prior distribution of
34
35 410 Cecilia's types. The following figure summarizes the game. Intuitively, Cecilia knows which bi-
36
37 411 matrix is being played while Mark only knows that the left (type 1 of Cecilia) is being played with
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39 412 probability 0.6 and the right (type 2 of Cecilia) 0.4.
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		Cecilia			
		A	B	C	D
Mark	A	0, 0	4, 3	4, 2	4, 1
	B	3, 4	0, 0	3, 2	3, 1
	C	2, 4	2, 3	0, 0	2, 1
	D	1, 4	1, 3	1, 2	0, 0

Type 1 Cecilia, probability 0.6

		Cecilia			
		A	B	C	D
Mark	A	0, 0	4, 4	4, 2	4, 1
	B	3, 3	0, 0	3, 2	3, 1
	C	2, 3	2, 4	0, 0	2, 1
	D	1, 3	1, 4	1, 2	0, 0

Type 2 Cecilia, probability 0.4

Figure 1: The first payoff in each cell is for Mark and the second is for Cecilia

413

414 We now claim that the strategy profile $\{C, (A,B)\}$ constitutes a Bayesian Nash equilibrium in this
 415 game in which Mark chooses C, and type 1 of Cecilia chooses A and type 2 chooses B. To see
 416 this, note that given Mark's strategy of choosing C, type 1 of Cecilia indeed maximises her payoff
 417 by selecting A which yields her the highest payoff of 4. On the other hand, type 2 of Cecilia
 418 obtains the highest payoff of 4 by selecting B.

419 We now show that given Cecilia's strategy which specifies A and B for type 1 and 2 respectively
 420 Mark finds it optimal to choose C. For Mark, with probability 0.6 the left bi-matrix is being
 421 played where according to Cecilia's strategy A is chosen, and with probability 0.4 the right bi-
 422 matrix is being played where Cecilia selects B. In expected terms, choosing A yields Mark $0.6 \cdot 0$
 423 $+ 0.4 \cdot 4 = 1.6$. Similarly, choosing B yields $0.6 \cdot 3 + 0.4 \cdot 0 = 1.8$. Finally, selecting C yields $0.6 \cdot 2 +$
 424 $0.4 \cdot 2 = 2$ and selecting D yields $0.6 \cdot 1 + 0.4 \cdot 1 = 1$. Thus, Mark indeed maximizes his expected
 425 payoff by selecting C given Cecilia's equilibrium strategy.

426 In conclusion, Mark's belief of Cecilia choosing A with probability 0.6 and B with probability 0.4
 427 is consistent with Cecilia's best response to Mark's choice of C. And Mark choosing C is rational
 428 given his belief about Cecilia's type.

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678

Can the market be tamed? A thought experiment on the value(s) of planning

List of tables

Site A	Site B	Site C	Site D	Same site as Cecilia
4	3	2	1	0

Table 1: Mark's preference set

Site A	Site B	Site C	Site D	Same site as Cecilia
7	4	2	1	0

Table 2: Mark's adjusted preference set

Site A	Site B	Site C	Site D	Same site as Cecilia
10	9	8	7	0

Table 3: Mark's final preference set