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A forum on minds and institutions

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Abstract. The purpose of this special topic forum is to call for research on the topic of minds and institutions. I briefly discuss three specific research opportunities: (1) bounded rationality *versus* mind, (2) many minds and the interfaces of institutions, (3) the affordances of institutions and arbitrage. I then briefly introduce the two special topic forum papers and highlight how they link to the topic of minds and institutions.

1. Introduction

The purpose of this special topic forum of *Journal of Institutional Economics* is to call for additional work at the nexus of minds and institutions.[1] While the idea of 'mind' certainly manifests itself in institutional analysis in various ways (as we will discuss later), nonetheless I argue that alternative conceptions of mind – including aggregate and plural ones – and institutional interfaces will help the field move forward and open up exciting possibilities for future research related to comparative organization (e.g., markets and organizations), institutional forms and economic activity.

This short introduction is structured as follows. I first contrast the widely prevalent idea of bounded rationality – central to institutional analysis – with the idea of mind. I then highlight how minds interact in multiple ways with interfaces within and across institutions. I then discuss arbitrage and the affordances of institutions. I conclude by introducing the special topic papers and discuss how these two papers – by Dosi and Marengo (2014), and Sunstein and Hastie (2014) – relate to the topics discussed in these introductory remarks.

2. Bounded rationality *versus* mind

One of the central building blocks of many institutional arguments is the idea of bounded rationality (Simon, 1955). For example, in transaction cost economics

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1 The original call for papers for this special topic forum called for work on 'judgment and capability aggregation in organizations and markets'. The effort with this introductory essay is to more broadly discuss how minds and institutions interact, beyond just the narrower topic of judgment and capability aggregation in organizations and markets – though these issues are also central to the present discussion.

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this concept is a central assumption associated with the make-buy decision (Williamson, 1985). Bounded rationality broadly is a reaction to omniscient views of reasoning and choice that exist in some areas of economics (Arrow and Debreu, 1954), and specifies that economic actors are bounded by factors such as 'limited information' and 'limited computational facilities' (Simon, 1956). Economic actors satisfice, rather than somehow globally optimizing decision making with perfect information. While this shift to more bounded views of rationality was a significant improvement over more omniscient views, nonetheless it has come with some unintended consequences (cf. Felin *et al.*, 2014).

One of the downsides of the notion of bounded rationality is that it has provided us with a rather one-sided, overly environmental conception of cognition and human nature.

The focus on boundedness emphasizes the complexities of the environment and its structure, but hollows out or ignores important questions about the nature of the organism and nature of mind. This problematic conception of mind is illustrated by Simon who argued that 'human beings, viewed as behaving systems, are quite simple. The apparent complexity of our behavior over time is largely a reflection of the complexity of the environment in which we find ourselves'. Simon further emphasized that 'the inner environment, the hardware [referring to cognition, mind and human nature], is simple. Complexity emerges from the richness of the outer environment' (1996: 110).

The focus on the environment suggests a kind of behavioral generality and universality – even across species – which seems tenuous. This is further illustrated by a remark Simon made to a colleague: 'We need a less God-like and more rat-like chooser' (Crowther-Heyck, 2005: 6). In fact, Simon's most extensive example of bounded rationality, in his foundational article in *Psychological Review* (1956), focused specifically on a rat searching for food. The model thus applied to organisms or choosers in general (resulting in general, computational models) – whether humans, bees, fish or rats.

The generality of Simon's behavioral model of mind is counter to alternative models of mind and perception that are not universal but species-specific (Uexküll, 1934/2010). Simultaneous to the development of general models of mind, but separate from them – in fact, a partial reaction to them – were developments in ethology that focused on species-specific mind and perception (e.g., Konrad Lorenz, Nikolaas Tinbergen). This work represented a radical departure and instead started with the nature of organisms themselves: internal factors. Indeed, if the *nature* of something – whether it be god, human, rat or bee – is to mean anything, then its comparative propensities and unique perceptions ought to be in sharp focus. This was the task of the ethologists.

Perhaps the most important finding and argument from this literature is the role that minds play in constructing rather than capturing the environment, a shift away from an all-seeing, calculating, camera-like conception of the mind.

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Scholars of perception have highlighted how perception is mind- rather than environment-dependent (e.g., Koenderink, 2010). This shift from the external to the internal is significant and completely counter to how ideas such as bounded rationality are conceptualized – as suggested by the aforementioned quotes from Simon. A central upshot from this research is that the causal arrows don't point from 'world to mind' but rather from 'mind to world' (Koenderink, 2010).

This alternative conception of mind is not only supported by recent work in cognitive psychology (cf. Hoffman, 2009), but also links with a much longer tradition of scholarship that has focused on the comparative nature of organisms. This alternative can also be linked with many other traditions across the sciences and even the arts. For example, Gombrich's (1956) 'beholder's share' was precisely an attempt to understand how perception constructs – rather than captures – reality. Gombrich was well aware of Popper's ideas, and particularly Popper's (1969) notion of the mind- and theory-dependent nature of perception and observation. Chomskyan generative grammar also originates from this tradition. Kandel (2012) – Nobel Laureate in Physiology and Medicine (for his work on memory) – traces the influences of these broad traditions across the arts and sciences. In short, rather than focus on the complexities of the environment, this tradition suggests that environments are anticipated, projected and theorized rather than somehow in camera-like fashion recorded and processed.

This view of the mind, radically different from bounded rationality, has important consequences for understanding economic activity and associate institutions. At the broadest level it means that understanding the endogenous perceptions and theories of economic actors, rather than their environments, is central. The emphasis on a more subjective, theoretical and projective mind – rather than a computational one – of course is not new. It hearkens back to Adam Smith. Smith argued that 'in the great chessboard of human society, every single piece has a principle of motion of its own'.[2] Smith's broader task, as argued by Rothschild, was to focus on 'internal rather than external causes', to understand and explicate the 'motions of the human mind' and to call for a 'theory of people with theories' (2001: 50).

Thus there is a significant opportunity for institutional scholars to study the mind and theory-dependent activities that construct and shape environments. Economic environments, as discussed by North, are highly uncertain, but human 'perceptions', 'ideas' and 'mind' are central (2005: 13–16). Thus even the very act of specifying an environment, as is often done for modelling purposes, is precisely counter to what in fact is occurring as environments constantly shift and economic agents interact with these environments and construct them (Felin *et al.*, 2014). Instead the human mind generates possible theories – it considers alternative possible uses and affordances for environments (more on this

2 Simmel argues in similar tones in *Philosophy of Money*: 'It is of great importance to reduce the economic process to what really happens in the mind of each economic subject' (2011: 88).

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below) – and it is this activity that also ought to be central for understanding institutions and economic activity.

3. Many minds and the interfaces of institutions

Another opportunity lies in the notion of many minds and the interfaces of institutions. By focusing on many minds my emphasis here is on the aggregate and plural aspects of mind – both the heterogeneity and homogeneity of mind that exist within and across institutions. The idea of 'many minds' attunes us to fundamental questions about how heterogeneity or homogeneity in beliefs, opinions, ideas and preferences impacts the origins, evolution and comparative nature of institutions. The interfaces of institutions – in turn – provide arenas or 'screens' where minds can interact and judge, for example in the form of individual or aggregate judgments and institutional organization.

Extant institutional work tends to collapse notions of mind, such as bounded rationality, into a singular actor – for example the Coasean 'entrepreneur-co-ordinator' (Coase, 1937) or a firm (Williamson, 1985). Put differently, as noted by Malmgren, somehow we need to explain not just the firm, but the 'multi-person' firm and how out of different beliefs we arrive at a 'convergence of expectations' and a possible 'expectational equilibrium' (1961: 405). This then requires a theory of social interaction and collective action.

Focusing on the firm as a singular actor of course has been a highly useful simplification, and has led to powerful insights about (for example) the firm-market boundary (Zenger *et al.*, 2011). But the aggregate and social processes behind comparative institutions also deserve attention. After all, economic activity – more often than not – is constituted by some forms of social decision making and mechanisms, rather than just a singular hero-entrepreneur-manager or firm. The lack of focus on these social factors, at least in the terms that I'll discuss, is evident for example from the fact that we have no theories (or attention on) the question of how bounded rationality aggregates.

Of course, Hayekian (1945) process-oriented theories about institutions (specifically markets) inherently are about a form of rationality and many minds and the spontaneous order of the market (cf. Caldwell, 2004). However, these theories are overly individualistic, and in some ways also relatively a-institutional, and certainly not comparative. Only individuals play a role in Hayek's (1945) theory: the 'man on the spot' with local knowledge and information. And the only institution featured is the market. Thus neither the need for common beliefs, expectations or minds, nor the comparative features of institutions (markets *versus* firms), are discussed by the theory. Or put differently, the theory tells us little about how information, ideas and beliefs might aggregate and pool and lead to emergent structures and institutions.

One, early line of institutional analysis and research that tries to link individual and social aspects of mind and institutions is the work of Alexis de Tocqueville.

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He specifically focused on the emergence of institutions by looking at ideas and social interaction. In *Democracy in America*, he points toward these specific linkages: 'As soon as several of the inhabitants of the United States have conceived a sentiment or an idea that they want to produce in the world, they seek each other out; and when they have found each other; they unite' (1840: 492). Similar processes of self-selection and interaction and institutional or group formation can be found in the sociology literature that focuses on opinion and influence dynamics in society, and the emergence of homophily (e.g., Katz and Lazarsfeld, 1955).

The opportunity here is to study how minds, their interaction and aggregation might lead to emergent outcomes such as the formation of a firm. One way to comparatively think about markets *versus* firms is to think about the disparate mechanisms that each uses to aggregate and pool information (ignoring the idea of market-hierarchy hybrids). The market's price mechanism is an implicit aggregator of disparate information, though social interaction and influence behind markets deserve additional attention.[3] The price mechanism, which aggregates and 'averages' the differential expectations of market actors, serves the function of bringing minds together, though only in a relatively crude and nominal form.

But introducing firms into the calculus of economic activity – given the ubiquity of organizations (cf. Simon, 1991) – requires something more than simply the market's price mechanism. Transaction costs undoubtedly plays a role in the emergence of the firm. But alternative, mind-related and social interactional factors might also yield additional insights.

One opportunity lies in seeing the firm as an emergent, collective belief – or point of view, or 'expectational equilibrium' (Malmgren, 1961) – about a set of activities and strategies that need to occur in the world. Here the onus is placed on the perceptions, judgments, expectations and ideas of individuals, rather than on the structure of markets or the nature of transactions. Thus the very process of the emergence of a nascent institution, such as a firm, requires that there be some minimal level of social support, coherence or homogeneity in perceptions, beliefs and expectations about anticipated sources of value. The beginnings of this type of intuition can be found in March's early work on the 'business firm as a political coalition' (1962). He specifically argues that 'the composition of the firm is not given; it is negotiated. The goals of the firm are not given; they are bargained' (1962: 672).

This intuition can be linked to a literature that looks at the emergence of collective beliefs and nascent organizations (Felin and Zenger, 2009; cf. Van den Steen, 2005). From this perspective, nascent institutional activity can be seen as a form of self-selection, interaction, influence and collective action. We can think of

3 Of course, the literature on economic rumors and bubbles certainly grapples with many of these issues.

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new organizations as a form of minimal social proof, where a sufficient number of individuals think (or can be persuaded to think) that a particular idea or strategy is worth pursuing. Once this preliminary coalition exists, it can then seek to organize and create governance structures to enable the realization of the idea. The ongoing activities, viability and even performance of the organization can be further characterized by how much heterogeneity (e.g., in beliefs) there is within the organization, and mechanisms such as exit, voice and loyalty (Hirschman, 1970). With Knudsen, I have tried to model some of these types of dynamics (Felin and Knudsen, 2012), specifically by looking at how individuals self-select, influence each other and create social tipping points and proofs that essentially are instantiated as collective action and nascent, new firms.

The relation between individual and collective minds can also be studied from the perspective of individual and collective rationality. Here Arrow's book *Limits of Organization* (1974) is enlightening. He argues that organizations can 'acquire more information than any individual' (1974: 53) and this type of 'collective action can extend the domain of individual rationality' (1974: 16). He thus was interested in how information is aggregated and how organizational structures can enable more rational decision making (cf. Sah and Stiglitz, 1985). This intuition can also be found in sociology, where Stinchcombe argues that 'organizations can be more rational than individuals (though of course they are not always)' (1990: 341).

What is quite novel and new is the way in which new forms of organization – or organizational 'technologies' – are providing novel interfaces for disparate constituents and minds to interact with them. The solid boundaries between firms and markets have of course always been blurred, for example through factors such as relational contracting. But what is relatively new is the way in which institutions are creating interfaces for external stakeholders to contribute their ideas, opinions and beliefs in new ways – from outside the formal boundaries of the organization (cf. Baldwin, 2008; Baldwin and Hippel, 2011). We can debate just how radical these new forms are – with some even suggesting a complete revolution in Coasean intuition and institutional economics (Benkler, 2002), something I'm personally very skeptical about. But clearly firms are finding ways to interact with dispersed minds, outside formal boundaries and reaping the benefits in powerful ways. For example, firms are utilizing such mechanisms as innovation contests to broadcast their problems to those outside of the formal boundaries of the organization (Boudreau *et al.*, 2011). A host of other forms of 'open innovation' – e.g., user communities – provide yet other ways through which firms can interface with external crowds (Felin and Zenger, 2014). This literature is still in its infancy, but it provides a powerful example of how even dispersed information (traditionally dealt with by the market's price mechanism) can be coalesced and aggregated in powerful ways.

In all, rich opportunities exist in understanding how heterogeneous minds interact with institutions and their emergence and evolution (cf. Landemore

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and Elster, 2012). One important, mind-related issue worth concluding with is how firms cognitively specify their activities on the whole, beyond the calculus provided by more microanalytic frameworks such as transaction cost economics. A number of candidate theories have been provided (Van den Steen, 2005), focusing on such factors as identity or collective beliefs, but significant opportunities remain in more carefully specifying the market-firm interface in terms of the underlying cognitions of the heterogeneous actors that are involved.

4. The affordances of institutions and arbitrage

So far I have largely only talked about micro, aggregate or micro–macro linkages between minds and institutions. But institutions themselves can also be designed as a macro mechanism to influence individual-level and social outcomes. Thus institutions have 'affordances' – uses and functions – including ones that might be anticipated by both the institutional designers and participants (cf. Goodin, 1999), as well as unintended, surprising affordances that might provide opportunities for arbitrage.

One affordance of institutions – beyond serving the broad function of being a vehicle for transacting and coordinating production – is the way in which institutions can guide individual behavior. This might take the form where individuals deliberately tie themselves to the proverbial Ulyssean mast (Elster, 2000) and 'submit' to institutions (or norms) that they know will maximize outcomes. For example, individuals may realize they are plagued by problems of irrationality or weakness of will, and thus in effect allow institutions to function as constraints, 'nudges' and precommitments that contour their actions, behaviors or decision making.

These types of arguments have led to a large and quickly growing literature on behavioral engineering and nudging, cutting across disciplines such as economics (Bolton and Ockenfels, 2012; Clippel, 2014), strategy (Powell *et al.*, 2011) public policy and the law (Sunstein, 2012). This literature has of course been controversial, as it seemingly strips individuals of their freedom and liberty to make choices (Wright and Ginsburg, 2012). But, the literature also raises intriguing links with the institutional literature in economics. After all, firms naturally are a certain type of constraint device, as highlighted by Coase (1937), where individuals trade – to put it crudely – certain aspects of their freedom for a salary. But firms can also serve a highly valuable function in putting an institutional 'check' – a 'cognitive repair' of sorts – on certain types of biases (cf. Heath *et al.*, 1998). The role that institutions play in both potentially amplifying some aspects of cognition, and dampening others, deserves careful attention. At present the emphasis has largely been on behavioral biases and heuristics in general, without any meaningful attention on how different institutional arrangements might play a role.

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As suggested above, the notion of the 'affordances' of institutions points to the functions, purposes and uses explicitly anticipated by the potential designers of institutions, but also to the possible novel uses that might emerge as individual minds find alternative, new uses. There are of course important questions about whether institutional affordances – whether for good or ill – can be fully anticipated by the designers of institutions. For example, in Devins *et al.* (2015) we argue 'against design' and highlight how institutions such as the US Constitution have been utilized in surprising and unintended ways, both for positive and negative ends. Institutions, then, can readily provide unanticipated opportunities for arbitrage by entrepreneurial actors.

Arbitrage is inherent given the radical uncertainty that characterizes markets and economic activity. The often caricatured 'efficient markets hypothesis' implies quite limited opportunities for arbitrage and value creation (Denrell *et al.*, 2003). But our notion of mind suggests that the sets of possible affordances for any asset, product or even institution simply are not listable (Felin *et al.*, 2014). The efficient markets hypothesis requires, in its strongest form, that all assets are priced and best uses and future functionalities are all specified – an exercise that is doomed from the start. Even models of bounded rationality seek to specify some *a priori* set of (though delimited) uses and functions. Interestingly, economic sociologists and scholars in strategy have also run into this problem in their research, specifically where they now realize that the socially-specified categories of markets, where novelty is discounted (Litov *et al.*, 2012; Zuckerman, 1999) – thus presuming a certain type of equilibrium – in fact also suggest many arbitrage opportunities for economic and institutional entrepreneurs.

In all, the nexus of minds and institutions, and the affordances and arbitrage opportunities provided by this nexus, present a powerful opportunity for future research.

5. Forum papers

The two special topic forum papers touch on different aspects of mind and institutions, and the topics introduced in the discussion above. Sunstein and Hastie (2014) – in their paper 'Garbage in, garbage out? Some micro sources of macro errors' – discuss how individual and aggregate deliberations can lead to error and how these errors might be corrected in disparate institutional (both small and large) settings. They highlight how some institutional contexts amplify individual errors, others are characterized by dysfunctional cascade effects, others end up in extreme positions, and yet other institutional settings are characterized by the problematic silencing of voice and dissent.

Sunstein and Hastie's paper links with many of the aforementioned themes at the nexus of minds and institutions. They explicitly focus on biases and cognitive failures – important aspects of mind – and discuss the contours of these factors in aggregate and institutional setting. Their approach is 'many minds'-focused

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in that their examples focus largely on social and institutional settings where individuals vote or jointly deliberate, with implications for both individual and collective welfare. Their work suggests an opportunity to create a comparative taxonomy of how different institutions perhaps comparatively avoid the errors associated with individual and collective decision making.

Dosi and Marengo (2014) – in their paper 'The dynamics of organizational structures and performance under different distributions of knowledge and different power structures' – study how different organizational structures, learning mechanisms and power arrangements impact the performance of organizations. They explicitly highlight how design has important implications for how 'many minds' interact in organizations, with important implications for performance. They highlight how organizations can be designed in such a fashion where information is aggregated directly or where veto and fiat is introduced in an effort to weed out error. Dosi and Marengo also discuss how learning mechanisms play a central role in information aggregation and how individual preferences and beliefs are shaped by others.

Dosi and Marengo's paper highlights how institutions can be designed to both utilize many minds in different ways, but also where minds learn from each other and where they in turn are shaped by the social context within which they find themselves. Their work raises intriguing questions about when certain types of institutional arrangements and structures might be used, and when not. Their work also raises questions about the appropriate interfaces or screens for judgments: who should make decisions about the appropriate forms of organization and design, and why. Furthermore, their focus is explicitly on organizational contexts and thus opportunities remain for comparative work to study these processes across different organizational and institutional settings.

6. Conclusion

It is worth noting in closing that the agenda suggested here seeks to push extant institutional economics outside of its comfort zone and outside of its focus on its three core constructs: the 'golden triangle' of transaction costs, property rights and contracts (Menard and Shirley, 2014: 544). Instead the agenda here suggests the need to consider how minds and institutions interact. Boundedly rational conceptions do not fully capture the forward-looking aspects of economic activity, where individuals – both alone and interaction – theorize about the future, generate ideas, coalesce and form associations to realize possible outcomes. Furthermore, this broader conception of economic institutions is also concerned with questions of voice, mind and welfare (cf. Sen, 2009). In particular, there are opportunities to study how different institutions – whether designed or emergent – comparatively aggregate information and create possible interfaces between both minds and institutions. In all, my hope is that the rough

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agenda sketched in this introductory article and the two papers in this special topic forum will open up new areas of inquiry related to minds and institutions.

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