Simon's Grand Theme and the Economics of Organization

(A Note for a Roundtable on Cognition, Rationality and Governance, Dedicated to the Memory of Herbert A. Simon, *Journal of Management and Governance*)

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4th revision, 17 August, 2001

Introduction[1]

In a series of methodologically oriented papers, Herbert Simon (e.g., 1976, 1978, 1979) tried to convince economists to take seriously his Grand Theme of bounded rationality (henceforth, "BR"). His examples of bounded rationality and its implications quite often involved the business firm. Indeed, he sometimes took the notion of "administrative man" to be *synonymous* with a boundedly rational agent. Of course, Simon himself published prolifically on firms and other organizations (e.g., Simon, 1949, 1951, 1991; March and Simon, 1958). Given all this, it is surprising that — so I shall argue — economists of organization have made little use of the notion of BR, and that the arguably most successful contemporary economics research that explicitly builds on BR takes place in fields such as behavioral finance and behavioral law and economics. In the following, I argue that BR is, in contrast to the impression often conveyed (e.g., by Augier, Kreiner and March, 2000), not used in an *essential* way in the modern economics of organization; it is very much a *background* assumption that is introduced to help explaining other, more central, insights and concepts (e.g., contractual incompleteness and organizational routines). I then discuss the possible reasons for this, centering on 1) Simon's influence and in particular the fact that he never

[1] I am grateful to Anna Grandori, Siegwart Lindenberg, and Sidney Winter for comments.

put forward a precise, affirmative program for research in BR in the context of economic organization, and 2) the difficulty of modeling BR in a way that is "loyal" to the economic mainstream. I finally discuss the role of BR in future work on economic organization.

The Limited Use of Bounded Rationality in the Economics of Organization[2]

Although the economics of organization may have been one of the first areas where the notion of bounded rationality was systematically applied in theorizing, later developments do not seem to have gone significantly beyond Simon (1951), Cyert and March (1963), Marschak and Radner (1972) and Williamson (1975).[3] If anything, the use, or at least invocation, of the notion of bounded rationality appears to have declined, as theorists have discovered that asymmetric information (a precise concept) can often do the job that they intended BR (an imprecise concept) to do for them. Moreover, at least some parts of the economics of organization — particularly contract theory (Hart, 1990)— have developed into a highly formal and axiomatic enterprise, and BR is notoriously hard to formalize to the satisfaction of high theorists.. Even in the case of transaction cost economics BR enters in a loose background sort of way, in which it lends credence to exogeneously imposing constraints on the feasible contracting space, but is not modeled itself.[4] In fact, we are never given precise definitions of what BR is in contract theory and transaction cost economics

The role of BR in these approaches is to supply the rhetorical function of lending intuitive support to the notion of incomplete contracts. A Simonian information processing argument is sometimes loosely invoked in this connection. Thus, if agents do not have the mental capacity to think through the whole decision

[2] This section reproduces arguments in Foss (2001a,b).

[3] The economics of organization is here defined broadly to include not only contract theory, team theory and transaction cost economics, but also the capabilities approach.

[4] It is true that Williamson (1975) and others who use BR invoke BR when addressing some aspects of organizational design (notably the M-form structure), but here, too, boundedly rational behavior itself is not really modeled.

tree — for example, in complicated bilateral trading relations —, it seems reasonable to assume that some of the branches of the tree (such as those relating to some future uses of assets) cannot be represented in a contract; the contract is left incomplete. Still, agents are supposed to deal with this manifestation of bounded rationality in a substantively rational manner, as many critics have pointed out. However, recent debate (summarized in Tirole, 1999) seems to indicate that this is a problematic approach. The reason is that if agents can indeed foresee payoffs from their relation they will, under conventional assumptions, be able to implement exactly the same allocations under incomplete as under complete contracts. Transaction costs, which are partly caused by BR, do not make any allocative difference. Per implication it is unclear what is the added explanatory content of theories that make use of incomplete contracts (and at least rhetorically, BR).

The organizational capabilities approach is often seen as making more explicit use of BR. However, upon examination, it turns out that individual boundedly rational behavior is usually suppressed, because most of the attention is focused upon aggregate entities such as routines or capabilities. For example, Nelson and Winter (1982) do mention and discuss bounded rationality to the extent that this helps them introducing the behavioralist notion of decision rules. Clearly such decision rules may be analyzed as manifestations of bounded rationality. However, agent level decision rules say nothing in themselves about organizational behavior. What permits the link to be established is using the metaphor of individual skill on the level of the organization. However, a consequence of this is that individual bounded rationality becomes suppressed. For example, it is not clear in principle whether organization-level routinization is produced by interaction effects among the members of a team or whether it is ultimately founded in aspects of individual cognition. In other words, there is no clearly identified mechanism that aggregates from individual behavior to routines and organizational behavior. Thus, here too, bounded rationality is a sort of background argument that — in combination with other assumptions about tacit knowledge and skilled human behavior — serves to make plausible the notion of organizational routine (including search routines), and therefore the sluggish organizational adaptation that is crucial in Nelson and Winter's evolutionary story. In fact, it is the concept of routine, rather than individual bounded rationality that is centerstage in their discussion. Later contributors to this stream of thought have similarly focused attention on capabilities, competencies, and the like and have downplayed individual boundedly rational behavior.

One possible conclusion on the above is that there is quite some distance between the rhetorics and practice concerning BR in the economics of organization. Organizational economists of all stripes often invoke BR, but they make precious little substantive use of it. The reason why this is so is discussed next .

Why is Bounded Rationality Much Cited but Little Used in Organizational Economics?

No doubt many contributors to the economics of organization feel that there is something obviously correct about the notion of BR, particularly in its vaguer forms, such as that man is "intendedly rational but only limitedly so." Using the concept also helps establishing at least a rhetorical bridge to the organizational theory and behavior literatures, something which may be particularly attractive for those organizational economists that are employed by business schools. This may explain the prevalence of references to BR in the organizational economics literature. However, as argued earlier, BR is not *used* in any substantive manner in the economics of organization. There seem to me to be two dominant reasons for this, one historical, having to do with Simon's influence on economists' thinking on BR, and one having to do with the difficulty of aligning BR with the basic machinery of neoclassical microeconomics and game theory. The reasons are related, for it is exactly because Simon only developed the rudiments of a positive program for research in BR in the context of the theory of the firm that economists have been able to 1) work with very watered down-versions of BR (and still claim these to be consistent with Simon's vision) and 2) integrate these versions into an otherwise entirely mainstream theoretical structure.

There can be little doubt that Simon has had a quite overwhelming influence on those economists who have taken an interest in firms and organization. Because Simon is a towering figure not only with respect to developing the notion of BR, but also with respect to applying this notion in organizational analysis (Simon, 1948; March and Simon, 1958), his work is easily seen as exemplary by an economist taken up with firm organization. However, although Simon in his more methodologically oriented papers directed at economists (Simon, 1976, 1978, 1979) typically illustrate BR by means of examples drawn from firms, these examples are typically very broad (e.g., centralization vs decentralization, maximizing decisions vs rules of thumb) and taken from the works of other contributors or from the works of, for example, Cyert and March (1963). What he tells economists about bounded rationality is typically much less specific and elaborated than when he tells scholars in psychology or artificial intelligence about the same subject.[5]

In general terms, the BR "research program" may be understood as an attempt to elaborate and examine the insights that 1) the human capacity to process information is quite limited, 2) humans try to economize on cognitive effort by relying on short-cuts, and 3) because of 1) and 2), as well as other factors, such as the influence of emotions on cognition, human cognition and judgment is subject to a wide range of biases and errors. Now, Simon's Grand Theme concerned 1) and 2); as far as I know, he never took much of an interest in, for example, the biases literature of Tversky, Kahneman, Thaler, etc. Going from 1) to 3) is a story of making the ideal type "boundedly rational man" less anonymous (in the sense of Schütz, 1932). Thus, the limited capacity information processor (or the adaptive problem-solvers discussed in Newell and Simon 1972) is a more anonymous ideal type than the agent who comes equipped with reference level biases, adaptive preferences and the like. Now, economists of organization have taken an interest in 1), have been less occupied with 2), and have almost entirely neglected 3). In contrast, other economists who have taken an interest in BR has not been burdened (if that is the right word) by a commitment to Simon to the same extent as

[5] One of his latest papers on organizational issues (Simon, 1991) does not go into BR at all, but mostly takes issue with various themes in organizational economics.

economists of organization have. Thus, scholars working on behavioral finance, law and economics and cost-benefit analysis have actively worked with more concrete, less anonymous, models of boundedly rational man, typically drawing on the biases to judgment and cognition literature.

It may, of course, also be argued that economists of organization have been reluctant to work with richer models of BR because of the well-known difficulties of aligning BR with the basic machinery of neoclassical microeconomics and game theory. Thus, fundamental notions and modeling principles, such as subjective expected utility, common priors, rational expectations/dynamic programming, backward induction, etc., are not too easily aligned with fundamental findings of cognitive psychology (such as gain-loss asymmetries, role-biased expectations, etc.). Moreover, there is a price to be paid in terms of analytical tractability and clarity to the extent that one wishes to factor findings from cognitive psychology into economic models. Hence, the use of watered-down versions of BR in organizational economics. The possible problem with this explanation turns on the above observation that other kinds of economists have been much less reluctant to work with richer models of BR, notably scholars in behavioral finance and behavioral law and economics, and with considerable success (as well as controversy). A counter-argument to this may be that organizational economists are more committed to fundamental game theoretic modeling principles that are known to fly in the face of results from cognitive psychology.

Whither Bounded Rationality in the Economics of Organization?

As I have argued in greater detail elsewhere (Foss 2001a), the problem with the way economists have used BR so far is a logical one. Indeed, BR does not seem to be *necessary* for the purposes it is put to (e.g., explaining contractual incompleteness), since other assumptions (e.g., asymmetric information) may accomplish these purposes more elegantly and in keeping with maximizing rationality. It is not *sufficient* either (at least in the context of contract theory), since the way in which BR has traditionally been modeled does not appear to guarantee the inefficient investments results that are so crucial in much modern organizational economics (Tirole 1999).

There are different ways to react to this. One is to give up talk of BR altogether. Much of the literature has taken this path already (cf. Hart 1990). Another one is to argue that perhaps the rather non-productive use of BR in organizational economics so far turn on the specific — extremely modest — conceptualizations of BR that have been adopted. Thus, it really isn't a big surprise that BR does not produce much of a difference if the conceptualization of BR that has been adopted in the first place is close to being indistinguishable from maximizing ("substantive") rationality. This would lead towards consideration of richer models of BR and the exploration of their consequences for economic organization. Those with this attitude would point to the fact that cholars in other disciplines and sub-disciplines have been able to create exciting research programmes based on rich(er) notions of BR. And they would urge organizational economists to address all those ways in which human behavior differ from the Savage paradigm, explore the consequences of these for bargaining and contracting outcomes, and, in turn, explore the consequences for organizational arrangements (cf. also Williamson, 1998; Foss 2001a).

There are obviously a great many ways in which this may be done, and deciding on which ways may be fruitful is obviously of great importance for a budding behavioral economics program in economic organization. One such way (which is already complicated enough) is to pay more attention to the biases to cognition and judgment literature (see Rabin, 1998 for an overview). As Williamson (1998) points out, such biases are mitigated to a large extent by organization. However, specialization cannot cope with all biases, recourse to additional organizational measures is likely to be necessary. One take on this issue is to think of biases as influencing economic outcomes because they influence bargaining (Kahneman, Knetsch and Thaler, 1990; Babcock and Loewenstein, 1997). In such a perspective, biases may be viewed as determinants of bargaining outcomes on par with asymmetric information, strategic behavior and time preference. For example, as Babcock and Loewenstein (1997) argue, the *self-serving bias* may drastically narrow the contract zone, and perhaps eliminate it altogether. Another approach may be to more concerned with the role of emotions in determining bargaining outcomes (Carmichael and McLeod 1997). A third one may be to link contractual incompleteness and search behavior. Etc.

Pursuing such a program may, in addition to the difficulties of formalizing cognitive psychology, seem to be opening the door to wholesale arbitrariness. However, the program is in keeping with a basic Simonian outlook: Search for robust generalizations about human behavior and cognition and factor these into economic analysis as important assumptions. My prediction is that an increasing number of organizational economists are likely to adopt such a research strategy as they find ways to cope with the accompanying modeling difficulties.

Conclusion

My argument in this brief note has been that although Simon developed *the* Grand Theme of bounded rationality, he did not describe a *precise* program for pursuing research in how BR affects economic organization. This is perhaps one of the reasons why BR is treated in a sort of background manner in most of the economics of organization. Another one is that richer models of BR may be hard to align with the basic modeling principles that are routinely applied in modern organizational economics. It is doubtful whether the present half-way house between substantive and bounded rationality is a viable research strategy in the long run. The conjecture here is that we are likely to witness a bifurcation of research in organizational economics in the near future, with one strand taking the full substantive rationality path, and another one taking a behavioral economics path that takes much more account of all sorts of insights from cognitive psychology than has hitherto been the case.

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