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Implications of Multiple Preferences for a Deconstructive Critique and a Reconstructive Revision of Economic Theory

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Abstract. This article explores some of the implications of multiple preferences for modern economic theory. The implications in question open up possibilities for a productive deconstructive critique and an enriching reconstructive revision of many of the discursive structures that are central to contemporary economic theory.

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It is a puzzling feature of the modern economic paradigm that a discourse so preoccupied and fascinated with the complexities of economic reality remains so simplistic in some of its fundamental conceptions of that reality. In very few conceptions has this simplicity been as striking as with the notion of the one-dimensionally representable self that underlies economic theory. Conventional (neoclassical) economic theory is based on a conception of a rational self as a coherent, non-contradictory unity representable by a single, complete, reflexive and transitive preference relation (i.e., a preference ordering). The unidimensional preference ordering of the self is, in general, presumed to be representable by a real-valued function signifying a homogeneous magnitude (utility) to be maximized subject to constraints so as to determine the rational course of choice. Though this conception of the self and rationality is enriched, extended and supplemented in various ways so as to incorporate the choices in uncertain and non-parametric environments (such as choices made under risk, uncertainty and conditions of strategic interaction) as well as the

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choices in intertemporal contexts, the one-dimensional representation of the self by a single preference ordering has remained at the center of economic analysis.

To what extent can a conception of self as a one-dimensionally representable, coherent, non-contradictory unity properly capture the complexities of human behavior as constituted by multiple and often conflicting motivations, contradictory desires, plural and incommensurable values, and qualitatively and irreducibly different criteria of judgment? The notion of a coherent self representable by a unified preference ordering appears to be inadequate to account for the empirically visible irregularities in preference patterns (such as intransitive preferences[1] and preference reversals[2]) as well as the rich variety of theoretically feasible human behavioral patterns involving well-recognized psychological complexities of inner conflicts, contradictory goals or incommensurable viewpoints concerning the choices. Characterized and constituted by qualitatively different values inducing multiple and often conflicting considerations, the preference pattern of a complex self may not lend itself to a single, complete, reflexive, and transitive preference relation. That is to say, it may not be possible to aggregate the multiple, conflicting considerations into a unified ordering.[3] Human beings appear to be too complex to be represented by the notion of the one-dimensionally representable self that underlies economic theory.

[1] Many researchers have called into question the axiomatic validity of the transitivity condition. Tversky (1969) has demonstrated systematic and predictable intransitivities under certain experimental conditions. May (1954), McCrimmon and Larson (1979), Fishburn (1984), and Steedman and Krause (1986) have indicated cases of consistent violations of transitivity in multidimensional choice contexts where the orderings of alternatives with respect to conflicting criteria often result in circularities in choices. Weinstein (1968), Tversky (1969), and Bar-Hillel and Margalit (1988) have referred to the possibility of intransitivity as an "instance" of bounded rationality. Epistemic and cognitive limits of human beings - such as limitations concerning information processing or imperfect sensitivity to the differences among some alternatives - could conceivably generate intransitivities in preference patterns. The more complex the choice situation, the more difficult it is to order alternatives transitively, therefore the higher the information processing cost of obtaining an overall preference ordering.
[2] See Slovic and Lichtenstein (1983).
[3] There are a considerable number of works in the literature that are critical of the one-dimensional representation of the self. Among these are Sen (1977), Steedman and Krause (1986), March (1978), Lutz and Lux (1979,1988), and Kara (1996).

The possibility of preference patterns incapable of being represented by a unified preference ordering calls for an alternative framework which posits the self as a multidimensional complexity as opposed to a one-dimensionally representable simplicity. In other words, we need a framework in which the self is represented by multiple dimensions and hence by multiple preferences. Multiple dimensions of the self could be taken to indicate the multiple considerations with respect to which alternatives of choice are to be ranked. These rankings may be irreducibly distinct, partly interdependent, possibly conflicting, context-dependent and/or dynamic.[4]

Conceiving the self as a multidimensional complexity with irreducibly distinct, interdependent but conflicting multiple preferences has profound implications for economic theory, which would render certain conventional theoretical propositions fundamentally problematic, but at the same time open up new possibilities for an enriching reconstructive revision. We will explore some of these implications in a concise manner. <u>First</u>, in the presence of multiple preferences, singular self-interest can no longer be an unproblematic phenomenon. Each dimension of the self may induce an "interest" of its own, and these "multiple interests" may very well be in conflict with one another, and they could be irreducibly distinct, and therefore incommensurable. Thus, for a self with multiple dimensions, self-interest is more likely to be a conflicted, heterogeneous multiplicity as opposed to a harmonious, homogeneous uniformity. The absence of singular self-interest could render problematic the conventionally postulated correspondence between choices and the self interest of the individual. A choice that is in the interest of the person with respect to one dimension may be against it with respect to another dimension, and there may exist no choice that maximally enhances the interests of the individual on all dimensions simultaneously. In other words, the possibility of such multiple, contradictory interests could preclude maximization of interest for all dimensions and thus for the self. In the absence of a maximum for the "overall self", the conventional theory of demand would run into considerable difficulties, for in the absence of singular interests and singular preferences representable by singular real-valued utility functions, there would be no "grand maximand" to be maximized. In such a case, conventional consumer optimization problems could not be defined, and

[4] For a detailed elaboration on the various complexities associated with multiple dimensions of the self, see Kara (1996).

hence, the conventional demand functions could not be obtained. Thus, new optimization problems would have to be defined so as to specify possible ways in which a multidimensional self could optimize.[5] We will call an optimization problem with multiple preferences a "multidimensional optimization problem" (MOP). Depending on the choice context, an MOP could take a variety of different forms, an example of which would be to maximize a chosen (prioritized) dimensional utility subject to, in addition to the usual budget constraint, dimensional utility constraints (i.e., constraints for other dimensions). Such an MOP involves a non-linear programming problem with one objective function and multiple constraints, and as such, it need not have a solution unless certain technical restrictions are satisfied, i.e., there may not exist a solution for the values of choice variables that satisfies all the constraints and maximizes the designated objective function under those constraints. In the absence of a solution for the optimization problem, demand functions could not be defined, and hence the conventional way of determining prices would break down. Nevertheless, whenever a multidimensional optimization problem does have a solution, demand functions could be obtained; however, there is no guarantee that these functions would satisfy the conventional properties of demand. Demand functions generated through an optimization problem of this kind, as exemplified in Kara (1996), are likely to have irregularities such as kinks and discontinuities, which are likely to be a common phenomenon for the

[5] Besides the possibility of new ways of optimization exemplified in this paper, there is also the possibility, however controversial, of employing some non-maximizing procedures in decisions. In cases where no grand "maximum" exists or where conventional maximization methods do not suffice to yield determinable outcomes, decisions, at least in part and in some contexts, may have to be based on principles or procedures other than conventional maximization such as random or semi-stochastic selection methods, or methods based on sociological regularities, historically established customs, intercultural or intracultural norms etc. Acknowledging, in some contexts, the role of such "non-rational" procedures in decision- making processes where there is no conventional maximization-like rational principles that uniformly determine choices introduces a non-negligible degree of indeterminacy and unpredictability in the behavior of the self, for in the absence of such a single determining principle the individual could employ a number of non-maximizing rules, mechanisms, or procedures to make choices, which diminishes the power of rationally-determined choices and prediction in the conventional theory. Though the new modes of optimization exemplified in this paper or the other optimization methods alluded to may replace non-maximizing procedures to a certain extent and in some contexts, the role of such procedures in decisions is far from being settled.

resulting unconventional demand functions unless dimensional utility constraints are continuously changed ("adjusted") alongside price-income vectors so as to leave the feasible region non-empty for each set of constraints.[6] However, such an adjustment may not always be possible in the presence of likely rigidities or necessities concerning choices. Aside from the question of the possibility of the continuous adjustment of dimensional utility constraints with respect to price-income vectors, such an adjustment introduces a new complexity into the analysis by effectively making dimensional utility constraints functions of prices and income. Endogenizing prices and income in a multiple dimension framework of the kind described here is likely to lead to violations of various properties of conventional demand functions. For instance, since proportional changes in prices and income need not leave the dimensional utility constraints the same, demand functions need no longer be homogeneous of degree zero in prices and income. Similarly, our conjecture is that the law of demand need not hold either.[7]

<u>Second</u>, the notion of the self with multiple preferences poses challenges to equilibrium analysis, which still serves, within the disciplinary matrices of the conventional paradigm, as the central organizing point of reference facilitating the metaphorical representation of economic phenomena. Indeed, a notion of the self characterized by conflicts, tensions and impulses arising from a multiplicity of dimensions pulling and pushing it in a variety of conflicting directions at a point in time could present a number of contingently indeterminate, conflicting and endogenously changeable possibilities for the behavior of the self, which could make it difficult for an agent-inclusive economic process to attain an equilibrium outcome signifying a harmonious state of rest from which there is no tendency to move away. The most obvious indications of this challenge manifest themselves in and through the complications the complex self would create for the theory of demand: the types of kinks and discontinuities

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[6] Genetic algorithms and neural networks could prove to be instrumental in "escaping" some of the problems of kinks and discontinuities in demand functions. For an informative account of genetic algorithms and neural networks, see Pearson, Steele and Albrecht (2004).

[7] Darehshuri (1976) studied some of the complications of introducing prices and income into the utility function for a one-dimensionally representable self. One could reasonably expect that, in a multiple dimension framework, the nature, range and scope of complications associated with the introduction of prices and income into dimensional utility functions would be much more significant.

in demand functions described above would make the discursive power of equilibrium problematic. Discontinuous demand functions yield discontinuous excess demand functions which render discontinuous the "mapping" employed in the proof of the existence of the general equilibrium.[8] With a discontinuous mapping, the conventional proofs of the existence of the general equilibrium through "fixed point theorems" do not hold. The same problem also applies to the analysis of the global stability of the general equilibrium, which implicitly rests upon the assumption of continuous excess demand functions. Without such an assumption, the conventional procedure through which a Liapunov function is used to establish the global stability of the general equilibrium breaks down.[9] Thus, with discontinuities that are characteristic of the demand functions of a multidimensional self, the rationality-embodied procedures of the conventional theory would not enable us to determine whether equilibrium values exist and whether they are stable.[10] In the absence of determinable and stable values, the conventional theory of value breaks down.

Third, the challenges posed to the equilibrium analysis also have implications for methodological trajectory and needs of the conventional paradigm: as a scientific body of knowledge, the history of the conventional paradigm in the last five decades has been marked by a relentless effort on the part of its practitioners to produce a discourse whose distinctive features are precision, rigor, and definiteness in the results it generates. The extensive use of mathematical techniques and physical metaphors borrowed from "hard" sciences is intended to serve that purpose. The road to becoming a rigorous science has not been an easy one, and the rigor achieved has often come at the expense of the relevance of the results to contemporary economic processes.[11] For instance, the possibility of equilibrium in a

[8] For the "mapping in question and for a presentation of the proof of the existence of the general equilibrium, see Katzner (1988: 268-278).

[9] For the use of a Liapunov function to prove the global stability of the general equilibrium, see Katzner (1988: 286-289).

[10] The presence of uncertainty would further complicate the problem of instability. The problem, though not fully resolvable, is somewhat more tractable in a partial equilibrium framework. For examples of stochastically stable systems in a partial equilibrium framework, see Kara (2007, 2008).

[11] Though there is no common intertheoretic standard by which conventional and nonconventional paradigms judge the relevance of a certain set of conditions to those of contemporary capitalist economies, the nonconventional views expressed here on the issue are shared by many conventional economists (such as Blaug (1996)) as well.

competitive capitalist economy has been rigorously established, but the conditions under which it is established do not stand even a remote chance of being relevant to the conditions of contemporary capitalist economies.[12] In the presence of such a controversial picture, the introduction of a new notion of the self, with implications of likely indeterminacy, unpredictability and instability for the behavior of the agents, could pose problems of its own in terms of rigor and precision in the analysis of economic phenomena, and make the problems of relevance even worse. The rigor and precision with which the existence of general equilibrium is established in the conventional framework would no longer suffice, as indicated above, for a proof of existence in a multidimensional self framework, and the possible conditions under which the question of existence could be settled in a convention-compatible manner could hardly be relevant to anything but intellectual exercises in one's discursive imagination. To properly address the questions of relevance and to reasonably capture the richness and complexity of reality, the reality-representation procedures/methods of the conventional theory need to go far beyond the equilibrium metaphor and include, perhaps at a fundamental level, indeterministic and non-equilibrium methods as well.

Fourth, multiple preferences complicate the optimality features of market (equilibrium) outcomes. In a multiple-dimension framework, individuals could no longer be conceived of as atomic units that would and could maximize singular preference functions representing their singular interests. Multidimensional selves are likely to have multiple interests that could be interwoven with the interests of the others. In such a multidimensional web of complex interdependence, the conditions for the feasibility and optimality of the atomistic individualism that requires agents to pursue singular self- interests to the exclusion of everything and everybody else would not hold. Thus, in environments where economic agents are of multidimensional kind, atomistically individualistic behavioral patterns are likely to induce individually and socially suboptimal and

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[12] Inextricably interconnected stochastic-dynamic processes in contemporary capitalist economies could “magnify” the scale and the range of possible complications in equilibrium analysis. Nevertheless, once the existence of the equilibrium is established in a stochastic-dynamic framework, a stochastically evolving economy, when it is out of equilibrium, could be viewed as being on a path converging to that equilibrium. However, conditions that ensure such a path-contingent convergence are no less restrictive than those that ensure the existence of the equilibrium (See, Kara (1996, 2000, 2008)).

undesirable results. In the presence of multidimensional interdependencies and externalities, the ability of market processes to produce efficient outcomes is likely to be diminished. Inefficiencies may arise because market processes, as described above, could fail to reach equilibrium states, the complex agents may not be able to optimize in the conventional sense of the term, or they may not always exhibit the conventionally postulated atomistically competitive behavior due to interdependencies and externalities arising from interactions among the multiple dimensions of different individuals. Thus, market failure is likely to be a more pervasive phenomenon than it is thought to be in the conventional framework.[13]

We conclude with some remarks about implications of multiple preferences for the game-theoretic framework. In the absence of one-dimensional complete, transitive preference relations, von Neumann-Morgenstern utility functions could not be obtained. The conditions under which Nash equilibria are established would have to be reconstructed. Aside from the theoretical complications, however, multiple preferences present an extraordinary array of new possibilities for multidimensional strategic interactions among multiple dimensions of multiple agents.[14] An economic analysis grounded in a conception of the self as a multidimensional complexity is likely to allow a great deal more richness and depth in the analysis of the agent-inclusive economic processes than that of conventional economic theory.

[13] For a description of such market failure in the context of the historic depression of 1929, see Kara (2000).

[14] Behavioral accounts of strategic interaction, such as the one by Camerer (2003), would especially be enriched by the introduction of multiple preferences to game theory. Some of the topics covered by Kahneman (2003) would be interesting to explore in a multiple-dimension framework as well.

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