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## **Pluralisms in Economics**

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### Introduction

In 1992, a group of economists issued a “Plea for a Pluralistic and Rigorous Economics” in an advertisement in the *American Economic Review*,<sup>1</sup> calling for “a new spirit of pluralism in economics, involving critical conversation and tolerant communication between different approaches. Such pluralism should not undermine the standards of rigor; an economics that requires itself to face all the arguments will be a more, not a less, rigorous science.” The announcement had been organized by Geoffrey Hodgson, Uskali Mäki, and D. McCloskey, and signed by fortyfour illustrious names amongst which Nobel laureates Franco Modigliani, Paul Samuelson, Herbert Simon, and Jan Tinbergen.

In 1993, the International Confederation of Associations for Pluralism in Economics (ICAPE) was founded as a “consortium of over 30 groups in economics” that “seeks to foster intellectual pluralism and a sense of collective purpose and strength.”<sup>2</sup> Its 1997 resource list contained 30 professional associations, 32 academic and policy journals, 11 publishers, 16 departments, 16 centers, and 9 special projects, not all of which were formally affiliated with ICAPE. The consortium’s statement of purpose suggests: “There is a need for greater diversity in

theory and method in economic science. A new spirit of pluralism will foster a more critical and constructive conversation among practitioners of different approaches. Such pluralism will strengthen standards of scientific inquiry in the crucible of competitive exchange.” ICAPE’s first conference on “The Future of Heterodox Economics” was held during the summer of 2003.

In 2000, a group of economics students in France, under the banner “autisme-économie,” published a petition on the web in favor of a pluralism of approaches in economics.<sup>3</sup> The students wrote: “We want a pluralism of approaches, adapted to the complexity of the objects and to the uncertainty surrounding most of the big questions in economics....” Their plea was supported by a petition from the hands of some economics teachers in France, who also stressed the need for a plurality of approaches adapted to the complexity of objects analyzed.<sup>4</sup> They noted: “Pluralism is not just a matter of ideology, that is of different prejudices or visions to which one is committed to expressing. Instead the existence of different theories is also explained by the nature of the assumed hypotheses, by the questions asked, by the choice of theoretical spectrum, by the boundaries of problems studied, and, not least, by the institutional and historical context.” The teachers concluded: “Pluralism must be part of the basic culture of the economist. People in their research should be free to develop the type and direction of thinking to which their convictions and field of interest lead them. In a rapidly evolving and evermore complex world, it is impossible to avoid and dangerous to discourage alternative representations.”

In 2001, 27 economics Ph.D. students at Cambridge University in England who have come to be known as the “Cambridge 27” issued a petition entitled “Opening Up Economics.”<sup>5</sup> They ended their proposal for reforming economics as follows: “We are not arguing against mainstream methods, but believe in a pluralism of methods and approaches justified by debate.

Pluralism as a default implies that alternative economic work is not simply tolerated, but that the material and social conditions for its flourishing are met, to the same extent as is currently the case for mainstream economics. That is what we mean when we refer to an ‘opening up’ of economics.”

Implicit in all these appeals is the observation that economics lacks pluralism. The pleas are defended by means of an assortment of arguments, such as discussions of the complexity of the economy, evaluations of the restrictions inherent in modeling, and assessments of the cognitive limitations on the part of economists. The advertisement in the *American Economic Review* also employs a reflexive strategy: “Economists today enforce a monopoly of method or core assumptions, often defended on no better ground than that it constitutes the ‘mainstream’ . Economists will advocate free competition, but will not practice it in the marketplace of ideas.”<sup>6</sup>

Since pluralism itself is a reflexive doctrine, this paper develops an understanding of various forms of pluralism, or lack thereof, in economics.<sup>7</sup> In particular, it argues that pluralism in economics is recurring, but often denied. Instead of locating the source in epistemology, metaphysics, and the like, the analysis in the subsequent sections proposes that the lack of success of the monist movement in economics strengthens the case for pluralism, and therefore suggests that pluralism is contingently true. The next section offers an overview of movements towards monism about theories, showing that repeated efforts at securing a single theory have failed. These developments have extended towards the level of economies, as suggested by the subsequent section, which shows that attempts to treat economic agents monistically have failed. The lack of success of these efforts to achieve monism has paved the way for a (full-fledged) return to pluralism, as elaborated in the final section of this paper.

## Monism about Theories

As evidenced by the pleas organized by Geoffrey Hodgson, Uskali Mäki, and D. McCloskey, the French students, the French faculty members, and the Cambridge 27, economics is currently characterized by efforts to achieve monism at the theoretical level. However, this has not always been the case. During the period before World War I and the interwar period, pluralism was the dominant force in economics (Morgan and Rutherford 1998a).<sup>8</sup>

Before World War I, the Social Gospel movement exerted an extensive influence on economics (Bateman 1998). Since it was compatible with several types of economic analysis, it served the function of sanctioning pluralism, provided the focus was on social justice. As a result, it supported several approaches in economics, including institutionalism and neoclassicism, also known as marginalism. In Bradley Bateman's (1998, 39) words: "Institutionalists and marginalists could coexist ... as long as the issue was reform rather than revolution and as long as ethical concerns informed their work." When the progressive movement declined after World War I to make room for a focus on "realism," both institutionalism and neoclassicism continued to flourish.<sup>9</sup>

During the interwar period, pluralism characterized economics on many levels. Whereas institutionalism and neoclassicism coexisted, they were individually also highly pluralistic. Institutionalism was a nonexclusive, broad movement and neoclassical economics was highly diverse as well. In addition, individual members of these groups adopted a variety of theoretical stances. Mary Morgan and Malcolm Rutherford (1998b, 8) describe the situation as follows: "Economists of the early twentieth century shared a kind of scientific economics (more often concrete than abstract), a moral commitment to ensure standards of scientific inquiry, and an

evenhanded objectivity combined with advocacy. Pluralism was supported, not compromised by these standards.” Institutional economists started coming under attack in the 1930s, partly because they were unable to provide a set of policy recommendations that were considered to be successful against the Great Depression (Bateman 1998). However, it took a watershed event like World War II for these to have the effect desired by the neoclassical economists.

World War II stimulated the move in economics towards monism about beliefs, ideology, theories, models, and policy advice, with the formalism of neoclassical economics pushing out her institutionalist sister. During the war, heavy demands had been placed on economists to develop tools for solving policy problems. Sharing in the glory of the subsequent victory, economists emerged with a firm belief in the formalism that characterized neoclassical economics. While economics became associated with a certain tool-kit as opposed to a particular area of study, the formalism further supported economists’ efforts to gain identity as a “national science,” to achieve professional status. As Morgan and Rutherford (1998b, 19) note: “[T]he transformation into formal economics involved changes in language, form, and tools. This new style became a set of mores that reduced in itself the possibility of pluralism in economics.”

To fully understand the transformation from pluralism and monism, one must not only appreciate the changing nature of mathematics and mathematical economics (Weintraub 1998),<sup>10</sup> but also the multiple dimensions of the process that strengthened neoclassicism and weakened institutionalism. While there had been a focus on personal qualities and attitudes of economists during the interwar period, objectivity came to be associated with a particular set of methods, namely mathematics and statistics, after World War II. At the same time, economists gradually moved away from advocacy. The success of the new set of methods with which neoclassical economists came out of World War II instilled in them a belief in the ideas behind them.

Simultaneously, American society moved from a desire for economic intervention towards support for free markets and open competition, thereby further strengthening the neoclassical belief system.<sup>11</sup>

Institutionalism was at odds with the new scientific styles demanded by the patrons of economics (Goodwin 1998)<sup>12</sup> and further weakened by the turn away from planning and regulation towards the market and competition as instruments of control (Balisciano 1998). During the Cold War period, the technical turn in economics was intensified as a result of a continued narrowing in the range of beliefs, an additional tightening of acceptable ways of expressing them, and open prosecution during the McCarthy period.<sup>13</sup> In the process, the possibilities of pluralism in economics persistently waned as the language, form, and tools of economics continued to narrow. Morgan and Rutherford (1998b, 24) conclude that the decline of pluralism in American economics took place “within structures involving patrons and hierarchies operating within the context of a political and economic society that supported calls for economic intervention in the interwar period and for free markets in the postwar period.”

Complicating our admittedly simplified description here and foreshadowing our claim that pluralism in economics is recurring, though often denied, some have suggested that neoclassical economics owes its strength to its persistent inability to enforce any monolithic orthodoxy. For instance, Wade Hands and Philip Mirowski (Hands and Mirowski 1998; Mirowski and Hands 1998) outline three approaches to neoclassical demand theory, associated with the University of Chicago Economics Department (in particular Milton Friedman and George Stigler), the Cowles Commission at the University of Chicago (especially Kenneth Arrow and Gerard Debreu), and the Massachusetts Institute of Technology (most notably Paul Samuelson).<sup>14</sup> And Perry Mehrling (1998, 295) suggests that “although the neoclassical language

might have become hegemonic, what economists wanted to say with that language remained as pluralist as in the interwar years.”

In addition, our focus has been almost exclusively on developments in the United States, which is justified by “the United States’ predominant influence on the expansion and internationalization of economics during the past half century” (Coats 1996b, 4). As a result, the trends outlined here are spreading, with some lag, to Europe and Japan. In Europe, this has occurred more rapidly in the United Kingdom than on the Continent against the background of the growth of new universities, the imposition of the research assessment exercise, and an expansion of student numbers along with a reduction of resources (Backhouse 2000). At the same time, “the process of internationalization has by no means obliterated national differences” (Coats 1996b, 4). This may explain why several of the pleas outlined in the introduction originated from Europe, perhaps as opposition to the type of economics emanating from the United States.<sup>15</sup>

It should also be acknowledged that our focus has so far been on microeconomics, which concentrates on the decisions of people and businesses. We will learn in the remainder of this section that pluralism reemerged during efforts to reduce other fields to microeconomics. To start, microeconomics has come under attack for not having a notion of “the social” other than summing “the individual” (Hands 1994, 1995, 1997a). As Wade Hands (1997a, S112-S113; original emphasis) explains: “Since the social is merely the sum of the individuals, economists cannot accommodate any concept of the social that is *qualitatively different* from that which is possessed by the individual economic agents.” Briefly, neoclassical economists rely on two notions of social efficiency, namely the Pareto criterion and the compensation principle. According to the Pareto criterion, an allocation of resources is Pareto efficient if it is not possible

to make one person better off without making another person worse off. Hence, assessments of social efficiency are based on individual well-being. In other words, there is no qualitative transformation involved. According to the compensation principle, an efficiency improving reallocation of resources requires the gains to the winners to be greater than the losses to the losers, which would allow the winners to “compensate” the losers and still be better off. Again, assessments of social efficiency are established by adding up over individuals. In other words, again, the social is not different from the individual, not something with unique or emergent properties.

Even if one accepts the exclusive focus on “the individual” in economics, problems occur. As neoclassical economists themselves have acknowledged (e.g., Arrow 1959), “competitive” markets require something beyond an “individualistic” explanation. Basically, each individual agent in a competitive market takes prices as given in her individual choice problem. This raises the question, then, from where these prices come (Hands 1995). If they come from something other than the individual agents, then one no longer offers a consistently individualistic explanation. Hands (1995, 617), therefore, concludes: “The result is that the ‘competitive market model,’ ostensibly the paragon of successful individualistic social science, is dependent on something outside of (or above, or prior to) the individual agents for its primary explanandum (competitive prices).”

Accepting the stress on “the individual” and ignoring some of its limitations, the efforts to achieve monism about theories in microeconomics inspired efforts to reduce other fields to it, as suggested by D. McCloskey (1982, 7): “Although its Greek meaning is ‘small housekeeping,’ microeconomics is not the little or trivial portion of economics. On the contrary, it comes close to being the whole. Not all fields of economics are based on microeconomics, but all strive to be.

Most of the lasting advances in economic thinking over the past century or so have consisted of reducing one or another piece of economic behavior to microeconomics.”<sup>16</sup> These endeavors have extended to macroeconomics, which studies the national and global economy. In particular, they have focused on establishing microfoundations of macroeconomics, as Lawrence Boland (1982, 80) confirms: “[T]he demonstration of the existence of microfoundations for macrotheories is considered essential by many leading economists. The reason ... is easy to find. Demonstrating the dependence of all macroeconomics on microeconomic principles is essential for the fulfillment of the (methodological) individualist requirements of neoclassical economics.”<sup>17</sup>

These attempts to develop neoclassical microfoundations for macroeconomics date back to the years just after World War II, as evidenced by the observation by Lawrence Klein (1946, 93): “[T]hese aggregative theories [i.e., macroeconomic theories] have often been criticized on the grounds that they mislead us by taking attention away from basic individual behavior. The problem of bridging the gap between the traditional theories based on individual behavior and the theories based on community or class behavior is, to a large extent, a problem of proper measurement” (also see Janssen 1993; Nelson 1984; Weintraub 1977, 1979). To be more precise, the problem of aggregation consists of two components (Deaton and Muellbauer 1980; Green 1964; Theil 1954). First, whether there exist functional relationships among macroquantities obtained by aggregating relevant microquantities. Second, whether the functions obtained by aggregating microfunctions are the same as the macrofunctions derived independently. In the process, neoclassical economics was modified in a variety of ways to provide a conceptual base for the formulation of macroeconomic concerns.<sup>18</sup> And “by say 1960 the microfoundations problem appeared, on the surface, to be ‘settled’” (Weintraub 1977, 4).

Matters changed during the 1960s, when non-neoclassical economists uncovered difficulties with aggregating from “the individual” (Harcourt 1969, 1972; Kurz and Salvadori 1997; Robinson 1953), as evidenced by what has come to be known as the “Cambridge controversies in the theory of capital,” indicating the critics in Cambridge, England and the defenders in Cambridge, Massachusetts. The target of attack was the aggregate production function, which refers to a neoclassical construct (a macroeconomic version of a firm’s production function) in which inputs of capital and labor are considered to have a technical (i.e., engineering) relation to aggregate production. In the course of investigating the meaning of this production function for total output, Joan Robinson (1953) found that this construct is incoherent because of the fuzzy nature of the capital variable. In particular, the British side of the controversy outlined two problems with the aggregate production function, namely reswitching and reverse capital deepening. For reswitching to occur, one set of techniques must be chosen at at least two different ranges of the interest rate, with other sets of techniques selected at intermediate ranges. Consequently, there is no unambiguous relationship between changes in “input proportions” and changes of the so-called “factor prices,” which is a central element of the neoclassical explanation of distribution in terms of supply and demand. For reverse capital deepening to arise, the relationship between the value of capital (per capita) and the rate of profits must be increasing. As a result, a higher interest rate may be associated with a switch to a more capital-intensive technique, implying that the interest rate is not a “scarcity index” for “capital,” which is a core component of the neoclassical approach.

Neoclassical economist Joseph Stiglitz (1974, 898) drew the following conclusion from these insights: “[T]he restrictions embodied in neoclassical macroeconomic models do not necessarily follow from the microeconomic (disaggregative) models from which they should be

derived.” For non-neoclassicals, who continued to remain outsiders as a result of the forces outlined before, this implied the need to create alternative microeconomic models.<sup>19</sup> One response of neoclassical economists was to retreat to microeconomic theory. Another was to refer to the aggregate production function as a useful parable and to dismiss the possibilities explored by the British as a curiosum, a perversity, not a serious economic problem, or a red herring. The former answer starting drawing support only after the discovery of additional hurdles, as we will learn shortly, but the first one was the favored response for most neoclassical economists, including Stiglitz (1974, 899): “I believe that, under most circumstances and for most problems, the errors introduced as a consequence of aggregation of the kind involved in standard macroanalysis are none too important....”<sup>20</sup>

In the late 1960s, the rise of rational expectations economics at the macrolevel gave new impetus to the microfoundations project and the associated efforts to achieve monism about theories (Sent 1998).<sup>21</sup> In particular, rational expectations economists argued that the suboptimal use of available information under adaptive expectations was hard to reconcile with the idea of optimization that was the foundation of neoclassical economic analysis. Instead, rational expectations economists claimed that since agents were posited as optimizers, it was only natural to presume that they would also form their expectations optimally. In other words, the rational expectations hypothesis was a direct derivation from the neoclassical optimization principle extended to the problem of expectations of future events. In particular, optimizing over perceptions implied that agents did the best they could and formed their views of the future by taking account of all available information, including their understanding of how the economy works. If perceptions were not optimally chosen, there would exist unexploited utility or profit

generating possibilities within the system. Hence, rational expectations economists insisted on the disappearance of all such unexploited possibilities.<sup>22</sup>

Rational expectations economists contrasted their approach with Keynesian analyses. They argued that economics had to account for the decisions of firms and people in ways that were consistent with the idea of optimizing behavior, because ad hoc assumptions about the behavior of firms and people did not sit well with the microfoundations of economic theory. At the same time, they criticized the typical Keynesian assumptions that markets did not clear and that economic agents did not always pursue optimizing strategies, because both implied ad hoc departures from the axiom of rational behavior. Hence, rational expectations economics may be viewed as replacing earlier ad hoc treatments with an approach squarely based on the microfoundations of incentives, information, and optimization.

In the 1970s, then, textbook author John Beare (1978, 7) felt justified to celebrate the inclusion of macroeconomics in the efforts towards monism about theories, when he wrote: “Macroeconomics deals with relationships between aggregate variables, the rigorous derivation of which now tends to be based on relationships implied by microeconomic theory.” However, the author celebrated too soon, as illustrated by the so-called Sonnenschein-Debreu-Mantel result (Sonnenschein 1972; Debreu 1974; Mantel 1976; Kirman 1989, 1992; Rizvi 1994a).<sup>23</sup> In 1972, Hugo Sonnenschein considered the restrictions imposed on the structure of aggregate demand functions; in 1974, Gerard Debreu continued this line of work. They found that under standard neoclassical assumptions on the individual consumers, such as strict convexity and monotonicity of preferences, so that each agent is characterized by textbook indifference curves and a positive bundle of endowments of all goods, one can derive an excess demand curve for each individual. Summing over all individuals, of whom it is assumed that there are only a finite number, gives

the excess demand curve for society as a whole. Under certain not-very-restrictive conditions, three properties will carry over from the individual's excess demand curve to the aggregate demand curve: continuity, a value of total excess demand that must equal 0 at all prices, and excess demand that is homogeneous of degree 0.

In addition, Sonnenschein and Debreu established that these three properties are the only ones that carry over from the individual to the aggregate demand function. In particular, the weak axiom of revealed preference (WARP) may not be satisfied at the aggregate level. Yet, if we are to obtain uniqueness and stability of equilibria, some such restrictions must be imposed. Hence, if WARP is imposed on aggregate excess demands, the economy is presumed to act as if it were just one big consumer. This line of work did not remain isolated, and research by Rolf Mantel showed that the same situation obtains even if the class of admissible preferences is restricted even further. Hands (1995, 617) succinctly summarizes the problem: "In other words, the standard micro model has almost no implications for macrobehavior."

These difficulties in achieving monism about theories may have inspired neoclassical economists such as Frank Hahn to endorse pluralism about theories. For instance, Hahn (1984, 7-8) wrote: "The most strongly held of my views ... is that neither is there a single best way for understanding in economics nor is it possible to hold any conclusions, other than purely logical deductions, with certainty. I have since my earliest days in the subject been astonished that this view is not widely shared. Indeed, we are encompassed by passionately held beliefs.... In fact all these 'certainties' and all the 'schools' which they spawn are a sure sign of our ignorance ... we do not possess much certain knowledge about the economic world and ... our best chance of gaining more is to try all sorts of directions and by all sorts of means. This will not be furthered by strident commitments of faith."<sup>24</sup> In fact, the present situation in (mainstream) economics may

be characterized as one of moderate pluralism. Sheila Dow (2002, 7) explains: “There is in particular a bifurcation between theoretical and applied mainstream economics. Both theoretical and applied models, in turn, are often partial.” Recent years have witnessed, for instance, efforts to incorporate bounded rationality approaches, behavioral insights, chaos theory, complexity approaches, and experimental methods, some of which will be discussed in the final section of this paper.

Before concluding, a discussion of further responses to the failed attempts at monism about theories leads us to our section on monism about economies.

### Monism about Economies

Whereas pluralism about theories is a familiar concept, pluralism with economies as the object is perhaps less so. It concerns an economy in which people (or groups) value things differently and in which this diversity is valued (Hargreaves Heap 1997). There is not just a plurality, but there is also a political commitment to pluralism. As this section shows, economics does not respect a diversity of view concerning the agents who populate its models. Much like the previous one, it illustrates the failure of efforts to establish monism, though now at the level of economies rather than theories. As we will learn, this is one of the consequences of the Sonnenschein-Debreu-Mantel result, but before discussing this, let us provide two illustrations that economics has always had difficulties dealing with distinctly different agents (Sent 1998).

First, consider the cloning argument Francis Ysidro Edgeworth (1881) developed in the course of analyzing exchange. He started with the idea that exchange between single traders is, to some extent, indeterminate, whereas exchange among numerous buyers and sellers in a

competitive market is determinate. Edgeworth, following Antoine Augustin Cournot's lead, proposed to begin with bilateral monopoly and work his way toward perfect competition.<sup>25</sup> This was his famous "recontracting" process, which is based on the suspicion that the core, which is the set of possible outcomes,<sup>26</sup> might shrink as the economy grows. However, since the core is a subset of the allocations space, its dimension keeps changing as the economy grows. Generally, if we allow the economy to grow by increasing the number of agents, we will have more possible coalitions and hence more possibilities for improvement. This led Edgeworth to limit himself to a particularly simple kind of growth in which the number of types of agents stays constant, in other words, in which restrictions are placed on the heterogeneity of the agents. Thus, large economies just have more agents of each type.

Second, consider the fact that general equilibrium theory does not successfully apply to an economy that is fully specialized and in which the possibility of self-sufficiency is the exception rather than the rule (Rizvi 1991). When not every individual in the economy is endowed with sufficient quantities of all commodities required for subsistence, exchange is a necessity for participants' survival. Since the level of equilibrium prices cannot be prejudged, subsistence might not be possible for all agents. The approach taken in existence proofs of general equilibrium before 1975 was basically to remove those agents who are specialized and who need the market to trade into their consumption sets from further consideration, and that means that the economy is not specialized.<sup>27</sup> Nevertheless, even for an economy of self-subsistent individuals, existence could not be shown without further assumptions because the possibility of zero prices precluded a successful demonstration of continuous demand. The continuity problem was remedied by one of two assumptions that further reduce the differences among agents: The interiority assumption increases the endowments of all goods to levels

exceeding even those minimally required for self-subsistence; the irreducibility assumption is aimed at securing the use of more realistic, but still self-subsistent, endowments.

Likewise, one response to the Sonnenschein-Debreu-Mantel result has been to reduce differences among economic agents, with macroeconomic models assuming “that the choices of all the diverse agents in one sector ... can be considered as the choices of one ‘representative’ standard utility maximizing individual whose choices coincide with the aggregate choices of the heterogeneous individuals” (Kirman 1992, 117). For, if the behavior of the economy could be represented as that of a representative agent or a number of identical agents, the situation might be saved, since textbook individual excess demand functions do have unique and stable equilibria.<sup>28</sup> With one representative agent, there clearly can be no difference of opinion, which we call a situation of monism in economies.

Much like the efforts to achieve monism about theories, the developments under review in this section on economies encountered major stumbling blocks. Some of these problems concern the relationship between the representative individual and the group she supposedly embodies. In particular, Alan Kirman (1992) identifies several of those difficulties.<sup>29</sup> First, there is no direct relation between individual and collective behavior, because well-behaved individuals need not produce a well-behaved representative agent. Second, the reaction of the representative agent to change need not reflect how individuals of the economy would respond to change. Third, the preferences of the representative individual cannot be used to decide on the desirability of economic situations, because they may be diametrically opposed to those of society as a whole. Kirman (1992, 125), therefore, concludes that “the assumption of a representative individual is far from innocent; it is the fiction by which macroeconomics can justify equilibrium analysis and provide pseudo-microfoundations. I refer to these as pseudo-

foundations, since the very restrictions placed on the behavior of the aggregate system are those which are obtained in the individual case and, as we have seen, there is no formal justification for this.”

Besides the troubled connection between the individual and the collective, representative agent analysis has encountered many other problems (Sent 1998). First, a representative agent is ill-suited to studying macroeconomic problems that are coordination failures, such as unemployment. Second, a representative individual cannot exhibit the complicated dynamics witnessed at the macroeconomic level. Third, how can there be trade among one representative agent? Or suppose there are several representative agents who are alike in several dimensions, how can there be trade among these? One suggestion, following a line of research started by Robert Lucas (1972), is to introduce a certain amount of pluralism in the sense that equilibrium probability beliefs differ and that agents actually trade on the basis of different information. However, a whole series of no-trade theorems overrule this commonsense intuition (see Hakanson et al. 1982; Milgrom and Stokey 1982; Rubinstein 1975; Tirole 1982; Varian 1987). Briefly, when it is common knowledge that traders are risk-averse, are rational, and have the same priors and that the market clears, then it is also common knowledge that a trader’s expected monetary gain given her information must be positive for her to be willing to trade at the current asset price. In such a situation, other agents would be unwilling to trade with her, because they realize that she must have superior information. The equilibrium market price fully reveals everybody’s private information at zero trades for all traders.

One solution to these no-trade theorems has been to return to pluralism about economies. For instance, agents may have different prior beliefs. Now, if differences in prior beliefs can generate trade, then these differences in belief cannot be due to information as such, but rather

can only be pure differences in opinion.<sup>30</sup> In other words, they reflect pluralism. Overall, the response to the Sonnenschein-Debreu-Mantel results and the problems associated with the resulting embrace of representative agent analysis has been for neoclassical microeconomics to move towards game theory. As Kirman (1992, 131) explains: “An alternative and attractive approach is offered by game theory, where the interaction between heterogeneous individuals with conflicting interests is seriously taken into account” (also see Rizvi 1994b). Yet, much like its predecessors, game theory does not accommodate a diversity of view concerning the agents who populate its models.

Briefly, game theory relies on a whole range of common knowledge assumptions (Brandenburger 1992; Geneakoplos 1992; Rizvi 1994b), thereby reducing pluralism in the sense of diversity of view.<sup>31</sup> Principally, common knowledge is the limit of a potentially infinite chain of reasoning about knowledge.<sup>32</sup> Yet, much like the efforts to achieve monism about economies through representative agent analysis, the common knowledge assumption encountered major hurdles. First, according to the so-called agreement theorem, common knowledge of actions negates asymmetric information about events. In other words, agents cannot agree to disagree. As a result, whenever economic agents come to common knowledge of actions, the joint outcome does not use in any way the differential information about events they each possess. In addition, agents with identical priors must have the same opinion, even with different information, if those opinions are common knowledge. Second, and especially relevant for our narrative, according to the so-called non-speculation theorem, agents cannot bet and speculation is banished. If it is common knowledge that the agents want to trade, as occurs when agents bet against each other, then the agreement theorem implies that trades must be zero. This is reminiscent of the no-trade theorems mentioned earlier.

Much like monism about theories failed, then, monism about economies encountered significant stumbling blocks, most importantly the no-trade theorems for representative agent analysis as well as game theory. This observation brings us to the concluding section of this paper.

## Conclusion

In light of the efforts to establish monism on the part of neoclassical economists outlined in the previous sections, it comes as no surprise that outsiders to the mainstream appear to be supporting pluralisms and criticizing monisms, as evidenced by the pleas with which this paper started.<sup>33</sup> However, upon closer scrutiny, heterodox economists frequently are monists about theories. In the opinion of John Davis (1997, 209; original emphasis), the motivation of heterodox economists “is not that their own theoretical approaches are *also* correct — a theoretical pluralist view — but rather than neoclassical economics is mistaken and misguided in its most basic assumptions, and that their own approaches remedy the deficiencies of neoclassicism — a theoretical monist view.” This motivation is evidenced, for example by the observation that the first conference of the International Confederation of Associations for Pluralism in Economics (ICAPE) is on the future of heterodox economics, while orthodox economics is considered to be “vapid, exclusionist, and detached from its social and political milieu.”<sup>34</sup> The French students write about neoclassical economics: “We no longer want to have this autistic science imposed on us.”<sup>35</sup> And their teachers concur: “Neoclassicalism’s fiction of a ‘rational’ representative agent, its reliance on the notion of equilibrium, and its insistence that prices constitute the main (if not unique) determinant of market behavior are at odds with our

own beliefs.”<sup>36</sup> Employing the categorizations developed by Ronald Giere (this volume), then, the appeals to pluralism on the part of heterodox economics may be seen as an instance of strategic pluralism. Though their advocacy of pluralism may be couched in metaphysical or epistemological terms, it is primarily inspired by efforts to achieve professional power and dominance.

Despite the apparent acceptance of monism, this paper has illustrated the failure to achieve monism on the part of mainstream economics. It has shown that pluralism is recurring, though often denied. Monism about theories required an evaluation of “the individual” as well as “the social.” However, on the one hand, mainstream economics has no notion of the social other than the summing up over individuals. On the other hand, it cannot maintain a unique focus on the individual, because this would preclude complete explanation of competitive markets. At the same time, microeconomic findings concerning the individual were shown not to carry over to the social level, as illustrated by the Sonnenschein-Debreu-Mantel result. For monism about economies, these findings resulted in an effort to populate economies with one representative agent. This effort to reduce differences of opinion resulted in major stumbling blocks, including a problematic connection between the “representer” and the “represented” as well as a lack of trade, which, supposedly, is one of the main foci of economy analyses. These difficulties resulted in a move towards game theory, which laid bare new problems with monism about economies. In particular, agents cannot agree to disagree, they cannot bet, and speculation is banished.

The breakdown of the microfoundations project suggests that phenomena at the micro and macro levels in economics are so complex that one theoretical approach, for instance microeconomics, does not have the resources to provide a complete explanation or description of them. For economists, these failures have led them in the direction of exploring cognitive

limitations on the part of the agents who populate their models. For macroeconomists, incorporating bounded rationality could modify or take the edge off the very sharp no-trade theorems (Sargent 1993, 15; Sent 1997). For game theorists, absence of a fully rational treatment of knowledge may circumvent no-trade theorems by allowing speculative trade (Rubinstein 1998, 56-60; Sent forthcoming).

Observing these developments Abu Rizvi (1994, 19n) noted that “[i]t is interesting that Simon’s ideas were not used by mainstream theorists for years but have recently been ‘discovered’.” And Herbert Simon (1992, 266) observed: “Readers would not be deceived by the claim that economists flocked to the banner of satisficing man with his bounded rationality. The ‘flocking’ was for a long time a trickle that is now swelling into a respectable stream.”<sup>37</sup> These connections with Simon’s insights strengthen the suggestion that some parts of the world are so complex that they cannot be fully accounted for from the perspective of a single representational idiom, because Simon’s research agenda focused on analyzing complex, hierarchical systems (Sent 2001). Simon’s (1996, 184) interpretation of these systems implied that “the whole is more than the sum of the parts” and that “it is not a trivial matter to infer the properties of the whole.”

Ironically, when economists made the agents in their models more bounded in their rationality, they had to be smarter because these models became larger and more demanding econometrically. As macroeconomist Thomas Sargent (1993) explains: “Within a specific economic model, an econometric consequence of replacing rational agents with boundedly rational ones is to add a number of parameters” (168) because we “face innumerable decisions about how to represent decision-making processes and the ways that they are updated”. This, in turn, gives additional plausibility to the suspicion that pluralism further results from cognitive limitations on the part of human inquirers. The main focus of this paper, however, has been to

strengthen the case for pluralism by offering an overview of the lack of success of several monist movements in economics.

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## Notes

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1 The advertisement appeared in *American Economic Review* 82 (2): xxv.

2 Information on ICAPE can be found at <http://www.econ.tcu.edu/icare/home.html>.

3 The text of the French students' petition is available at  
[http://www.btinternet.com/~pae\\_news/texts/a-e-petition.htm](http://www.btinternet.com/~pae_news/texts/a-e-petition.htm).

4 The text of the professors' petition circulated in France can be found at  
[http://www.btinternet.com/~pae\\_news/texts/Fr-t-petition.htm](http://www.btinternet.com/~pae_news/texts/Fr-t-petition.htm).

5 The open letter of the 27 Ph.D. students at Cambridge University may be accessed at  
[http://www.btinternet.com/~pae\\_news/Camproposal.htm](http://www.btinternet.com/~pae_news/Camproposal.htm).

6 One of the organizers of the plea, Uskali Mäki (1999), clarifies that some economists who are supporters of free market (object-)economics refused to sign, whereas some economists who are less enthusiastic about free market (object-)economics did sign. He conjectures that “when economists talk about the ‘free market’ of ideas, they do not use the expression in the sense in which it appears in their theories of the goods market” (504). This enables consistency, but eliminates full self-referentiality.

7 Unfortunately, space limitations allow us to consider only two forms and not others such as pluralism about methodologies, methods, and the like.

8 What follows is a very crude characterization of the transition from pluralism during the interwar period to monism after World War II, focusing mostly on the United States. The reader is referred to Morgan and Rutherford (1998a) and the contributions therein for

much more detailed descriptions. We will briefly consider the developments in Europe later on in this section.

<sup>9</sup> To be more precise, institutionalism was strengthened during the interwar period as a result of the embrace of “realism,” as explained by Bateman (1998, 45): “In this new ‘realistic’ world of efficiency and scientific management, the institutionalists made a much bigger initial impact than the neoclassicists.”

<sup>10</sup> In particular, Roy Weintraub (1998, 228) warns: “[A]ny narrative in the history of economics of the twentieth century that employs the idea of ‘increasing’ mathematization’ should be read with skepticism.”

<sup>11</sup> In Bateman’s (1998, 48) words: “Now, instead of an ethical economics that sought to reform the nation, America had a scientific economics that sought to make the nation more efficient and to control its economy.”

<sup>12</sup> Craufurd Goodwin (1998) offers an insightful, detailed study of the influence of the demands stemming from higher education, the government, business, and foundations on the content of economics.

<sup>13</sup> Goodwin (1998, 57) explains: “The attacks on radical economists in the 1940s and 1950s were motivated in part by reasoned fear of ‘planning’ by those who were scheduled to be planned and in part by unreasoned public paranoia about conspiracies of various kinds.”

<sup>14</sup> Our narrative focuses mostly on the Arrow-Debreu version, since this has come to be considered the most prestigious one. For instance, Roger Backhouse (forthcoming) notes: “In the 1950s, however, the Arrow-Debreu model ... came to be regarded as the definitive statement of the most rigorous version of neoclassical price theory.”

- <sup>15</sup> The reader is referred to the volumes edited by Bob Coats (1996a, 2000a) for an international perspective on the developments outlined in this paper and to the contributions by Roger Backhouse (1996, 2000) and Roger Middleton (1998) for a focus on the United Kingdom. Comparisons between Europe and the United States are the focus of Bruno Frey and René Frey (1995), Bruno Frey and Reiner Eichenberger (1993), Serge-Christophe Kolm (1988), and Richard Portes (1987).
- <sup>16</sup> This observation is echoed by Gary Becker (1976, 5): “The combined assumptions of maximizing behavior, market equilibrium, and stable preferences, used relentlessly and unflinchingly, form the heart of the economic approach as I see it.”
- <sup>17</sup> In fact, the earlier lack of connection had come under heavy attack from Arthur Okun (1980, 818): “Keynes ... departed from classical microeconomics only by modifying the labor supply function to include a wage floor. But this bridge between micro and macro was defective; none of the explanations flowed directly from the implications of optimization by economic agents....”
- <sup>18</sup> The reader is referred to Roy Weintraub’s (1977, 1979) contributions for insightful, detailed accounts of the search for microfoundations of macroeconomics.
- <sup>19</sup> For philosopher Alan Nelson (1984), it implied that a distinction ought to be made between the problem of aggregation and the question of reduction. In particular, he suggests that there are three possible aggregation procedures. Crudely, first, given microeconomics and aggregation principles, macroeconomics may be derived. Second, given microeconomics and macroeconomics, aggregation principles may be derived. Third, the solution favored by Nelson, given macroeconomics and aggregation principles,

microeconomics may be derived. In this case, there is aggregation, but not reduction of macroeconomics to microeconomics.

<sup>20</sup> See Heinz Kurz and Neri Salvadori (1997) for a detailed discussion of the various responses. They conclude: “While in that controversy it was conclusively shown that the view long-period neoclassical theory takes of the relationship between input use (per unit of output) and the price of the input cannot generally be sustained, surprisingly that view has not been jettisoned. ... The disquieting fact remains that in economics propositions that have been proved wrong are still used by many (the majority?) of its practitioners” (251-252).

<sup>21</sup> The reader is reminded that space constraints prohibit the author from covering all intricate details of these developments and is referred to the bibliography for further particulars.

<sup>22</sup> According to some it is not at all clear that the hypothesis of rational expectations is derivable from general assumptions of rationality. Frank Hahn (1986, 281) points out that to jump from “the respectable proposition that an agent will not persist in expectations which are systematically disappointed” to the proposition that “agents have expectations which are not systematically disappointed [is a] non sequitur of a rather obvious kind.” And Maarten Janssen (1993, 142) shows that the rational expectations hypothesis “is an aggregate hypothesis that cannot unconditionally be regarded as being based on [methodological individualism].”

<sup>23</sup> For simplicity, we restrict our attention to an exchange economy. However, matters get worse, not better, by the introduction of production (Kirman 1992).

- <sup>24</sup> Also see Hicks (1983, 4-5): “Our theories, regarded as tools of analysis, are blinkers.... Or it may be politer to say that they are rays of light, which illuminate a part of the target, leaving the rest in the dark. As we use them, we avert our eyes from things that may be relevant, in order that we should see more clearly what we do see. It is entirely proper that we should do this, since otherwise we should see very little. But it is obvious that a theory which is to perform this function satisfactorily must be well chosen; otherwise it will illumine the wrong things. Further, since it is a changing world that we are studying, a theory which illumines the right things may illumine the wrong things another time. This may happen because of changes in the world (the things neglected may have grown relatively to the things considered) or because of changes in our sources of information (the sorts of facts that are readily accessible to us may have changed) or because of changes in ourselves (the things in which we are interested may have changed). There is, there can be, no economic theory which will do for us everything that we want all the time.”
- <sup>25</sup> Edgeworth’s “recontracting” process is not just an alternative rationalization of perfect competition. His primary interest was not in the limiting case of perfect competition but in the indeterminacy of imperfect competition.
- <sup>26</sup> To be more precise, Edgeworth called this the available portion and it became known as the core in the era of game theory.
- <sup>27</sup> Some work after 1975 gave existence proofs for economies that are to a certain extent specialized. However, rather than supposing self-subsistence, it assumes that goods produced by firms are included in what agents may supply. This is clearly not legitimate,

because rights to receive a share in the profits of a firm are not the same as the right to dispose of the same share of the firm's physical plant and inventory. Furthermore, the existence proof now requires a stronger irreducibility assumption, as the links among individuals must not only be present, but also be strong enough to allow for high enough prices.

<sup>28</sup> Kirman (1992, 122) observes: “[S]ince [macroeconomists] wish to provide rigorous microfoundations and they wish to use the uniqueness and stability of equilibrium and are aware of the Sonnenschein-Mantel-Debreu result, they see this as the only way out.”

<sup>29</sup> The reader is referred to this publication for a detailed discussion.

<sup>30</sup> In general, in order to examine models with different equilibrium beliefs and nonzero trading volume, the only solution is to consider models that lack one of the necessary hypotheses for the no-trade theorems. Other solutions have been offered that do not necessarily involve a move back to pluralism, but these have been problematic. For instance, there may be some risk-loving or irrational traders. The problem with pursuing this approach lies in deciding what kinds of irrational behavior are plausible. Or, insurance and diversification considerations may play a significant role. However, after a single round of trading based on hedging and insurance considerations, there is no further reason to trade when new information arrives because in a market of rational individuals there would be no one with whom to trade.

<sup>31</sup> To be more precise, a distinction needs to be made between the hypotheses that events are common knowledge, that actions are common knowledge, that optimization is common knowledge, and that rationality is common knowledge. Some are required for

certain results, others for different situations. Again, the reader is referred to these publications for detailed discussions.

32 In practice, it may not be possible to reach common knowledge. With an infinite state space, opinions will converge, but common knowledge of actions may never be reached.

33 For instance, Hands (1997b, 194) comments: “The plea for pluralism in economics has been a frequent refrain throughout the history of modern economic thought. This refrain has usually been voiced by those who were outside, or critical of, the mainstream in modern economics.”

34 This information is available at <http://www.econ.tcu.edu/icare/home.html>.

35 See [http://www.btinternet.com/~pae\\_news/texts/a-e-petition.htm](http://www.btinternet.com/~pae_news/texts/a-e-petition.htm).

36 See [http://www.btinternet.com/~pae\\_news/texts/Fr-t-petition.htm](http://www.btinternet.com/~pae_news/texts/Fr-t-petition.htm).

37 In fact, Simon (1991, 385) had earlier lamented: “My economist friends have long since given up on me, consigning me to psychology or some other distant wasteland.”