LATE NEOCLASSICAL ECONOMICS: RESTORATION OF THEORETICAL HUMANISM IN CONTEMPORARY MAINSTREAM ECONOMICS

A Dissertation Presented

by

YAHYA METE MADRA

Submitted to the Graduate School of the

University of Massachusetts Amherst in partial fulfillment

for the degree of

DOCTOR OF PHILOSOPHY

September 2007

Economics

LATE NEOCLASSICAL ECONOMICS: RESTORATION OF THEORETICAL HUMANISM IN CONTEMPORARY MAINSTREAM ECONOMICS

A Dissertation Presented

by

YAHYA METE MADRA

Approved as to style and content by:

_____

Richard D. Wolff, Chair

_____

Stephen A. Resnick, Member

_____

Donald W. Katzner, Member

_____

Julie Graham, Member

_____

Diane Flaherty, Deparment Chair
Department of Economics

DEDICATION

To E.E., K.K., and R.B.Z.

ACKNOWLEDGEMENTS

It is practically impossible to acknowledge everyone who helped me in writing this dissertation. While a dissertation is ultimately written in solitude, it can only be possible with the support and the help of the author's community. And since what I consider to be my community is not a finite set, it is impossible for me to name all of my fellow travellers who helped me in one way or another to complete this dissertation. Nevertheless, there are those who are impossible not to acknowledge. I apologize in advance from those who I will inevitably fail to recognize in these few paragraphs.

I would like to begin by thanking the members of my dissertation committee. This dissertation took its final shape thanks to Rick Wolff, who always asked me to fully articulate the political implications of my work, to Steve Resnick, who always demanded analytical rigour and conceptual accuracy, and to Don Katzner, who kindly convinced me to appreciate the subtleties of the Walrasian vision. Nevertheless, it would be impossible for me to keep on going without Julie Graham's intellectual generosity, theoretical acuteness, and affective support throughout the entire process of the writing of this dissertation.

However, the dissertation owes a lot to my ongoing conversations with my two mentors. Fikret Adaman, who introduced me to the socialist calculation debate and therefore to many of the themes that I cover in my dissertation during my undergraduate studies at Boğaziçi University, has always been there for me both as an interlocutor and a friend. Jack Amariglio, whose writings convinced me that it is not

only possible but necessary to use critical and poststructuralist theory in understanding and interpreting economic theory, has been a constant presence throughout my doctoral studies. In fact, I have finalized my dissertation in the comfort of his and Christina's home (my home in the States) during the winter break of 2007. Without him, this dissertation would never finish.

Then, there are my friends. Ceren Özselçuk is my comrade and collaboratrice and without the essays that I wrote with her through the years, I could not have sustained my intellectual desire. Kenan Erçel, my brother, who is always on the other end of the phone line, patiently listening to me, going along with my not-so-sound speculations, have read my dissertation numerous times. Over the years, I have excessively abused his weakness for editing. When I came to the US, it was Phil Kozel with his VW Beetle who prevented me from running back home to İstanbul. I began writing this dissertation with him (and Erik Olsen) during our weekly dissertation support group meetings. He also read numerous drafts of this dissertation, commenting on, and correcting the text with boundless generosity. Stephen Healy, my one and only buddy, also read various drafts of this dissertation, commenting on, and editing it. While living with him and Rose Heyer on 1 Graves Ave., not only I had the intellectually most satisfying dinner conversations of my life, but also together we threw the best Halloween parties in Northampton. I wrote a bulk of this dissertation, in the summer of 2004, in Northampton, while sharing an apartment with Maliha Safri. She also listened to my not-so-organized theoretical innovations, read, commented, and corrected fairly and painfully rough drafts and became a "soothing" presence in my life. That summer I was able to float by Joe

Rebello many of the ideas that eventually found their way into the dissertation. He was the perfect interlocutor: He was not only versed in poststructuralist theory but also in late neoclassical economics. While I was teaching at Skidmore College, I met Mehmet Odekon and Mary Crone Odekon. Without their friendship, hospitality, and support, I could not have written this dissertation. And finally, I finished a first complete draft of my dissertation in the loving presence of Ryvka Bar Zohar. The communal home that we formed together in, of all places, Saratoga Springs during 2006-2007, provided all the necessary conditions of existence for me to write my dissertation. I am grateful to her.

And my family. My grandmother Kamuran Kefeli, my father Teoman Madra, my mother Beral Madra, and my sister Tulya Madra unwaveringly supported me throughout my doctoral studies both emotionally and materially. I am grateful for their patience.

ABSTRACT

LATE NEOCLASSICAL ECONOMICS: RESTORATION OF THEORETICAL HUMANISM IN CONTEMPORARY MAINSTREAM ECONOMICS

SEPTEMBER 2007

YAHYA METE MADRA, B.A., BOĞAZİÇİ UNIVERSITY

Ph. D., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Richard D. Wolff

This dissertation investigates whether or not there is a clear break between neoclassical economics (up to the 1970s) and the contemporary mainstream economic approaches. The term "contemporary mainstream economic approaches" refers to a seemingly heterogeneous set of approaches that include, among others, new institutional economics, new information economics, social choice theory, behavioral economics, evolutionary game theory, and experimental economics. In this dissertation, in contrast to those who declare the "death of neoclassical economics" and find a clear break (i.e., rupture, paradigm shift) between neoclassical economics and the number of contemporary mainstream approaches listed above, I conclude that these seemingly disparate approaches constitute a unified discursive formation articulated around the theoretical problematic of theoretical humanism that they share not only with one another but also with neoclassical economics. For this reason, in order to underscore the philosophico-theoretical as well as the historico-

genealogical continuity between neoclassical economics (up to the 1970s) and the contemporary mainstream economic approaches, I shall refer to the latter as late neoclassical economics.

In the late neoclassical context, neither the essentialist notions of human subject that involve self-transparency, autonomy, rationality, and intentional agency nor the ontologies of concordance, harmony, order and equilibrium are thoroughly scrutinized. On the contrary, the late neoclassical context is characterized by a concerted and multipronged effort to extend the scope of application of these notions and ontologies either by way of broadening and enriching their meanings or by way of introducing newer concepts that formulate the problem in slightly different ways (e.g., static versus dynamic, general versus partial, price-adjustment versus market-adjustment, cooperative versus non-cooperative) that would not necessarily address, but essentially sidestep, the problems that trouble the earlier formulations. In fact, in this sense, the contemporary mainstream economics is nothing but the shape that neoclassical economics has taken as a mature and developed theoretical tradition.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1. Introduction

This dissertation investigates whether or not there is a clear break between neoclassical economics (up to the 1970s) and the contemporary mainstream economic approaches. The term "contemporary mainstream economic approaches" refers to a seemingly heterogeneous set of approaches that include, among others, new institutional economics, new information economics, social choice theory, behavioral economics, evolutionary game theory, and experimental economics.[1] In this dissertation, in contrast to those who declare the "death of neoclassical economics" (Colander, 2000) and find a clear break (i.e., rupture, paradigm shift) between neoclassical economics and the number of contemporary mainstream approaches listed above, I conclude that these seemingly disparate approaches constitute a unified discursive formation articulated around a theoretical problematic that they share not only with one another but also with neoclassical economics. For this reason, in order to underscore the philosophico-theoretical as well as the historico-genealogical continuity between neoclassical economics (up to the 1970s) and the contemporary

[1] For recent surveys, see (Bowles and Gintis, 2000; Colander, 2000; Mirowski, 2002; Colander, Holt and Rosser, 2004; Davis, 2006).

mainstream economic approaches, I shall refer to the latter as late neoclassical economics.[2]

There are two presuppositions of the neoclassical problematic that distinguishes the tradition (and its derivatives and correlates) from the other traditions in economics. On the one hand, all neoclassical approaches aim to specify the conditions of existence of a harmonious and contradiction-free economic order (i.e., equilibrium). On the other hand, in positing a teleological vision of an harmonious economic order, each approach, explicitly or implicitly, refers back to a notion of human subject as a autonomous, self-transparent, and rational self-consciousness, who knows (who is conscious of) or can eventually know (can come to the consciousness of) what his/her true needs (preferences) are and what is good for him/her (i.e., what improves his/her welfare), who can translate these true and essentially transparent preferences into his/her choices, and who recognizes himself/herself as (and recognized by others as) an intentional and autonomous subject who is responsible for his/her choices (as it is presupposed in the contract law). The pre-destined vision of an harmonious economic order is one that should be chosen by, and hence that would best accommodate the needs of, the self-transparent, unified, rational, autonomous, and

---

[2] I have chosen this term over the two other contenders: post-neoclassical economics and neo- (or new) neoclassical economics. The former was inappropriate for it gave the impression of an accentuated break with neoclassical economics. (For instance, Bowles and Gintis (1993) used the term post-Walrasian economics to signal their break from Walrasian economics.) The latter, on the other hand, was simply too clumsy and had the risk of being confused with new classical economics—a macroeconomic school of thought. In contrast, the designator "late neoclassical economics" connotes the idea of continuity rather clearly.

self-conscious human subjects.[3] In short, the constitutive theoretical problematic of the neoclassical tradition is to address the various facets of the following question: what are the conditions of existence of a harmonious and contradiction-free socio-economic order (ranging from an efficient and stable state of equilibrium to a vision of social order that would facilitate economic growth) that would best accommodate the needs of human subjects as they are postulated in theory (according to the standard neoclassical axioms of rationality)? Or, to put it as *economically* as possible: the neoclassical tradition is structured around the theoretical problematic of reconciling the individual and the aggregate (collective, social, market) rationality.[4]

---

[3] In his now well-known Jevons Memorial Lecture entitled "In Praise of Economic Theory," Frank Hahn specified the following as the essential features of neoclassical economics (Hahn, 1985; cf. Lawson 1997: 87):

(1) an individualistic perspective, a requirement that explanations be couched solely in terms of individuals;
(2) an acceptance of some rationality axiom; and
(3) a commitment to the study of equilibrium states.

All these features are captured in the working definition of the neoclassical problematic provided here. I argue that, however, while the latter two remained intact throughout the history of the neoclassical tradition and continues to remain intact even today, the first feature (i.e., individualism), whether it is acknowledged by neoclassical economists or not, has been repeatedly violated by "structuralist moments" throughout the history of the tradition.

[4] This formulation of the neoclassical theoretical problematic may be somewhat unfamiliar to the reader. The formulation relies on Kenneth Arrow's formulation of the different types of social choice in his *Social Choice and Individual Values* (1963: 1-3): "In a capitalist democracy there are essentially two methods by which social choices can be made: voting, typically used to make 'political' decisions, and the market mechanism, typically used to make 'economic' decision. […] The methods of voting and the market are methods of amalgamating the tastes of many individuals in the making of social choices. […] Can we find other methods of aggregating individual tastes which imply rational behavior on the part of the community?" In other words, like the voting mechanism, the market mechanism is also a method for reconciling the individual and the collective (aggregate) rationality. More on this below in section 1. 3. 3.

These concerns belong to *theoretical humanism*, a decidedly post-Enlightenment philosophical orientation which establishes a vision of social harmony premised upon a notion of human subject who is centered, self-transparent, rational and autonomous. Theoretical humanism, as a philosophical orientation, cuts across numerous schools of thought within the discipline of economics, including even, for instance, some skeins of Marxian economics (e.g., Analytical Marxism) as well as other disciplines of social theory.[5] I further argue that the contemporary mainstream economics is a series of responses to the loss of the disciplinary hegemony of the general equilibrium theory in neoclassical microeconomics and the perceived damaging implications of the related twentieth century developments and controversies for the theoretical humanist project of the neoclassical tradition. Therefore, I claim that there is *no* clear break that separates the contemporary mainstream approaches from the earlier neoclassical approaches because the former is nothing but a series of attempts at restoring, rehabilitating, and reconstituting the theoretical humanist *presuppositions* of neoclassical economics.[6]

As I will show in the following chapters, in the late neoclassical context, neither the essentialist notions of human subject that involve self-transparency, autonomy, rationality, and intentional agency nor the ontologies of concordance, harmony, order

---

[5] For critiques of theoretical humanism in the Marxian tradition and in the discipline of economics, see (Althusser, 1969; 1996; 2003; Hindess, 1977; Coward and Ellis, 1978; Callari, 1981; Resnick and Wolff, 1987; Amariglio, Resnick and Wolff, 1990; Ruccio and Amariglio, 2003).

[6] I intend to use the term "presuppositions" by distinguishing it from the "assumptions" or "postulates" of a theoretical approach. The latter can be modified depending on the requirements of a specific theoretical and applied context. In contrast, the presuppositions of a theory are its entry points or points of departure. Presuppositions, unlike axioms (which are explicitly acknowledged presuppositions), can be unconscious and remain unacknowledged.

and equilibrium are thoroughly scrutinized. On the contrary, the late neoclassical context is characterized by a concerted and multipronged effort to extend the scope of application of these notions and ontologies either by way of broadening and enriching their meanings or by way of introducing newer concepts that formulate the problem in slightly different ways (e.g., static versus dynamic, general versus partial, price-adjustment versus market-adjustment, cooperative versus non-cooperative) that would not necessarily address, but essentially sidestep, the problems that trouble the earlier formulations. In fact, in this sense, the contemporary mainstream economics is nothing but the shape that neoclassical economics has taken as a mature and developed theoretical tradition.

This introductory chapter will address three matters. First, it will motivate the project and situate it in the context of contemporary methodological debates on the "pluralism" of mainstream economics and the difference between the disciplinary orthodoxy and heterodoxy. Second, it will provide a brief sketch of transition from the post-WWII neoclassicism to the contemporary late neoclassical condition. A detailed philosophical discussion of this historical trajectory of the neoclassical tradition is the subject matter of the subsequent chapters. And third, it will introduce and explore the various dimensions of theoretical humanism as a decidedly post-Enlightenment yet non-secular philosophical movement across disciplines will develop the contours of a secular Marxist critique of the essentialist notions of human subject, the concept of autonomous choice, and the social ontologies of concordance and harmony that underpin the theoretical humanist problematic.

1. 1. Making sense of the heterogeneity of late neoclassical economics

Recently, heterodox economists, who are critical of and seek alternatives to the mainstream economic theories and policies, are themselves being criticized for misrepresenting the mainstream economics as a unified and monolithic discourse (Garnett, 2005: 2). In the lexicon of the heterodox literature that "succumbs" to this tendency, the term "mainstream economics" refers to those approaches that explain all economic (and social) phenomena as states of equilibrium that should be systematically "microfounded" in the rational choices and actions of utility maximizing individual economic agents (i.e. *homo economicus*). Moreover, these heterodox critics tend to argue that the mainstream economics amounts to nothing more than an elaborate apologetics (usually with the theological connotations of the word intended) for the existing state of affairs (i.e., the global hegemony of the neoliberal ideology and the multinational capitalism).

It should come as no surprise then that those who find these mainstream approaches to be substantially different from post-war neoclassicism and who is convinced by this difference are the most vocal critics of this heterodox representation of the contemporary mainstream approaches as nothing but neoclassical economics circa 1950.[7] According to these mainstream (and heterodox) critics of "heterodox

---

[7] This is not to say that there are no heterodox economists who are critical of this "heterodox" tendency to represent neoclassical economics as a monolithic discourse. For instance, among others, Robert Garnett (2005), Edward Fullbrook (2001), John B. Davis (2005f), and Esther Mirjam Sent (2001) have all noted their various misgivings about this heterodox tendency for reducing mainstream economics to a monolithic discourse. According to these scholars, this reductionist tendency emanates from a widely held commitment among heterodox economists to a Kuhnian vision of science as a contested field of social discourse and practice consisting of distinct and incompatible scientific paradigms (Garnett, 2005: 6; see also Fullbrook, 2001).

reductionism," the representation of the contemporary mainstream economics as a cohesive and unified discourse and the claim that it is not much different from neoclassical economics circa 1950s papers over the important differences among the aforementioned new mainstream approaches and thereby prevents the heterodox economists from recognizing and acknowledging the "emerging pluralism" in the contemporary mainstream economic thinking.

Indeed, a new narrative regarding the emergence of a mainstream pluralism is swiftly gaining currency in economics among the proponents of contemporary mainstream approaches as well as those who write on the contemporary state of mainstream economics. According to this narrative, by the 1970s, with the full development of the Walras-Arrow-Debreu model, the results of Sonnenschein-Mantel-Debreu, and the politically-charged controversies surrounding the auctioneer fiction, the neoclassical project of formalizing the invisible hand theorem has fallen into a crisis

---

Garnett (2005) reminds us that this vision of "paradigm warfare" emerged in the mid to late 1960s, during the height of the Cold War, in reaction to the mainstream microeconomists such as Gérard Debreu, who, using the language of Bourbakist mathematical structuralism, referred to the model of Walrasian equilibrium as "the root structure from which all further work in economics would eventuate" (Weintraub, 2002: 121). In response to this absolutist high modernism of the mainstream, the heterodox economists of various stripes were forced to embrace the vision of paradigm warfare, if only "to survive under difficult professional circumstances" (Garnett, 2005: 6). According to the vision of paradigm warfare, the task of heterodox economists was not only to articulate a rigorous critique of mainstream economics but also to supplant the latter with a compelling, systematic, complete and superior alternative framework (Garnett, 2005: 7). Nonetheless, even if the representation of mainstream economics as a monolithic discourse was inevitable during the hostile environment of the Cold War era, it has become, Garnett argues, "largely anachronistic and self-defeating for heterodox economists today" (2005: 6). It is anachronistic because it is factually incorrect. (Garnett seems to concur on this account with the likes of Davis (2005; 2006), Colander (2000), Colander, Holt and Rosser (2004), and others.) It is self-defeating because, it promotes an isolationist "bunker mentality" (Garnett, 2005: 7), "encourages an all-or-nothing view of intellectual change" (Garnett, 2005: 7), and "undercuts heterodox economists' commitments to pluralism" (Garnett, 2005: 7).

(Davis, 2003: 82). In the aftermath of "the death of neoclassical economics" (Colander, 2000), the mainstream economic thinking began to move away "from a strict adherence to the holy trinity—rationality, selfishness, and equilibrium—to a more *eclectic* position of purposeful behavior, enlightened self-interest and sustainability" (Colander, Holt and Rosser, 2004: 485; emphasis added), and in fact, it is claimed, the mid-century Walrasian neoclassicism was an unnecessary detour that delayed the development of "analytical models of *incomplete contracts* and *broader models of human behavior*" (Bowles and Gintis, 2000: 1429; emphasis added)—namely, the development of the hallmark themes of what I call late neoclassical economics.

It is important to note, however, that those who find "pluralism" in the contemporary mainstream do not only see a *clear break* between the contemporary mainstream and the post-war neoclassicism, but also argue that it is inappropriate to brand the contemporary mainstream as the new "orthodoxy" (as the "other" of the heterodox economics). For, it is argued, there are a number of approaches within the contemporary mainstream that are quite different from and critical of the neoclassical orthodoxy (Colander, Holt and Rosser, 2004: 490-3). Nevertheless, curiously enough, none of the self-identified heterodox economic approaches (e.g., old institutional economics, Marxian economics, Post Keynesian economics, Sraffian economics, feminist economics, Austrian economics) are cited among those that constitute this "pluralist turn" in economics. For instance, David Colander (2000) when defining "New Millennium Economics" mentions only three approaches: evolutionary game theory, experimental economics, and complexity theory. In an expanded version, John B. Davis (2006) lists game theory, experimental economics, behavioral economics, evolutionary economics, and complexity theory (see also, Colander, Holt

and Rosser, 2004: 496). Samuel Bowles and Herbert Gintis (2000) identify Ronald Coase, Friedrich von Hayek, Duncan Luce and Howard Riaffa, and Herbert Simon as the predecessors of contemporary "multidisciplinary" economics that emerged as the "younger generation of economists" realized that "the Walrasian economic model should be taken with a grain of salt" (2000: 1431).[8] To recapitulate, going through a quick checklist of what schools of thought are included and what schools are excluded in these lists renders it clear that we are not dealing with a thorough-going "pluralism" here (for a similar critique, see Davis, 2006; 2007f).

* * *

This dissertation aims to recast the terms of this debate between those who find sameness across the past and the present of the mainstream economics and those who find difference between the past and the present and within the present of the mainstream economics. In contrast, I find *both* sameness *and* difference, *both* unity *and* diversity within both neoclassical and late neoclassical economics. Moreover, I do acknowledge that a lot has changed in the neoclassical tradition since the 1950s. Nevertheless, I also conclude that these changes do not add up to a paradigm shift in, or a radical break from, the tradition. I argue that both the neoclassicism of the post-war period and the mainstream economics of today (i.e., late neoclassical economics) are structured around the same theoretical humanist problematic. They may formulate the theoretical problematic in different ways, using different concepts and

[8] The proper names that Bowles and Gintis invoke stand in for, respectively, the new institutional economics, the evolutionary game theory, the Nash refinements tradition of game theory, and behavioural economics. Given their most recent work (Heinrich et al., 2004; Gintis et al., 2005), one should probably add experimental economics to their list.

they may even derive different inferences and policy conclusions, but they are still structured around the problem of how to reconcile the individual and the collective rationality.

Let me try to unpack the three aspects of the position from which this dissertation is written. First of all, I argue that the neoclassical tradition has always been internally differentiated and that diversity, pluralism, and difference are not new to the tradition. It is perhaps now well-known that the genealogy of neoclassical tradition can be traced back to at least two (if not, three) sources: the Lausanne school of Léon Walras and Vilfredo Pareto and the British utilitarian skein of Stanley Jevons and Alfred Marshall (Ingrao and Israel, 1990).[9] Perhaps more recently established is the internal differentiation of the tradition in the post-WWII North American context into two main camps which roughly map onto the two sources of neoclassicism: the rationalist mathematical structuralism of the Walrasian general equilibrium approach at the Cowles Commission and the empiricist pragmatism of the Marshallian applied microeconomics of the Chicago School (Novshek and Sonnenschein, 1987; Hands and Mirowski, 1998; Mirowski and Hands, 1998; Mirowski, 2002; De Vroey, 2003).[10]

---

[9] Some histories of neoclassical economics add to these two sources a third one: The Austrian subjectivism of Carl Menger (e.g., Blaug, 1997). On the other hand, Philip Mirowski (1989) argues that Menger does not belong to the neoclassical tradition because he did not subscribe to the field concept that Jevons and Walras borrowed from the physics of their day in fashioning their concept of utility in reference to the concept of energy. Notably, unlike Jevons and Walras who had a static view of competition and equilibrium, Menger viewed competitition as dynamic process and tended towards "the idea that there is a spontaneous order underlying social phenomena" (Backhouse, 2002: 177).

[10] To these two, Mirowski and Wade Hands (1998; Hands and Mirowski, 1998) would add the "midway" operationalist revealed preference approach of Paul Samuelson at the MIT. Samuelson's "operationalist" program demanded that the scientificity of an economic theory (or any theory) should be assessed on the basis of its

Moreover, these tendencies diverge not only with respect to their methodological commitments (the abstract, axiomatic models and "equilibrium proofmaking" versus the industry-level applied econometric studies) and ontological orientations (general equilibrium analysis with individual agents versus partial equilibrium analysis with representative agents) but also with respect to their policy orientation: while the pro-government (and in some cases, socialist) general equilibrium analysts at the Cowles Commission[11] considered themselves as social engineers who should demonstrate and remedy the deficiencies of the price mechanism (Ingrao and Israel, 1990: 245-88; Mirowski, 2002: 232-308), the economists at the Economics Department of the University of Chicago[12] were decidedly pro-market, were eager to highlight the government failures, and were conducting cost-benefit studies of the public regulatory

---

intersubjectively observable, empirical consequences. Empirically invalid or untestable portions of a given theory should be discarded. The fact that the concept of utility is an unobservable have led Samuelson to try to discard the introspective portions of the theory of choice through the theory of revealed preference. For further discussions, see (Wong, 1978; Blaug, 1980: 99-103; Hausman, 1992: 156-8; Mirowski and Hands, 1998: 282).

[11] Among others, we can list Oskar Lange, Jacob Marschak, Tjalling Koopmans, Gérard Debreu, Kenneth Arrow, Frank Hahn, and Lawrence Klein. Beyond the Cowles Commission, we can refer to a Samuelsonian lineage: George Akerlof, Joseph Stiglitz, Michael Rothschild, Peter A. Diamond, and Paul Krugman. Even though they were never affiliated with the Cowles Commission, given the trajectory of their work, these figures should be considered in the Walrasian skein of the neoclassical tradition.

[12] Starting with Frank Knight who taught at the University of Chicago in the inter-war period, we can mention Ronald Coase, Milton Friedman, Theodore Schultz, George Stigler, Harold Demsetz, Armen Alchian, Robert Fogel, Gary Becker, Steven Cheung, Deirdre N. McCloskey, and, most recently, Stephen D. Levitt as the proponents of the Chicago skein of the neoclassical tradition (Reder, 1987; Vromen, 1995; McCloskey, 1994; Emmett, 1997; Mirowski and Hands, 1998; Farrant, 2004).

policies that tend to conclude that the regulation does not benefit the consumers (Breit and Spencer, 1997: 109).[13]

It is, however, very important to underscore that this conflictual co-existence of divergent tendencies within neoclassical economics does not necessarily undermine the tradition. On the contrary, to the extent that neoclassical economics establishes itself as a "public sphere" inhabited by a multiplicity of methodologies, ontological orientations, and political agendas—to the extent that neoclassical economics becomes synonymous with economics—the tradition reinforces its disciplinary hegemony.

Which brings us to the second point regarding the importance of the so-called "shortcomings" of the Arrow-Debreu model. To those who believe that the Sonnenschein-Debreu-Mantel results and the auctioneer controversy caused a paradigm crisis in neoclassical economics, it is necessary to remind that the tradition always, even at the very moment of its inception, struggled with numerous controversies. Neoclassical economists have repeatedly found themselves responding

---

[13] In an interesting attempt to synthesize the Walrasian general equilibrium theory (as it is embodied in the Arrow-Debreu-McKenzie (henceforth, ADM) model) and the Marshallian partial equilibrium analysis, William Novshek and Hugo Sonnenschein (1987: 1281-2) identify the following five differences: (1) in the ADM model, there is a fixed number of firms, whereas in the Marshallian model there is a pool of firms; (2) in the ADM model convex technology implies no increasing returns to scale, whereas in the Marshallian model U-shaped average cost curve implies regions of increasing returns to scale; (3) the ADM theory assumes price-taking behavior, whereas the Marshallian theory assumes price-taking behavior only if the efficient scale of production is small relative to the demand; (4) the ADM theory, precisely because it is a *general* equilibrium theory, relates perfect competition to Pareto efficiency, whereas the Marshallian theory, because it is a partial equilibrium theory, fails in taking into account intermarket effects; (5) the ADM theory is static where the equilibrium is reached through *price* adjustment (tâtonnement), whereas the Marshallian analysis of equilibria is dynamic where *market* adjustment occurs through exit and entry of firms.

to a number of potentially damaging criticisms and struggling with (and, more often than not, failing to resolve) equally serious theoretical as well as empirical controversies pertaining to the theoretical humanist presuppositions of the tradition: the controversy around the "psychologism" of the assumption of utility maximization (Lewin, 1996); the marginalist controversy pertaining to the decision-making criteria of the real-world firms (Lavoie, 1990; Vromen, 1995); the controversy around the theory of revealed preferences (Wong, 1978); the Cambridge capital controversy (Harcourt, 1972; Cullenberg and Dasgupta, 2001); the controversies around the empirical verification of the neoclassical theories of demand (Mirowski and Hands, 1998); the socialist calculation controversy and Hayek's critique of the epistemological presuppositions of Walrasian neoclassicism (Caldwell, 1988; Burczak, 1994). And, this is only a partial list. Given this long list of controversies pertaining to foundational issues, it would be an exaggeration to single out the impact of the post-war developments. As I will demonstrate in this dissertation, late neoclassical economics does situate itself in relation and as a response to the controversies surrounding the post-war general equilibrium theory. Nevertheless, it would be a categorical mistake to deduce "the death of neoclassical economics" from the loss of the disciplinary hegemony of general equilibrium theory, if only because the general equilibrium theory is a skein of neoclassical economics. Moreover, it would be epistemologically essentialist to claim that the general equilibrium theory has lost its disciplinary pre-dominance due to its "shortcomings" if only because there exists no universal criteria with which the scientific community can judge the success or failure of a particular theory.

And finally, my third point. The approaches that constitute the contemporary mainstream are articulated around the theoretical problematic of neoclassical humanism (i.e., the problem of the reconciliation of the individual and the collective rationality). In this sense, despite the claimed eclecticism, pluralism, and multi-disciplinarity, late neoclassical economics continues to operate within the neoclassical problematic. To put it differently, late neoclassical economics is the shape of neoclassical economics in the late twentieth century, when the tradition has splintered into multiple sub-approaches, branched out into applied fields, and as the themes explored and the research methodologies deployed got diversified. In fact, the heterogeneous state of the tradition goes to show that neoclassical economics was never united around an object of analysis (e.g., the markets) or a core model (e.g., the Arrow-Debreu model) or even a research methodology (e.g., a particular style of mathematical modeling) but rather around a theoretical problematic.

Therefore, steering away from both the temptation to disavow the presence of "difference" within the neoclassical tradition *and* the temptation to narrate the history of the mainstream economics as a progressive movement from "neoclassical dominance to mainstream pluralism," I offer a new conceptualization of the transition from the neoclassical to the late neoclassical configuration of the mainstream economics that simultaneously acknowledges the presence of difference, heterogeneity, and fragmentation as well as sameness, homogeneity, and continuity between the post-war and the late neoclassical condition. The sameness, homogeneity, and continuity is due to the fact that all neoclassical approaches aim to address the same theoretical problematic; the difference, heterogeneity, and fragmentation, on the other hand, arises from the fact that each approach formulates

and addresses the very same theoretical problematic in different ways, with different policy implications, normative accents, and social visions. The particular way in which the question of the reconciliation of the individual and collective rationality is formulated and addressed by particular (late) neoclassical approaches depends on the political/normative commitments and the thematic orientations of, as well as the methodologies deployed (usually borrowed from disciplines such as physics, mathematics, biology, engineering, psychology) by, that particular approach.

* * *

The project of reading the recent history of neoclassical tradition as one of both sameness and difference, the project of making sense of the unity and the diversity of mainstream economics is admittedly strategically motivated. While I believe that there is indeed a diversity, a plurality, of approaches and research programs within the mainstream economics, I also believe that there are limits to this pluralism: any approach that abandons or even questions the theoretical humanist presuppositions (i.e., pertaining to the notion of a centered, rational, autonomous subject and its corollary, the state of equilibrium) of neoclassical economics are pushed to the margins of the discipline. In this sense, notwithstanding the trope of the "pluralist turn" in the mainstream economics and its supposed "break" from the neoclassical orthodoxy, the discipline continues to be a highly exclusive club. In a rather revealing passage, Colander, Holt, and Rosser define "the edge of economics" as "that part of mainstream economics that is critical of orthodoxy, and that part of heterodox economics that is taken seriously by the elite of the profession" (2004: 492). They continue:

> Our argument is that modern mainstream economics is open to new approaches, as long as they are done with a careful understanding of the strengths of the recent orthodox approach and with a modeling methodology acceptable to the mainstream. (Colander, Holt and Rosser, 2004: 492)

By claiming that anyone who uses "a modeling methodology acceptable to the mainstream" can be a part of the mainstream, Colander et al. reduce the problem to a matter of being up to date with the recent mathematical fashions of the day. But what if those modeling methodologies acceptable to the mainstream are the ones that are underpinned by the theoretical humanist presuppositions of neoclassical economics? And what if there are those who reject to use these "acceptable" modeling methodologies because of the philosophical presuppositions that underpin them?

Perhaps more insidiously (and insultingly), the "death of neoclassical economics" narrative implies that neoclassical economics, the object of critique of many heterodox traditions of economics, is a matter of the past, that no one does neoclassical economics anymore, that the heterodox critics of the mainstream economics are out of touch with what goes on in the contemporary mainstream, that they lack "a careful understanding of the strengths of the recent orthodox approach" (Colander, Holt and Rosser, 2004: 492). Moreover, it further implies that there is indeed an appropriate way of criticizing neoclassical economics and it is accomplished by the usual protagonists of the pluralist turn in economics (i.e., those approaches that comprise, what I propose to call in this dissertation, late neoclassical economics) and not by those self-identified heterodox traditions that never get a "mention."

Therefore, because this emerging narrative of "pluralist turn" has implications for how we differentiate the heterodoxy from the orthodoxy and because the

contemporary mainstream economic approaches are pushing the heterodox approaches to the margins of the discipline by trying to shape what constitutes as a legitimate criticism of neoclassical economics, it is necessary for heterodox economists to develop a clear, rigorous, and consistent position with respect to the "pluralist turn" narrative. Unless heterodox economists are willing to go along with Colander et al.'s thesis that the contemporary mainstream is not orthodox anymore and that the only thing that is common to all contemporary mainstream economic approaches is that each uses "a modeling methodology acceptable to the mainstream," it is necessary to offer a "heterodox" *demonstration* of how these seemingly disparate research agendas and approaches, not despite but precisely because of their undeniable diversity, continue to remain committed to the theoretical humanist presuppositions (i.e., the centered, self-conscious, and autonomous subject and its corollary teleological vision of social reconciliation) and the constitutive theoretical problematic (i.e., how to reconcile the individual and the collective rationality) of neoclassicism. This is precisely the objective of this dissertation.

1. 2. From neoclassical to late neoclassical economics

Although it is not a historical study, the dissertation inevitably offers a narrative of the history of neoclassical economics in the twentieth century. According to this narrative, the genealogy of neoclassical tradition can be traced back to two distinct geo-philosophical origins. On the one hand, there is the tradition of the utility calculus that originated in Britain and was constituted by the Scottish Enlightenment and the Humean empiricism, but also by the utilitarianism of Jeremy Bentham. On the other hand, there is the general equilibrium tradition that originated in Lausanne and was marked by the French rationalism, the Cartesian philosophy of science, and

the tradition of elite engineering colleges. Starting with the work of Jevons, Marshall, and Edgeworth, the British orientation was focused on the analysis of the individual exchange, and the utilitarian influences were evinced by the idea that an exchange can occur when the price ratio is equal to the ratio of the marginal utility of the two goods exchanged. For Walras, on the other hand, the central problem of economic analysis is defined as "the problem of how prices are established in a large number of markets at the same time" (Backhouse, 2002: 170). In both traditions, it is possible to find the humanist construct of utility-maximizing human subject (*rareté* in the case of Walras) and the teleological construct of a harmonious reconciliation (the concept of market equilibrium in Jevons and Marshall and the concept of general equilibrium in Walras). In other words, both sources share the problem of how to achieve social reconciliation of the diverse demands of the centered, rational and autonomous agents, the central theoretical problematic of neoclassical humanism.

The invisible hand theorem embodies the most well-known and canonical formulation of the theoretical problematic of neoclassical humanism: the competitive markets and the private ownership of economic resources will harness the independent, decentralized, and self-interested activities of economic agents and deliver a general, economy-wide, equilibrium that maximizes the social welfare.[14] While the Lausanne (or the Walrasian) skein tended to construct general equilibrium models ground up from the individual agents, the British Marshallian skein (later on, in the context of North America, as embodied in the Chicago approach) tended to

---

[14] To be more precise, then, the neoclassical tradition is structured around the theoretical humanist problematic of how to reconcile the individual and the collective rationality and the invisible hand scenario, with its various versions, is just a particular formulation of this constitutive theoretical problematic of neoclassical humanism.

have a partial equilibrium approach that emphasized the use of representative agents and market-level analysis.[15] In the Walrasian tradition, the competitive markets are conceptualized as an auction. In this case, the invisible hand is the hand of an imaginary auctioneer. In contrast to the static equilibrium and price-adjustment approach of Walrasian economics, the Marshallian Chicago School tended to gesture towards a dynamic evolutionary approach to the theoretical problematic of neoclassical humanism: the competition is theorized, with explicit, yet almost always under-theorized, references to biology and Darwinian theory, as an evolutionary selection process that would weed out those under-performing inefficient agents. In this case, the invisible hand materializes in the anthropomorphized hand of the selection mechanism.[16]

---

[15] Throughout the history of neoclassical tradition, the two tendencies had a dialectical relation of sorts: up to the WWII, the Marshallian skein took the lead; after the WWII, up to the 1970s, the Walrasian skein, perhaps due to the impact of its forceful and rapid mathematization, gained prominence; and since the early 1980s, partly due to the efforts of the proponents of the Chicago School, partly due to ascendancy of the Coasean new institutional economics, and partly due to the increasing spread of the use of evolutionary metaphors (a distinctively Marshallian theme, as we will see) the Marshallian influences are giving shape to the character of late neoclassical economics. It is important to note that the Marshallian approach and Marshall's analyses are different from each other. While Marshall's own work has influenced and continues to influence the Marshallian neoclassicism, the latter is shaped by the entire history of neoclassical tradition and not just by Marshall's writings.

[16] There is indeed a debate whether the Adam Smith of the Chicago School is really the Adam Smith of *The Wealth of Nations* (1776) and *The Theory of Moral Sentiments* (1790) (Evensky, 2005; see also Sen, 1987: 15-28). Similarly, we should also ask how important is the invisible hand theorem for the Marshallian skein of the neoclassical tradition? My argument is that, even if the Marshallian/Chicago appropriation of the invisible hand theorem does injustice to Adam Smith's and subsequently the Walrasians' formulations of the problem, both the Marshallian and the Walrasian skeins share the problem of the social reconciliation of the diverse demands of rational individuals and focus on the competitive price mechanism as the privileged means for achieving social reconciliation.

As I will argue in Chapter 2, the metaphors with which the markets and the adjustment process towards equilibrium is conceptualized is not without its material consequences pertaining to policy prescriptions. In this sense, it is important to emphasize that for the neoclassical tradition, the invisible hand theorem is indeed a *theorem*—i.e., the proponents of neoclassical economics are *not* all advocates of *laissez faire*. On the contrary, there has always been neoclassical economists who found justification in a version of neoclassical theory for different degrees of government involvement in the economy (e.g., before the ordinalist turn, Henry Sedgwick, Alfred Marshall, A. C. Pigou; after the ordinalist turn, Abba Lerner, Oskar Lange, Jacob Marschak, Tjalling Koopmans, Kenneth Arrow). For those who believe that the reconciliation of the individual and the collective rationality *can* be realized through the competitive markets and the rules of property, the policy prescription has always been to institute the requisite market institutions (e.g., the liberalization of trade, the liberalization of factor markets, the privatization of public assets); for those who believe that it *cannot* be realized through the competitive markets and the rules of property, the policy prescription has always been to remedy the various market failures (e.g., ranging from the provisioning of public goods to the regulation of externalities) either through direct government intervention or, if necessary, with the help of non-market and non-governmental institutions. As I will argue in the following chapters, even though both traditions have their share of market-skeptics and market advocates, the line that divides the former type of neoclassical from the latter type tends to overlap, at least in the post-war North American context, with the line that separates the Walrasian and the Marshallian skeins, respectively.

Despite this divergence of opinion in their policy prescriptions, however, both positions ascribe a privileged and constitutive role to the model of perfect competition as their ultimate point of reference: In the case of the *laissez faire* camp, the model of perfect competition (whether it is enframed in the Walrasian or the Marshallian vision) figures in as an "ideal" state to be approximated as much as possible in real economies; in the case of the interventionist camp, the model serves as the standard of efficiency to be "emulated" with the help of second best alternatives. In both cases, the model of perfect competition retains its status as the description of the socio-economic order that would best accommodate the postulated essence of the centered, rational, and autonomous human subjects.

* * *

Beginning with the 1930s, weakened by its failure to address the worldwide depression, the neoclassical tradition began to go through its, perhaps, first important transition: partly in response to charges of "psychologism" by the American institutionalists and partly due to the discomfort borne out of the non-measurable notion of *utils*, neoclassical economics took an ordinalist turn and abandoned the earlier cardinalist models that took the utility function as their description of the choice process. Even though the standard neoclassical theory of demand still remained true to its theoretical humanist presuppositions, as I will have a chance to show in Chapter 2, the ordinalist turn marked a certain change of attitude in the way the economic agents are treated in the standard neoclassical models. It became preferable *to assume as little as possible* about the preferences of the actual economic agents. Lionel Robbins (1932) was one of the first neoclassical economists to publicly criticize the notion of utility as an interpersonal measure of well-being; Samuelson

(1938) wanted to read the preferences directly from the revealed choices of the consumers; Arrow (1951; 1963) rendered the concept of preference indifferent to the underlying motivations of the economic agents; Debreu (1959) proved the existence and efficiency of the general equilibrium by imposing as minimal restrictions as possible on the preferences of the consumer; Becker (1962) went so far as to argue that, even if the consumers and the producers do not respond to changes in prices rationally (i.e., by responding impulsively or remaining inert), market forces (i.e., changes in opportunity sets) will tend to produce "rational" results that would systematically satisfy the basic predictions of neoclassical economic theory.[17]

Despite this accentuated and widespread tendency to refrain from assuming too much about the economic agent, let us note that, all of these neoclassical approaches, when it came to making normative claims about the efficiency of the equilibrium, continued to harbor crucial and common assumptions regarding the psyche of the economic agent: even though it became impossible with the ordinalist turn to compare the states of well-being of each individual with one another, these mid-century neoclassical models continued to assume that (i) the *choices* of the agent reflect her/his *preferences* and (ii) the *preferences* of the agent (even when s/he is not selfish), in turn, reflect the *welfare* of the agent. In this sense, the mid-century neoclassical economics continued to be a theoretical humanist research program that held on to a centered, unified, and autonomous conceptualization of the human subject who knows what

[17] According to Becker (1962), changes in the opportunity sets (budget constraints), induced by the changes in relative prices, will force "the average economic actor" to behave according to neoclassical theorems, even when each actual actor in the market may behave irrationally.

would improve her/his welfare, who can form preferences that would reflect her/his welfare, and who would be able to make choices according to her/his preferences.

* * *

This process culminated roughly in the mid 1970s. In the late 1960s and early 1970s, when the invisible hand theorem was fully formalized in the Arrow-Debreu (A-D) general exchange equilibrium models, a number of Walrasian economists swiftly recognized and acknowledged that there are indeed limitations to this neoclassical model of the market equilibrium and the concept of economic agent associated with this model (Arrow and Hahn, 1971; Hahn, 1984; Arrow, 1987; Kirman, 1992; Katzner, 1998; 2004). With the full-development of the A-D model, a widespread perception has emerged among neoclassical economists: if they wished to develop the idea of general equilibrium (i.e., harmonious and contradiction-free economic order) as a spontaneous and unintended outcome of the rational actions of individual economic agents, they had to give up the idea that each individual is unique, distinct, and autonomous. The Sonnenschein-Mantel-Debreu results, although more recent research proved them to be less general than they were perceived at the time, demonstrated that, unless further restrictions are imposed on the types of preference that the consumers can have in an A-D exchange economy, it is impossible to obtain the proper market excess demand functions that will always guarantee full reconciliation. Imposing further restrictions, however, while providing the necessary conditions for the *uniqueness* and *global stability* of general equilibrium, meant for many (but not all) the loss of the intended generality of a thoroughly individualist general equilibrium model.

Accompanying the matters that pertain to the uniqueness and global stability of the general equilibrium, there was the problem of how to conceptualize the process of *price adjustment* (price determination). The auctioneer metaphor, invoked in order to motivate the *tâtonnement* process through which the suppliers and the buyers modify their plans (in relation to everyone else's plans) outside of the real time until the equilibrium is finally reached, due to its lack of conformity with the precepts of methodological individualism, was far from convincing.[18] Indeed, the auctioneer and its contradictory position within the intendedly individualist framework of the Walrasian system have already been identified by a number of scholars as a *structuralist moment* of an otherwise theoretical humanist discourse (Amariglio, Resnick and Wolff, 1990; Charusheela 1998; see also, Hahn, 1984). Moreover, historically the auctioneer metaphor was used by the left-leaning Walrasian economists (e.g., Abba Lerner, Oskar Lange) as a euphemism for the Central Planning Board. In other words, the Walrasian skein of neoclassical economics, at the time, did not only fail to provide the promised microfoundations for the general competitive equilibrium with a desired level of generality (and hence defaulted on its promise to formalize the invisible hand theorem), but also promulgated in the minds of some a vision of the market economy that necessitated government intervention to undertake its most basic function—namely, the determination of the equilibrium price vector![19]

---

[18] In this dissertation, I will only consider *tâtonnement* models of general exchange equilibrium. Even though the Auctioneer-led *tâtonnement* is the main metaphor for conceptualizing the price adjustment process in an A-D exchange economy, non-*tâtonnement* (i.e., search) models of price adjustment were also explored (Diamond, 1971). For a survey of the literature, see (Hahn, 1982: 788-791).

[19] In addition to being a euphemism for the Central Planning Board, another terrifying implication of the auctioneer metaphor for the pro-market neoclassical

As I will show in Chapter 3 of this dissertation, many commentators saw in these two clusters of issues (namely, the issues that pertain to the generality of uniqueness and stability theorems and those that pertain to the absence of methodological individualism in the price-adjustment process) the necessary justification for abandoning the Walrasian program. But more importantly, perhaps encouraged by Debreu's claim to present the A-D model as "the root structure from which all further work in economics would eventuate" (cf. Weintraub, 2002: 121), many late neoclassical economists tended to equate the Walrasian program with neoclassical economics as such and began to represent the loss of the disciplinary hegemony of the former as the "death" of the latter. Without doubt, the loss of the disciplinary hegemony of the general equilibrium theory is a significant moment in the history of the neoclassical tradition. This dissertation acknowledges the importance of this moment by theorizing late neoclassical economics as a response to the perceived "shortcomings" of the A-D model. But, as mentioned earlier, it would be erroneous to reduce the neoclassical tradition to its Walrasian skein. And it is this conflation of a species (the Walrasian skein) with the genus (the neoclassical tradition) that prevents us form "seeing" the underlying continuities between neoclassical and late neoclassical economics. Accordingly, if one uncritically accepts this conflation, any critique of the A-D model and its assumptions will automatically be registered as a critique of neoclassical economics and the continuity between a more broadly defined neoclassical tradition and the contemporary mainstream economic approaches (i.e., late neoclassical economics) will be rendered invisible. In other words, even though these two clusters of problems (to do with the restrictiveness of the assumptions

---

economists was that the Walrasian agents were autonomous neither from each other nor from a supra-individual agency, such as the auctioneer.

necessary to prove the uniqueness and the stability of the general equilibrium and the conceptual murkiness that taints the price adjustment scenario) do stem from the definitive theoretical humanist presuppositions and the project of the neoclassical tradition, the Walras-Arrow-Debreu model is just one of the many renditions of the theoretical humanist problematic of the tradition.

Therefore, in response to those who announce "the death of neoclassical economics," it is necessary to remind that criticizing a particular rendition of the theoretical problematic of neoclassical humanism does not add up to a thorough-going critique of the neoclassical problematic as such. This is precisely why the contemporary mainstream economic approaches fail to occasion a radical break from the neoclassical tradition: even though they criticize the A-D model and its particular rendition of the theorem of invisible hand, they neither criticize nor eventually abandon the project of reconciling the diverse demands of the rational and autonomous individuals (and, in some cases, they don't even abandon the theorem of the invisible hand). Moreover, they criticize the Arrow-Debreu rendition of the theorem not because it is theoretical humanist but rather because it is not theoretical humanist enough!

* * *

First and foremost, then, late neoclassical economics defines itself in relation to and, in a sense, in opposition to the concept of *perfect competition* as it is defined and formalized in the A-D model.[20] One of the defining themes of late neoclassical economics,

[20] In this sense, when Bowles and Gintis (2000) claim that Walrasian neoclassicism was an unnecessary detour that delayed the development of "nonwalrasian

therefore, is the study of the different aspects of *market failures* and *imperfections*—which are themselves defined in reference to the concept of perfect competition. Accordingly, one typical late neoclassical operation is to relax an assumption or two of the Arrow-Debreu model (whilst, of course, leaving the presuppositions of neoclassical humanism untouched). A second is to draw upon the non-Walrasian skeins of the neoclassical tradition (e.g., the evolutionary themes of the Marshallian/Chicago

---

economics" (their term for what I call late neoclassical economics), they are missing the constitutive importance of the Arrow-Debreu model for late neoclassical economics. When they argue that "all of the underpinnings of a nonwalrasian economics had been set in place by 1960" (2000: 1429), it is impossible not to detect a quasi-Darwinian understanding of science as the progressive unfolding of better tools of representing the truth of reality. Walrasian economics can only be "an unnecessary detour" if "nonwalrasian economics" is superior to (i.e., more realistic than) the former according to some objective criteria; otherwise economists would not return back to them or the concepts would not return back! In other words, they assume that "nonwalrasian" concepts such as transaction cost, Nash equilibrium solution concept, bounded rationality that were elaborated "in the period from 1937 to 1957" were bound to replace the Walrasian concepts, because they are superior according to some objective and universal agreed upon criteria. There is a lot to be criticized in this chain of reasoning. I will just mention four. First, according to which criteria are we going to decide whether non-walrasian concepts are superior to the Walrasian concepts. For instance, if we embrace the notion that concepts are always inevitably partial representations of the reality, according to what criteria are we going to decide a partial representation is better from another partial representation. Moreover, if the concepts do not only represent but also help shape the reality, then the veridical nature of the concepts may even be shadowed by its performative nature: If the concepts shape the reality that they represent, according to what reality are we going to adjudicate representational superiority of a set of concepts over another set. Second, if some nonwalrasian (but, in my opinion, neoclassical) concepts are rediscovered and deployed by late neoclassical economists following the demise of Walrasian economics, many others (and, more often than not, those that are more damaging to the neoclassical problematic such as Harvey Liebenstein's concept of X-efficiency) are forgotten! Third, there is no reason to believe that those nonwalrasian (yet neoclassical) concepts became attractive in the 1970s due to their inherent and objective superiority. They became valuable only retroactively and precisely because they were nonwalrasian, only after the fact that a number of influential neoclassical economists became convinced that the Walrasian program was a dead end. And finally, the fact that these nonwalrasian (yet neoclassical) concepts pre-date the full development of the Walrasian program is yet another proof that there have always been more to the neoclassical tradition than the Walrasian program, that late neoclassical economic approaches in criticizing the Walrasian program are drawing from those other skeins of the neoclassical tradition.

approach, the concept of transaction costs of the neighboring Coasean tradition, the Nash equilibrium concept of classical game theory).[21] Through these reconfigurations, late neoclassical economists shifted their attention to offer an explanation as to *either* why it is impossible to obtain the conditions necessary for the invisible hand theorem to hold true *or* why it is necessary to do something to institute the conditions necessary for realizing the invisible hand theorem. In other words, the neoclassical theoretical problematic and its corollary policy debate (pro-intervention versus *laissez faire*) is reproduced once more in the late neoclassical context. While the details of the arguments, the sets of concepts, and the research methodologies deployed have changed in the late neoclassical context, the terrain of the debate remained the same.

As I noted above, late neoclassical economics appears to be comprised of a fairly heterogeneous group of approaches and it lacks a central model and a central research methodology. Ironically, in the late neoclassical context, the Arrow-Debreu model still serves a central role albeit not as "the root structure" or as a central model as it was intended by, for instance, Debreu, but rather as a point of departure, as a

---

[21] The irony is that the Chicago formulations that are usually referred to as the sources of late neoclassical responses to the Walrasian "structuralisms" were themselves saturated with structuralist moments! In other words, despite the fact that both the full-axiomatization of the general equilibrium theory in the 1950s and 1960s *and* the "selectionist arguments" of the proponent of the Chicago School were saturated with influences from the various types of structuralism, in the subsequent late neoclassical literature, they were read and interpreted in diametrically opposite ways. While the theoretical developments in the Walrasian general equilibrium theory is usually treated as a moment of "maturity," "culmination," or even "breakdown" (Davis, 2006: 14-7), the "selectionist arguments" of the Chicagoe School are construed as the constituents of an "originary" moment where the "foundations" of the new institutional economics, evolutionary economics and evolutionary game theory are laid down (Vromen, 1995; Samuelson, 2002). In Chapter 2, I will read this as symptom of an underlying change in the politics of the tradition in the late twentieth century.

benchmark. The various assumptions of the Arrow-Debreu model (pertaining to the commodity space, the theory of the firm, the axioms and the implicit assumptions of rationality, and the concept of equilibrium and its efficiency attributes) serve as possible points of departure for a late neoclassical economist: What if we incorporate the idea that there are transaction costs to the writing and the enforcing of contracts? What if the information is not perfectly available to the exchanging agents? If there are market failures, aren't there government failures as well? Why are there firms in a market economy? What if the "cooperating inputs" in a production process are inherently opportunistic? What if human beings have altruistic preferences? What if human beings have only bounded rationality? What if choice is an interdependent and strategic phenomenon? The list can easily be extended. In posing and answering such questions, late neoclassical approaches proliferated the models with which the various aspects of the theoretical problematic of neoclassical economics are re-formulated.

The fact that not all approaches ask all these questions contributes to the overall heterogeneity of that characterizes late neoclassical context. Some approaches relax only one assumption, others relax a number of them. Some approaches focus only on two questions, others tackle a number of them.[22] Moreover, in order to revise and re-activate the theoretical humanist presuppositions of the neoclassical tradition, late

---

[22] To complicate the matter even more, each approach has a number of different versions, each addressing a different concern. For instance, there are a number of different versions of experimental economics: some focus on the nature of preferences, others focus on the limitations of the human mind in processing information. Similarly, there are different uses of evolutionary game theory: for some approaches, it provides an explanation for the survival of altruistic preferences; for others, it provides a new and more versatile concept of equilibrium (i.e., evolutionary stability); and yet for others, it provides an explanation for the emergence of institutions.

neoclassical economists (not unlike their neoclassical predecessors who borrowed from physics (Mirowski, 1989) continued to borrow modeling techniques, simulation technologies, and experimental methodologies from disciplines such as evolutionary biology (Hodgson, 1993; Vromen, 1995), cognitive and behavioural sciences (Davis, 2003; Sent, 2004; 2005), cyborg sciences (Mirowski, 2002), engineering (Sent, 1998), and, of course, mathematics (Weintraub, 2002).

Accordingly, unless we read the contemporary mainstream approaches by positioning them genealogically in relation to the Arrow-Debreu model, it will be difficult to render comprehensible the theoretical humanist problematic that structures the apparent dispersion characteristic of the late neoclassical context. Late neoclassical approaches are united in the way that each approach relaxes, scrutinizes, enriches, and modifies this or that assumption, opens up this or that black box, of the Arrow-Debreu model and in the way that each approach re-visits, re-formulates, or re-stages, the same theoretical humanist problematic that was the part and parcel of the Arrow-Debreu model (as well as the other models of the neoclassical tradition). In this sense, to the extent that it continues to be structured around the problem of how to reconcile the individual and the collective rationality, the contemporary mainstream economics is squarely within the neoclassical tradition.

1. 3. Towards a Marxist critique of theoretical humanism

Theoretical humanism is a decidedly post-Enlightenment philosophical orientation that cuts across numerous schools of thought within the discipline of economics as well as the other disciplines of social and human sciences (e.g., political science, sociology, anthropology, psychology). Theoretical humanism is a post-Enlightenment

phenomenon because it displaces God from the central ontological position (logos) that it has enjoyed for centuries, only to put humanity, the human subject in its place. And precisely for this reason, because it neither questions nor deconstructs the centered architecture of the pre-Enlightenment ontological universe and the place of God therein, theoretical humanism fails to carry through to the end the secular promise of the Enlightenment. The defining theoretical humanist operation, therefore, is the insertion of humanity, the human subject, or the collectivities of human subject, to the void left by God at the apex of the centered architecture of the pre-Enlightenment ontology, epistemology, and ethics.

The constitutive problematic of theoretical humanism is the reconciliation of the pre-given interests of the centered, rational, and autonomous human subjects. In this section, I will first discuss the two theoretical presuppositions that underpin the constitutive problematic of theoretical humanism, namely the concepts of human subject and social reconciliation. Following this discussion, I will outline the basic contours of a secular critique of the theological idea of social reconciliation and the concept of the subject qua autonomous and rational consciousness that underpins the idea of reconciliation. And finally, I will elaborate on the concept of theoretical problematic and distinguish it from the particular theoretical positions *within* a theoretical problematic.

1. 3. 1. The concepts of human subject and social reconciliation in theoretical humanism

The notion of human subject that is found at the core of theoretical humanism is a centered, rational, and autonomous self-consciousness. It is a consciousness who possesses or who can eventually posses the full knowledge of his "true" interests (ends)

and who has the capability to employ the necessary means to realize these ends. In this sense, the subject of theoretical humanism is simultaneously an epistemological and an ontological entity. As an epistemological entity, it is assumed to be equipped with the wherewithal "to know" its "true" interests (ends) and "to know" how to satisfy those interests (ends). As an ontological entity, it is assumed to have an intentional "agency" (the capacity to cause effects) to employ purposefully the necessary means to realize these ends. In defining theoretical humanism, North American economists David Ruccio and Jack Amariglio also refer to the epistemological and ontological qualities attributed to the human subject by theoretical humanism:

> Placing humans at the center of schemas of progress and history and meaning is what distinguishes theoretical humanism, as the human subject is thus the beginning and ending point of all movement from the growth of knowledge (which is now understood as undertaken by, for, and through human subjectivity) to the transformation of the natural world (through science and technology oriented to human desires and ends, such as happiness). (Ruccio and Amariglio, 2003: 48)

In this sense, theoretical humanism inserts the human subject to the place of logos once occupied by the Divine Being. And since theoretical humanism fails to dispense with the centered architecture of the pre-Enlightenment ontology, a number of theological constructs continued to exert their influences on theoretical humanism.[23] Among those theological constructs is the utopian vision of a harmonious and

---

[23] This is an instance of what Hans Blumenberg (1983) calls "reoccupation." Blumenberg articulates the concept in the context of the passage from pre-modernity to modernity in order to refer to the way the problems of pre-modernity resurface in modernity. Ernesto Laclau explicates the idea of "reoccupation" in the following manner: "[T]he process by which particular notions, associated with the advent of a new vision and new problems, have the function of replacing ancient notions that had been formed on the ground of a different set of issues, with the result that the latter end up imposing their demands on the new notions and inevitably deforming them" (Laclau, 1990: 74).

contradiction-free social order (e.g., a paradise on earth) that would accommodate the postulated essence of the human subject in the best possible way. In other words, an important corollary of the centered, purposeful, and self-conscious human subject of theoretical humanism is the imaginary of a harmonious and contradiction-free social order: if there is an essence of the human subject that the human subject can become fully conscious of, then there must be a social order that would accommodate this essence—if it is not already the very embodiment of this essence. It does not matter whether or not such a social order can ever be achieved in this world—regardless, the concept is always present in theoretical humanist discourses and serves the function of a point of reference to compare the actually existing states as their imperfect approximations of the ideal.

It is possible to find variations on this theoretical humanist theme of social reconciliation in the post-Enlightenment political theory, political economy, and philosophy. In the field of political theory, the post-Enlightenment idea of social reconciliation manifests itself in the various ontologies of concordance and harmony found in Thomas Hobbes, John Locke, and Adam Smith who thought of discordance, disharmony, conflict, and antagonism as those aspects of the social that needs to be banished from it (Connolly, 1987; Mouffe, 1992; Stavrakakis, 1999). Similarly, in the field of political economy, the post-Enlightenment idea of social reconciliation manifests itself in the various concepts of equilibrium: the Walrasian concept of general equilibrium, the Marshallian concept of partial equilibrium (which always presupposes general equilibrium), the Nash-equilibrium concept in classical game theory, the concept of evolutionary stability in evolutionary game theory, and even the Austrian notion of spontaneous order. Needless to say, a notion of rational, self-

transparent, and autonomous human subject underpins ("microfounds") all these political and economic notions of social reconciliation. Owing to their "normative microfoundations," these theoretical humanist discourses, more often than not, function in the legitimization of the institutions of liberal democracy and the capitalist market economy. The very existence of the institutions of liberal democracy, capitalism, and market society becomes the proof of their legitimacy, for if they were bad for humanity, they would not be affirmed and internalized by human beings who are assumed to be rational and autonomous.

Indeed, there is much to be said about the "coincidence" of the epistemological and the ontologically constitutive role attributed to the human subject in the emergent Enlightenment philosophical episteme (ranging from the Cartesian rationalism to the Humean empiricism) with the formulation of political liberalism around the concept of citizenship and the growing importance of "the contractual fiction" as the vital conditions of existence of the market exchange.

The subject of political liberalism is the citizen subject and as such the citizen subject is the subject of Law; it is the subject who does not only actively participate in the making of the Law but also who obeys this human-made Law. The idea of political democracy relies on this idea of the citizen subject who is both constitutive of and constituted by the democratic polity. It is important to note, however, that the idea of citizen subject is a political concept that intends to establish a new political ontology (way of being); that is, it is not a concept that describes the essence of human beings but rather a concept that informs the Enlightenment project of enacting a new democratic political *way of being* (Mouffe, 1992; Balibar, 1994).

In a similar manner, the subject of the contractual Law also does not describe the essence of human beings, it simply establishes the prerequisites of a contractual arrangement. In order to function properly, it is argued, the contract law, "the core of the legal system in a market-dominated society," must assume that the individuals that enter into a contractual agreement are well-informed, purposeful, and autonomous (free) persons (Hodgson, 1986: 214). This assumption, this contractual fiction, of course, does not mean that actual human beings are "well-informed, purposeful, and autonomous" persons.

In this sense, neither of these concepts (namely, the citizen-subject of the political law and the contractual subject of the economic law) have to rely on an essentialist conceptualization of the human subject.[24] Nevertheless, as a decidedly post-Enlightenment philosophical orientation, theoretical humanism does make that additional, *legitimizing*, step by linking these Enlightenment notions of the citizen subject and the contractual subject to an essentialist conceptualization of the human subject as a centered, rational, and autonomous self-consciousness who is responsible for the choices s/he makes.[25]

---

[24] Chantal Mouffe, following Hans Blumenberg (1983), invites us to distinguish between the idea of "self-assertion," the political project of the Enlightenment, and the idea of "self-foundation," the epistemological project of the Enlightenment: "Once we acknowledge that there is no necessary relation between these two aspects, we are in the position of being able to defend the political project while abandoning the notion that it must be based on a specific form of rationality. [T]he challenge to rationalism and humanism does not imply the rejection of modernity but only the crisis of a particular project within modernity, the Enlightenment project of self-foundation. Nor does it imply that we have to abandon its political project, which is the achievement of equality and freedom for all" (Mouffe, 1992: 10).

[25] Even though the contractual law has to assume that the subject is autonomous, rational, and so on, these assumptions do not describe the ontology of the subject and

Therefore, precisely because it can serve a *legitimizing* function, the essentialist conceptualization of the human subject as a centered, unified, rational, and autonomous self-consciousness has important political/normative implications. Consider, for instance, the idea of equilibrium in a perfectly competitive economy: an equilibrium is a state of this economy where no one could be better off without making someone worse off. The concept of equilibrium derives its normative force as a Pareto optimum state of the economy from the assumption that individual agents who buy and sell goods and services do so in a rational and autonomous manner. Here the concept of autonomy implies that the choices of the subjects reflect their preferences and the concept of rationality implies that the preferences of the subjects are consistent and reflect the individual welfare of each (Sen, 2002). In this sense, the essentialist conception of human subject as a rational and autonomous self-consciousness functions as the normative foundation of the market economy. A similar argument can easily be made for the theoretical humanist appropriation of the concept of democracy and its corollary concept of the citizen subject. It is possible to essentialize democracy and the outcomes of the democratic processes like elections if one understands the idea of citizenship as a natural right and interpret the political choices of the citizen subjects as being reflective of their true preferences and these preference to be reflective of their individual welfare.

Therefore, the theoretical humanist *articulation* of the secularizing, and in a certain sense pragmatic, fictions of the Enlightenment (e.g., the citizenship, the contractual subject) to the centered, rational, and autonomous human subject of theoretical

---

the underlying assumptions pertaining to the subject are always subject to debate and negotiation. In this sense, the legal debates on the socio-economic causes of crime, for instance, attest to the fact that the "autonomy" postulate is not an ontological attribute but a discursive and pragmatic device that everyday contracts deploy.

humanism is a partisan restoration of the theological logos that should have been radically displaced by the Enlightenment. In this sense, it is possible to read the history of post-Enlightenment philosophy as a history of the struggles between those who insist on re-centering the displaced logos around a foundationalist understanding of the human subject *and* those who remain in fidelity to the secular promise of the Enlightenment by criticizing not only the concept of God but also the very centered conceptual architecture of the pre-Enlightenment ontological universe. Accordingly, while a theoretical humanist discourse always presupposes a philosophical notion of the subject as a self-consciousness, as a unity, as a self-mastery, as a site of epistemological certitude, a thoroughly secular discourse of the post-Enlightenment era takes the critique of the very category of the subject as its entry point.

1. 3. 2. A Marxist critique of theoretical humanism

It is possible to trace the genealogy of this secular "critique of the subject" back to the writings of Karl Marx, Friedrich Nietzsche, Sigmund Freud, Martin Heidegger, and Ludwig Wittgenstein, as well as to those of Jacques Lacan, Michel Foucault, Louis Althusser, and Jacques Derrida. According to French philosopher Jean-Luc Nancy, what this radically secular tendency has persistently aimed to accomplish is "the critique or deconstruction of interiority, of self-presence, of consciousness, of mastery, of the individual or collective property of an essence" (1991: 4). In what follows, in articulating the contours of a secular Marxist critique of theoretical humanism, I will draw upon Foucault's critique of the category of the subject, Althusser's concept of ideological interpellation, and Richard Wolff's post-Althusserian analysis of the ideological conditions of existence of capitalism in the US.

The term "subject" has a dual meaning: On the one hand, it connotes agency, autonomy, freedom, mastery, and consciousness. On the other hand, the term subject (qua *subjectus*) connotes subjection, submission, unfreedom, and powerlessness. In stark contradiction to the notion of the subject that the aforementioned critics of theoretical humanism have aimed to deconstruct, the latter notion of subject lacks autonomy and freedom, for it is subjected to a higher authority. This paradoxical situation begs the following question:

> …why is it that the very *name* which allows modern philosophy to think and designate the *originary freedom* of the human being—the name of 'subject'—is precisely the name which *historically* meant suppression of freedom, or at least an intrinsic limitation of freedom, i.e. *subjection*? (Balibar, 1994: 8-9)

Perhaps, this coincidence of two radically opposite meanings is not as paradoxical as it initially appears. In order to be able to see why this may be so, we need to ask if the subjection of the subject is simply a relation of brute force? Is there no room in this relation for the solicitation of the consent of the subject in her/his subjection? What if along with *subjection* (a political process) comes *subjectivation* (i.e., the constitution of the subjectivity of the subjected entity within the cultural processes of meaning production and dissemination)?[26] What if the cultural construction of the subjectivity of the subject, i.e., her/his *subjectivation*, is a condition of existence of her/his political subjugation, i.e., her/his *subjection*? Moreover, what if for subjectivation and subjection to succeed, the individual has to perceive her/himself (and to be perceived by others) as an autonomous subject? Foucault was articulating precisely this conjunction of the political and the cultural processes when he was writing about a particular *technique* or *form* of power that

---

[26] It is important not to conflate the political processes of domination and subjection with the cultural processes of production and dissemination of meaning.

> …applies itself to immediate everyday life which categorizes the individual, marks him by his own individuality, attaches him to his own identity, imposes a law of truth on him which he must recognize and which others have to recognize in him. It is a form of power which makes individuals subjects. There are two meanings of the word *subject*: subject to someone else by control and dependence, and tied to his own identity by a conscience or self-knowledge. Both meanings suggest a form of power which subjugates and makes subject to. (1983: 212; underlined emphasis added)

According to Foucault, therefore, the political process of subjugation of human beings (individuals) and the cultural process of their subjectivation are interwoven. While the politico-juridical processes designate the individual as a legal subject who is subjected to laws, the cultural processes produce and disseminate meanings that enable the individual to perceive her/himself, and to be perceived by others, as an autonomous self-consciousness who is in total control of her/his identity. Subject-hood (in the sense of being a subject qua agency, unity, self-consciousness, and mastery), for Foucault, is not an inherent attribute of the individual but a product of political and cultural processes of subjection and subjectivation. In other words, Foucault historicizes the notion of subject qua autonomous self-consciousness as both a condition and an outcome of the mechanisms of subjection.

While acknowledging the *equally* relevant status of economic processes, Foucault himself never developed a systematic analysis of the overdetermination of economic, political, and cultural processes in the making of "subjects out of individuals." Althusser, on the other hand, did articulate a way to conceptualize the relations between political subjection, economic exploitation, and cultural subjectivation. Instead of the concept of power that swallows the political and the cultural, Althusser has chosen to distinguish between the politico-juridical processes of subjection, the economic processes of production, appropriation, distribution, and realization of surplus value, and the ideological processes of reproduction.

Even though Althusser uses the concept of ideology, he carefully distinguishes the concept from the theoretical humanist notion of *false consciousness.*[27] For him ideology is neither *false* nor *consciousness*. First, there is nothing false or true about ideology. For Althusser, ideology "is *a* representation of the *imaginary* relationship of individuals to their *real conditions of existence*" (Althusser, 1971: x; emphasis added). Let us try to unpack this highly sealed definition. First of all, "the real conditions of existence" of individuals refers to the notion of overdetermined totality of social processes where each "process" (ideological, economic, and political) is the site of the contradictory push and pull of all the other social processes (see also, Resnick and Wolff, 1987). This overdetermined totality couldn't be represented in discourse because the overdetermined totality itself never ceases to change. Any attempt to represent it in its entirety is bound to fail for the ceaseless change means that the overdetermined totality does not exist as a fixed and stable entity. In this sense, according to Althusser, individuals are bound to have an *imaginary* (read partial) relationship to the overdetermined totality, to their "real conditions of existence". And finally, an ideology is *one among many necessarily partial representations of the relationship of the individuals to the overdetermined totality*, because there are many different representations—none of which can be claimed to be truer than the rest and every single one of them necessarily partial. In this sense, Althusser distinguishes his notion of ideology from the theoretical humanist notion of *false* consciousness.

---

[27] False consciousness is a theoretical humanist concept because it presupposes the existence of a true consciousness. To argue that a representation is a *false* representation of the *reality* is to imply that there can be *true* representation that will adequately "mirror" the reality. And the idea that there can be a true representation, true consciousness presupposes the existence of a rational and self-transparent subject of theoretical humanism.

But Althusser also rejects the idea that ideology is another word for *consciousness*. On the contrary, for Althusser, ideology is "profoundly unconscious":

> Ideology is indeed a system of representations, but in majority of cases these representations have nothing to do with 'consciousness': they are usually images and occasionally concepts, but it is above all as *structures* that they impose on the vast majority of men, not via their 'consciousness'. (Althusser, 1969: 233)

Therefore, ideology is not a form of consciousness but a *structure*. Althusser uses the term structure in order to designate ideology as an element of the social totality. For Althusser, a social formation is a complexly overdetermined (structural) totality of regularized and concrete social practices.[28] In other words, ideology is not an "idea" but a system of representations that materialize in regularized and concrete social practices which are, in turn, inscribed within the institutional materiality of what Althusser calls "ideological state apparatuses". As examples of the ideological state apparatuses (ISAs), Althusser refers to institutions such as the Family, the School, the Church, the Military, the Law, the Media, the Trade-Union, and so on.[29]

---

[28] Let us immediately note that each social practice itself is a site constituted by the endless push and pull of the totality of social processes (Resnick and Wolff, 1987).

[29] Equally important is the fact that the notion of ideology as a system of representations that materialize in regularized practices which are inscribed within particular ISAs has made it possible for Althusser to invert "the order of the notional schema of ideology," according to which the autonomous subject (*subjectum*) first decides to believe in an idea and then practices it. In contrast to this idealist/humanist notion of ideology that privileges ideas and consciousness and posits a "subject" that pre-dates the interpellation (an always already constituted subject who can voluntarily "choose" her/his particular subjectivity), Althusser argues that ideologies precede the individuals and therefore they are, in a sense, imposed on individuals who participate in concrete practices; belief in a particular ideology, accordingly, comes only later as a performative after-effect of repetitive participation in ideological practices. Althusser is particularly fond of paraphrasing Christian theologician Pascal: "Kneel down, move your lips in prayer, and you will believe" (Althusser, 1971: 168). In this context, it may be useful to think of the Freudian category of "rationalization," as the effort of the already subject(ivat)ed subject to come to terms with and to make sense of a traumatic cut. Belief, just like

In short, for Althusser, the process of subjectivation, or the process of manufacturing of the particular subjectivities of individuals (i.e. the production of meanings and representations pertaining to who they are, what their attributes are, what their needs and desires are, and so on) occurs within the ISAs and the individuals are simultaneously subjectivated and subjected by virtue of participating in the complex rituals and practices that are inscribed in particular ISAs. Subjection, as Judith Butler eloquently formulates it, "carries the *double meaning* of having submitted to these rules, and becoming constituted within the sociality [as subjects] by virtue of this submission" (1995: 14). According to Althusser, Butler reminds, "subjection to the ruling ideology" is equivalent to "the *mastery* of its practice" (Althusser, 1971: 133, cf. Butler, 1995: 14), to becoming someone within the frame of reference of the ruling ideology (e.g., a good worker, an upstanding citizen, a good businessperson).

In this sense, both Foucault and Althusser argue that the process of subjectivation/subjection makes "subjects" out of individuals.[30] Althusser calls this process *interpellation*. He uses this term metaphorically to describe how the ISAs subjugate, subjectivate, and even makes "subjects" out of, individuals by "calling" and "inviting" them to the practices within which particular ideologies materialize. In

---

rationalization, always comes *après coup*. Or to be more precise, first comes the trauma of being forced to pray ("I pray…"), then comes the belief ("I pray because I believe…"), and finally comes the rationalization ("I pray because I believe because…").

[30] "[I]deology ... 'recruits' subjects among the individuals, or 'transforms' the individuals into subjects by that very precise operation ... called *interpellation* or hailing" (Althusser, 1971:174). Althusser explains the notion of interpellation by way of an imaginary scene that takes place in the street. When an everyday police hails "Hey, you there!" to an individual, *the moment* the hailed individual turns around, *because* he has turned around, *because* by turning around "he has recognized that the hail was 'really' addressed to him, and that 'it was *really him* who was hailed' (and not someone else)," the individual finds her/himself in the position of a "subject," a distinct and autonomous unity (Althusser, 1971: 174).

fact, a condition of existence of the process of subjectivation is that the individual conceives of her/himself, and is conceived by others, as a "subject." To put it differently, the interpellated individual, by responding to the interpellation recognizes her/himself as an autonomous "subject," as the addressee of the "hailing" or the "invitation."

> The individual in question behaves in such and such a way, adopts such and such a practical attitude, and, what is more, participates in certain regular practices which are those of the ideological apparatuses on which 'depend' *the ideas which he has in all consciousness freely chosen as a subject.* (Althusser, 1971: 167)

Without doubt, Althusser, like Foucault, exploits the irony that inheres in the dual meaning of the term "subject." On the one hand, each time an individual is interpellated by a particular ISA (the Church, the School, etc.), her/his self-understanding as an autonomous subject is being re-instated. On the other hand, as discussed above, the participation of the "subject" in the ISAs entails, simultaneously subjectivation and subjection. In this sense, the belief of the individual in his/her subject-hood, autonomy, and agency provides an important condition of existence for the reproduction of particular ideologies. Richard Wolff highlights the importance of this irony, when he writes:

> Individuals are shaped by ISAs to believe that their conformity to the needs of capitalist class structures is something quite different, a life path freely chosen by an independent and autonomous subject. (Wolff, 2005: 226)

As a Marxist philosopher, Althusser was particularly interested in the way in which particular ISAs secure (or fail to secure) the conditions of existence of class structures. For instance, while the family turns the children into docile subjects, the education system serves the purpose of preparing the young adults for the labor market. If these ISAs, by preparing the individuals to be docile and versatile workers, provide certain

conditions of existence for the production and appropriation of surplus, others enable the realization of surplus:

> Workers in the US had somehow to be interpellated systematically—in their families, schools, churches, civic and labor organizations, the mass media, and so on—as consumption oriented and driven. They had to be called to think of (identify) themselves and everyone else as free market participants striving to maximize the consumption they could achieve from work. They have to define themselves as above all "consumers" who willingly suffered "disutiliy" of labor to acquire the "utilities" embodied in consumption. (Wolff, 2005: 230)

Wolff's analysis of the reproduction of the ideology of "consumerism" in the US within and through ISAs highlights the importance of how subjectivation and subjection of individuals is predicated upon and perpetuated by their belief in their freedom and autonomy. In his analysis, Wolff highlights the role played by a particular economic discourse in the reproduction of the ideology of consumerism: "The neoclassical economics that so totally dominates academia, the media, and politics in the United States theoretically formalizes this interpellation" (2005: 230).

Indeed, Althusser's critique of the notion of subject as an autonomous self-consciousness implicates theoretical humanism in all social sciences. According to Althusser, "the ideology of man as a subject whose *unity* is ensured or crowned by consciousness is not just any fragmentary ideology; it is quite simply *the philosophical form of bourgeois ideology*" (1996: 114). This ideology, according to Althusser, "still reigns over large sectors of idealist philosophy and constitutes the implicit philosophy of psychology, morality, and even political economy" (ibid.). For instance,

> …this ideology of the *conscious subject* constituted the implicit philosophy of classical political economy and […] Marx was criticizing its "economic" version in rejecting any idea of *"homo economicus,"* in which man is defined as the conscious subject of his needs and that subject of need is defined as the ultimate and constitutive element of every society. With that Marx rejected the idea that one could find in man as subject of his needs not only the ultimate explanation of society but also, *and this is crucial, the explanation of man as subject*, that is as a self-

> identical and self–identifiable unity, one identifiable in particular by that "self" par excellence which is self-consciousness. (Althusser, 1996: 115)

It is also possible to find a parallel embodiment of "this philosophical category of the self-conscious subject" in the fields of sociology, psychology, law, politics as well as "in *practical* formations such as morality and religion" (Althusser, 1996: 116). These various "conscious subjects of" economics, politics, law, religion and so on are "*unifiers of the social identity of the individual insofar as they are unified as so many exemplars of an ideology of 'man,'* a being 'naturally endowed with consciousness,' to apprehend the profound unity of that ideology and its theoretical and practical formations" (Althusser, 1996: 116). In other words, the conscious and unified subject of a theoretical field is a necessary correlate of the unity of that particular theoretical framework.

In the case of neoclassical economics, the concept of *homo economicus* functions as the concept of conscious and unified subject that holds together the discipline of economics around the hegemonic reign of the neoclassical tradition. In turn, from a secular Marxist perspective, neoclassical economics, to the extent that it provides the theoretical foundations of a normative justification of exploitation, functions as an ideological state apparatus that contributes to the reproduction of the liberal democratic capitalism.

Nevertheless, given the central role that the concepts of overdetermination and aleatory contingency play in Althusser's thinking, it would be wrong to assume a functional relationship between the ideological state apparatuses and the liberal democratic capitalism (or any other socio-economic order, for that matter). Wolff notes that "the social contradictions working on the ISAs provoke the formation of different and oppositional conceptions of subjectivity that complicate how the ISAs

actually function" (2005: 226). In this sense, the concept of overdetermination removes any functionalist understanding of ideological interpellation. Every ideological state apparatus (the School, the Church, the Military, or even the neoclassical tradition within the discipline of economics) is a site of countless and contradictory influences, including those emanating from the counter-hegemonic ideologies that question and criticize not only the injustice of capitalist exploitation but also the "hegemonic ideology of 'free subjects' for ignoring/denying its social constitution and, in particular, for supporting capitalist exploitation" (Wolff, 2005: 226).

To conclude, the secular critique of the category of the subject emphasizes how the concept of subject qua autonomous self-consciousness disavows the possibility to understand the subject "as a site of countless and contradictory influences which plays its own overdetermining role on those very constituent influences."[31] However, no disavowal is innocent. In this case, it is not innocent because the decentered concept of the subject does not lend itself to a theoretical humanist morality that attributes positive normative value to the idea of reconciling the individual and the collective rationality. Theoretical humanist morality of reconciliation and order is premised upon the idea of subject as an autonomous and rational self-consciousness. The

---

[31] This sentence is a quotation from one of the exam questions that Steve Resnick asked in the midterm for his graduate seminar on Marxian political economy (Economics 709: Political Economy II). The entire question goes as follows: "The 'human being', 'human subject' or the 'I' can be conceived as a site of countless and contradictory influences which plays its own overdetermining role on those very constituent influences." Prepare an essay that explains what this statement means. What are its implications for approaches that tend to essentialise the role of the human subject in theories of society and of knowledge?" This dissertation, as a study of the integral role that an essentialist notion of human subject plays in the neoclassical tradition, is intended as a partial answer to this question.

autonomous and rational subject of theoretical humanism provides the normative microfoundations of a social order which will be *simultaneously* acceptable to each of its members as autonomous and distinct individuals. But, such a social order can only be justified if it is grounded in, and sanctified by, the authentic, rational and welfare-increasing choices of the "individual" agents. In contrast, conceiving the subject as "a site of countless and contradictory influences" will make it difficult to argue that the subject is "the master of her own house," that the subject knows what would improve his welfare, that there can be a clear-cut and unique understanding of what his welfare is, that his preferences will reflect his "welfare," and that his choices will necessarily reflect his actual preferences.

It is important to emphasize the epistemological premises of the secular Marxian critique offered in this section. The critique does not criticize theoretical humanism for misrepresent the truth of the subject. Rather, the critique offers an alternative to the theoretical humanist conception of the subject and criticizes the latter from the perspective of the alternative understanding of the subject. This dissertation is written from the latter perspective that decenters the subject and as such it is engaged in a partisan theoretical struggle with theoretical humanism in the discipline of economics.

1. 3. 3. The constitutive theoretical problematic of neoclassical humanism.

In this section, I will briefly discuss the concept of theoretical problematic in the context of neoclassical humanism. To begin with, within the neoclassical tradition, there are many ways to formulate the theoretical problematic of neoclassical humanism. In fact, the following chapters will offer a detailed study of the different ways in which the same theoretical problematic is formulated.

One of the most lucid and "economic" formulations of the theoretical problematic of neoclassical humanism can be found in Kenneth Arrow's *Social Choice and Individual Values* (1963). In this study that single-handedly inaugurated social choice theory, Arrow makes a very pregnant analogy between voting and the market mechanism:

> In a capitalist democracy there are essentially two methods by which social choices can be made: voting, typically used to make 'political' decisions, and the market mechanism, typically used to make 'economic' decision. […] The methods of voting and the market are methods of amalgamating the tastes of many individuals in the making of social choices. […] Can we find other methods of aggregating individual tastes which imply rational behavior on the part of the community? […] In the following discussion…the distinction between voting and the market mechanism will be disregarded, both being regarded as special cases of the more general category of collective social choice. (Arrow, 1963: 1-5)

This is the sense in which I wish to understand the central theoretical problematic of neoclassical economics: The study of the conditions of existence of the reconciliation of the individual and the collective rationality. Or to put it slightly differently, the neoclassical problematic is the study of the ways of achieving the social reconciliation (e.g., equilibrium) of the diverse demands of the rational and autonomous individuals.

Let me immediately note that within the neoclassical tradition, as I will show in the following chapters, no agreement exists on the exact meaning of individual rationality. Nor there is an agreement as to what collective rationality entails and how the social reconciliation can be achieved.[32] In fact, what gives the neoclassical tradition its color, its vitality, its richness is precisely the absence of an agreement on the exact meaning of these terms. As I will argue in the following chapters, the heterogeneity of the neoclassical tradition results from the fact that there are important politico-

---

[32] On this last question, I am prepared to grant that the market mechanism is the privileged (but certainly not the only) method of achieving social reconciliation for the neoclassical tradition.

normative, methodological and conceptual differences among the various skeins of the neoclassical tradition. Nevertheless, despite these important differences, all these particular neoclassical approaches share the same theoretical problematic.

Let me also note that, even though it constitutes the horizon within which particular theoretical positions function, a theoretical problematic does not pre-exist the particular theoretical positions that inhabit its conceptual terrain. It is rather a retro-active effect of the theoretical interactions among the various theoretical positions that share a commitment to a common set of theoretical presuppositions. In other words, the theoretical problematic of neoclassical humanism is a *by-product*, an *after-effect*, that became possible to discern only today, only when the neoclassical tradition matured into, what I call in this dissertation, late neoclassical economics. As the neoclassical tradition splintered into multiple sub-approaches, as it branched out into applied fields, and as the themes explored and the research methodologies deployed got diversified, it became more and more clear that these approaches are united not around an object of analysis (e.g., the markets) or a core model (e.g., the A-D model) or even a research methodology (e.g., mathematical modeling) but around a theoretical problematic.

And more importantly, the theoretical problematic itself is a site of hegemonic struggle between the various skeins of the neoclassical tradition. Even though the neoclassical tradition constitutes itself as a unified field, it does not do so around an explicit set of core attributes that every neoclassical economists agree upon. In this sense, and perhaps ironically, the tradition does not establish its unity through reconciliation, harmony, or concordance. Rather, the unity of the neoclassical tradition emanates from the fact that the neoclassical problematic functions as a field

of hegemonic struggle where the various skeins of tradition clash with each other in defining the meaning of individual rationality, equilibrium, collective rationality, and efficiency and in determining the "correct" way to achieve social reconciliation. It is important to appreciate the contradictory effects of the turbulence caused by this hegemonic struggle over determining the "correct" formulation of the neoclassical problematic. The tradition is simultaneously undermined and revitalized by this turbulent struggle for hegemony among its various skeins. For instance, when the struggle between the Walrasian left liberals and pro-market Chicago neoclassical have led to the dissolution of the mid-century consensus, a space for alternatives that reject the basic presuppositions of the neoclassical humanism was opened. The foundation of institutions such as the Union of Radical Political Economics in the 1970s (harboring throughout its first two decades voices that explicitly criticized theoretical humanism from an anti-essentialist Marxian perspective) and the Association for Economic and Social Analysis in the 1980s, the revitalization of "old" Institutionalism on both sides of the Atlantic in the 1990s (finding their institutional homes in the Association of Evolutionary Economics in the US and the European Association for Evolutionary Political Economy in Europe), and the institution of more recent international formations such as Association of Heterodox Economics and International Confederation of Associations for Pluralism in Economics all owe something to the weakening of the neoclassical tradition in the 1970s and 1980s. Yet, on the other hand—and I believe the demonstration of this point is an important contribution of this dissertation—, the hegemonic struggles among the various skeins of the neoclassical tradition, to the extent that they convey a richness and sense of openness and to the extent that they entail repetition and reassertion of the same theoretical problematic through newer (imported) methodologies and concepts and in

newer contexts, reinforce and reproduce the disciplinary prevalence of neoclassical humanism.

1. 4. The outline of the dissertation

Neoclassical discourse essentializes consistency and order. At the heart of its understanding of human subject, we find the postulate of consistency along with other postulates of rationality. This notion of (rationality as) consistency also underpins the concept of social order embodied in the concept of equilibrium. In the A-D model, the equilibrium is defined as a price vector that renders compatible (and hence "consistent with each other") the profit maximizing production plans with the "utility" maximizing consumption plans. Similarly, in the Marshallian system, the equilibrium in a particular market is reached when the exit and entry of firms ceases, when the market stabilizes. Nevertheless, as a discursive formation, the neoclassical tradition, early or late, cannot constitute itself as a consistent formation. This is not to say that neoclassical economists are not committed to construct a consistent discourse. Indeed, for instance, the use of mathematics and symbolic logic in the mid-century neoclassical economics is, in part, motivated by this (aesthetic?) concern to establish a consistent discourse. Despite this deliberate effort to achieve discursive consistency, the tradition is fraught with inconsistent and, in many cases, conflicting models, metaphors, and methodologies. As articulated earlier, the task of this dissertation is to delineate and render visible the thread that sutures together the various neighborhoods of this discursive sprawl.

In this sense, the task of mastering (and, in the final analysis, reading consistency into) this complex, uneven, inconsistent and internally fractured discursive formation is an

impossible one. The impossibility of this task is further aggravated by the responsibility that I feel for producing a "convincing reading" that will have consequences in the economics discipline, an intended audience of this dissertation. This is an "impossible" responsibility that compels me to attend to the various subtle and, no doubt, consequential differences among various, early and late, neoclassical approaches.

In an attempt to introduce some semblance of order to the proposed analysis of the internal dynamics of neoclassical tradition, I divided the remaining chapters into two parts: Chapter 2 deals with neoclassical economics from the 1930s to the 1970s and Chapters 3, 4, 5, and 6 deal with late neoclassical economics. The lack of symmetry in the number of chapters devoted to the two parts can be explained, in part, by the stated objective of this dissertation (i.e., to demonstrate that the contemporary mainstream, despite its heterogeneity, continues to inhabit the neoclassical problematic), and, in part, by the heterogeneity of the late neoclassical condition. Given the foreboding heterogeneity of the literature and given the claim of the dissertation, I silently structured my discussion of neoclassical as well as late neoclassical economics around the two constitutive presuppositions of the neoclassical problematics: the concept of economic agent and the concept of equilibrium.

In Chapter 2, I accomplish two tasks: In the first half of the chapter, I discuss the changes in and the variations of the neoclassical concept of economic agent from the early days of the "marginalist" revolution to the mid-century ordinalism in the context of North American academia. In the second half of the chapter, I discuss the Walrasian and the Marshallian concepts of equilibrium as they are embodied in the mid-century axiomatic general equilibrium models developed by the various affiliates

of the Cowles Commisssion and the "selectionist arguments" articulated in the same period by the proponents of the Chicago approaches.

Chapter 3 is an introductory chapter that serves the purpose of preparing the reader to the subsequent identification and analysis of late neoclassical economics. I begin the chapter with reminding the three theses regarding the contemporary mainstream economics: that it is unified despite a significant degree of internal heterogeneity; that it remains within the neoclassical problematic; that it consist of returns to and re-elaborations of the theoretical presuppositions of neoclassical humanism. Subsequently, after I carefully delineate the sources of *unity* and *dispersion* in late neoclassical economics, I turn my attention to the writings of a number of important figures of late neoclassical economics (Samuel Bowles, Steven Cheung, Ronald Coase, Herbert Gintis, Douglass North, and Joseph Stiglitz) and highlight their own representations of how they relate the general equilibrium theory. And finally, after establishing the constitutive (albeit negatively so) importance of the general equilibrium theory, I end the chapter with offering the basic contours of the proposed mapping of late neoclassical economics that I will substantiate in Chapters 4, 5, and 6.

In Chapter 4, I discuss the different and conflicting ways in which late neoclassical approaches produced the concept of *market failures* and used it to understand the *economic institutions* in general and the firms in particular. This chapter establishes that the transition from the study of perfect competition to that of imperfect competition and from market exchange to economic institutions do not add up to a radical break from the neoclassical problematic. Chapter 5 focuses on the treatment of the concept of human subject in late neoclassical economics and offers a critical evaluation of the accentuated pre-occupation of the late neoclassical approaches with the motivational

and cognitive dimensions of the assumption of *rationality*. The chapter demonstrates the late neoclassical turn towards a "richer" and more "subtle" concept of human subject that incorporates bounded rationality and self-reflexivity constitutes not only a rehabilitation of the theoretical humanist project of early neoclassicism but also a response to the impoverished concept of human subject that was expounded by post-war neoclassicism. Finally, Chapter 6 focuses on the concepts of *equilibrium*, *efficiency*, and *institutions* in the game theoretic corridors of the late neoclassical condition. The chapter traces the trajectory of a transition from the concept of Nash equilibrium associated with classical game theory to the concept of evolutionary stability associated with evolutionary game theory. The chapter demonstrates how these concepts and their various refinements are developed for revitalizing, rather than abandoning, the concept of harmonious reconciliation of the interests of autonomous and centered actors.

CHAPTER 2

NEOCLASSICAL ECONOMICS: UNDER THE SHADOW OF STRUCTURALISM

2. Introduction

In this chapter, I will discuss two developments within the neoclassical tradition in the postwar North American context that contributed to the emergence of late neoclassical economics. The two developments that I will devote special attention to are the complete formalization of the general competitive equilibrium model in the 1950s and 1960s by those mathematical economists associated with the Cowles Commission and the articulation of the "selectionist arguments," again, in the 1950s and 1960s by the proponents of the Chicago tradition. An important condition of existence of these two developments was the emergence of a tendency in the early 1930s to assume as little as possible about the preferences of the agents—a process that began with the ordinalist turn and in particular with Samuelson's (1938) revealed preference approach, but took a life of its own with Arrow's (1951; 1963) re-activation of the welfare economics in the language of mathematics. In contrast to the inter- and the post-war neoclassical economics which I will discuss in this chapter, the late neoclassical condition is characterized by an accentuated reversal of this tendency with a significant amount of attention being devoted to the study of both the motivational and the cognitive aspects of human rationality (accompanied with an increasing number of assumptions being made about the human mind).

To complicate the matters, however, let us note that in the subsequent late neoclassical literature these two developments (i.e., the full-development of axiomatic general equilibrium theory and the "selectionist arguments" of the Chicago approach) are read and interpreted in diametrically opposite ways. And this was despite the fact that both developments were, as I will argue in this chapter, saturated with influences from the various types of structuralism that dominate the other disciplines (mathematical and linguistic structuralism in the former case and biological/evolutionary structuralism in the latter). While the theoretical developments in the general equilibrium theory are usually treated as moments of "maturity," "culmination," or "breakdown" (Davis, 2006: 14-7), the "selectionist arguments" articulated by the likes of Armen Alchian (1950), Milton Friedman (1953), and Gary Becker (1962) are construed as the constituents of an "originary" moment whereby the "foundations" of the new institutional economics, evolutionary economics and evolutionary game theory are laid down (Vromen, 1995; Bowles and Gintis, 2000; Samuelson, 2002).

What accounts for the discrepancy in the reception of these two developments in the late neoclassical literature? As argued in the previous chapter, the neoclassical tradition is a series of reformulations, re-enactments, re-statements, re-iterations of a constitutive theoretical problematic through different methodologies and modeling techniques, in different theoretical and empirical contexts, with different, and sometimes conflicting, policy implications. In other words, the different skeins of neoclassical economics and the different research programs or theoretical approaches of late neoclassical economics are nothing but so many different ways of formulating the same theoretical problematic. This is not to discount the important differences

among various theoretical positions within the tradition: the way a theoretical problematic is formulated, how its constituents are specified, and what aspect of the problematic is accentuated have material consequences. And precisely in this sense, the discrepancy in the reception of these developments should be understood in the context of an ongoing and paradigmatic internal antagonism between the pro-intervention versus the pro-market skeins of the neoclassical tradition (as embodied, roughly, in the general equilibrium approach of the Walrasian skein versus to the "market" approach of the Marshallian skein, respectively).

If read from this perspective, the perception of a "break" between neoclassical economics and late neoclassical economics itself becomes a symptom of a foundational *internal split* within the neoclassical tradition. In this sense, the discourse (i.e., late neoclassical economics) that sees "the death of neoclassical economics" in the full development of axiomatic general equilibrium theory is also a neoclassical discourse—albeit one that does not recognize itself as such. Perhaps more paradoxically, this discourse fails to recognize itself as a part of the neoclassical tradition despite the fact it finds its "foundation" in another neoclassical discourse, in the "selectionist arguments" of the proponents of the Chicago School. Late neoclassical economics, then, is premised on these two operations, the reduction of the neoclassical to the Walrasian model, on the one hand, and the re-formulation and re-staging of the neoclassical problematic in purportedly non-neoclassical ways, even when these new trajectories had the imprimatur of none other than the Nobel-Laureate neoclassical economists themselves.

In this chapter, I will discuss these two developments against the background of a widespread tendency within the neoclassical tradition to assume as little as possible

about the human subject—which is motivated, in part, by the prevalent positivism of the tradition, and, in part, by a deeply normative sense of subjectivism. In the next section, I will argue that, while the transition from cardinalism to ordinalism prepared the conditions that facilitate the incorporation of structuralist ideas into the neoclassical mainstream, in the final analysis it did not entail a break with theoretical humanism. Tracing the genealogy of the mid-century developments back to the "psychologism" controversy as well as the marginalism controversy, I will demonstrate that both the Arrow-Debreu model and the selectionist arguments of the Marshallian Chicago School entailed, paradoxically, an eclipsing of the purported individuality and the supposed agency of the consumers and the producers. Nevertheless, I will also argue that, in the final analysis, both developments, despite the clear presence of recognizable structuralist tropes, remain within the confines of the theoretical problematic of neoclassical humanism.

2. 1. Early variations on the neoclassical problematic

In this section, I will first discuss the origins of the neoclassical tradition by way of introducing its Walrasian and Marshallian skeins. I will then proceed to discuss the various variants of the ordinalist turn, including the Samuelsonian revealed-preference approach, the Arrovian preference orderings, and the pragmatism of the Chicago School. The section is intended to prepare the reader to appreciate not only the troubling implications of the full-axiomatization of the general equilibrium theory for the normative project of neoclassical humanism, but also the discrepancy between the subsequent receptions of the Arrow-Debreu model and the "selectionist arguments" of the Chicago School.

2. 1. 1. Early neoclassicism: Walrasian and Marshallian

The theoretical problematic of neoclassical humanism is one of reconciling the autonomously and rationally defined demands of the centered economic agents at a societal level. This shared problematic, as most neoclassical economists would argue, could be traced back to Adam Smith's *invisible hand theorem*.[33] While it is certainly true that neoclassical economists tend to attribute the status of entry point to the concept of invisible hand theorem, there is no agreement even among the neoclassical economists as to how to formulate the theorem.

Even though it is usually argued that Adam Smith's theorem received its early mathematical formulations at the end of the nineteenth century, in the writings of Leon Walras (1954; first published between 1874 and 1877) and Vilfredo Pareto (1971[1906]), Bruna Ingrao and Giorgio Israel (1990) argue that it would be wrong to

---

[33] According to a canonical interpretation of the theorem, the competitive markets and the private ownership of the means of production, if left on their own, can harness the independent, decentralized, and self-interested activities of economic agents and deliver a general, economy-wide, equilibrium that maximizes social welfare. For a classical statement of this position, see (Stigler, 1965). This understanding of Smith as the father of economics is re-iterated in every kind of neoclassical text, from highbrow mathematical ones (Arrow and Hahn 1971: vi-vii) to the run-of-the-mill mainstream introductory textbooks. Amartya Sen (1977; 1987), an early and notable exception among the mainstream "theoretical" economists, has insisted on a different reading of *The Wealth of Nations* with *The Theory of Moral Sentiments*: "The support that believers in, and advocates of, self-interested behaviour have sought in Adam Smith is, in fact, hard to find on a wider and less biased reading of Smith. The professor of moral philosophy and the pioneer economist did not lead a life of spectacular schizophrenia. Indeed, it is precisely the narrowing of the broad Smithian view of human beings, in modern economies, that can be seen as one of the major deficiencies of contemporary economic theory" (Sen, 1987: 28). Note that Sen's reading of Smith is distinctively theoretical humanist in the sense that it searches for an underlying *unity* between *The Theory of Moral Sentiments* and *The Wealth of Nations*. An exclusive search for unity implies theoretical humanism for it is premised on the idea that Adam Smith was a self-conscious and centred author who was the master of his entire oeuvre. Contrast this reading with more recent discourse analytical readings of Smith that find "difference" rather than (or, as well as) unity in his work (Brown, 1994; Perelman 2000; Ruccio and Amariglio, 2003; Kozel, 2005).

reduce the Walrasian general equilibrium model to a formalization of Adam Smith's invisible hand theorem. They identify, along with Smith and his notion of *invisible hand*, Montesquieu and his notion of "equilibrium of social forces," Quesnay and his *Tableau économique*, and Condorcet and his *mathematique social* as the antecedents of general equilibrium theory. Therefore, even though Adam Smith and the naturalism of the Scottish Enlightenment was indeed an acknowledged influence, it is more appropriate to consider the Lausanne tradition as a product of the French rationalism, the Cartesian philosophy of science, and a constructivist worldview that considers the society as an object of "engineering."

In Walras, we find the formulation of the *possibility* of an equilibrium price vector that will clear simultaneously all the markets in a market economy and the concept of *rareté*—a subjective measure of the last need satisfied (Ingrao and Israel, 1990: 92). On the other hand, the concept of efficiency that corresponds to the general equilibrium, even though it gained general currency only in the post-war era after the ordinalist turn, is attributed to Pareto (Screpanti and Zamagni, 1993: 206-7; Backhouse, 2002: 279). A *Pareto efficient* allocation of resources refers to a state of a full employment economy where there is no way in which to reallocate the resources to make one person better off without making someone else worse off. These two concerns (equilibrium and efficiency) would find their precise mathematical formulations elsewhere in North America, in the mid-twentieth century, in a series of papers and monographs written by the likes of Kenneth Arrow, Gérard Debreu, Frank Hahn, and Lionel W. McKenzie. In these high modernist mathematical studies, not only the existence of an equilibrium price vector is mathematically

proven, but also the efficiency (in the sense of Pareto optimality) of such equilibrium was established.[34]

Any genealogy of neoclassical economics, however, would be far from complete if the utilitarian lineage that stretches from Jeremy Bentham to William Stanley Jevons and then to Alfred Marshall is not traced. Bentham's hedonistic calculus of pain and pleasure did not only rely on an introspective, subjective, and substantive theory of human action but also offered a cardinal index, a common denominator to compare and to add and subtract the magnitudes of different individuals. Indeed, the main concern of utilitarianism was to maximize the total utility of community (Sen, 2002: 70). In Jevons (1970[1871]), we find an early formulation of the utility calculus (which predates Walras' notion of *rareté*); in Francis Ysidro Edgeworth (1881), we find the concept of indifference curve; in Marshall (1920[1890]), we find a textbook version of the of the utility-based theory of demand and a discussion of elasticity. Since it was Marshall who consolidated this tradition and gave shape to its overall philosophical and methodological outlook, it is usually referred to as the Marshallian tradition (de Vroey, 1999). In the 1930s and 1940s, as the center of gravity of the discipline began to shift from Europe to North America, the tradition would establish its headquarters at the Economics Department of University of Chicago (Emmett, 1997).

Even though the invisible hand narrative does not hold an important place in Marshall's formalization of the utility theory of demand and the real-cost theory of supply, the neoclassical problematic still dominates his concerns. The distinguishing characteristics of Marshallian economics are its partiality for the analysis of individual

---

[34] For sociologically rich and epistemologically sophisticated histories of Walrasian economics, see (Weintraub, 1985; Ingrao and Israel, 1990).

markets or industries (as opposed to general equilibrium analysis), its use of representative agents (as opposed to the idealized agents that populate the general equilibrium analysis), and its incorporation of temporality into the analysis of market equilibrium (as opposed to the synchronic non-temporality of the general equilibrium model).[35] A useful, albeit brutally simplistic, way of distinguishing the two traditions could be the following: in the Walrasian system, a *general* equilibrium is reached through a process of *price*-adjustment where the adjustments are made in the price vector so that all excess demand functions equal to zero; in the Marshallian understanding, a partial equilibrium is reached through a process of *quantity*-adjustment where those who cannot survive in the equilibrium price leave the market. But despite these very important differences, Marshall's (and Jevons') policy prescriptions were guided by "the utilitarian principle [which defines] the ultimate goal of economic activity [as] the maximization of collective welfare" (Screpanti and Zamagni, 1993: 182). In this sense, the Walrasian and the Marshallian traditions are different from, and opposed to each other only in how they define and formulate the neoclassical problematic. As I have argued in the previous chapter, this is a struggle internal to the neoclassical tradition. In fact, the neoclassical tradition is not only undermined by but also, to certain extent, thrives on such struggles on how to define and formulate its constitutive problematic.

Therefore, there is not one but two neoclassicisms: Walrasian and Marshallian. In fact, this internal division that marks the tradition at its origin makes it possible to

---

[35] In fact, for Marshall, "the Mecca of the economist lies in economic biology rather economic dynamics" (Marshall, 1920: xiv). In this sense, if the Walrasian understanding of the markets is based on the field theory borrowed from physics (Mirowski, 1989), the Marshallian understanding of the markets is (loosely) based on the selection theory borrowed from biology (Loasby, 1999).

discern the contours of the theoretical humanist problematic around which the subsequent trajectory of the tradition is structured to this day. On the one hand, early neoclassicisms were premised upon a similar concept of a centered and unified human subject who knows what s/he wants, whose wants improves his/her well being, and whose choices reflect what s/he wants. Without doubt, for early neoclassicals, the concept of utility was not only an introspective, psychological "substance" upon which one could construct the theory of demand and consumption, but also a universal "measure" of happiness and well-being (Lewin, 1996).[36] Accordingly, given the central role that the concept of (general or partial) equilibrium plays in these neoclassical analyses, the normative objective of all early neoclassicals (not unlike subsequent neoclassicals) was to maximize social welfare (in utilitarian terms, in the case of the British tradition) through the reconciliation of the diverse wants and needs of autonomous and rational individuals.[37] Let us conclude by noting that the

---

[36] Let us immediately note that Pareto's formulations in his *Manuel di economica politica* gestures toward an ordinalist understanding (Ingrao and Israel, 1990: 132-5). Indeed, the understanding of justice and efficiency associated with the concept of Pareto efficiency is decidedly different from the utilitarian understanding of justice and efficiency. In a sense, despite its widely acknowledged shortcomings, the concept of Pareto efficiency continues to survive, in part, because it fits with the modern ordinalist understanding of utility maximization.

[37] Michael Mandler, a historian of economic theory, argues that philosophical utilitarianism enabled early neoclassicism to connect its scientific aspirations with political/normative concerns: "The economic theory of utility maximization was, and remains, the model of extension of philosophical utilitarianism into the social sciences… More generally, utility theory provided a mathematical link between unobstructed market activity and the satisfaction of individual welfare. Economists [sic] long backed the liberal view that individuals were the best judges of their own interests, and that in the absence of countervailing considerations individuals should be granted wide latitude in decision-making… In the theory, agents do not accept traditional or customary restrictions on what goals to pursue; they have specific individual interests and privileged knowledge of what those interests are. The case for agents being given authority over the allocation of resources gained immediate support" (Mandler, 1999: 73).

tradition was internally differentiated and structured around a theoretical problematic (and not around a single core model or theory and a universally agreed upon set of concepts) even at the very moment of its inception.

2. 1. 2. The ordinalist turn in neoclassical economics

In the 1930s, with the advent of logical positivism and operationalism within the neoclassical camp (Blaug, 1980: 99-103; Hausman, 1992: 283-285) and the mounting criticisms from the American institutionalist camp (Rutherford, 1994: 55-67), many neoclassical economists began to more rigorously question the "psychologism" that undergirds the Marshallian theory of the demand (Lewin, 1996).[38] The renowned British economist Lionel Robbins was one of the first neoclassical economists to publicly criticize the notion of utility as a universal measure of well-being: "Every mind is inscrutable to every other mind and no common denominator of feelings is possible" (1932: 636). In two years time, John Hicks and R. D. G. Allen (1934) would publish their version of the theory of demand where the preferences of the individual subject are represented through the indifference curves.[39] Based on the pair-wise

---

[38] The term "psychologism" was used by the critics of the early neoclassical subjectivism in order to denigrate subjectivism for its "bad psychology" and usually articulated from an American institutionalist perspective (e.g. Mitchell, Veblen) that considered then-nascent "behavioralist psychology" as the correct scientific method of understanding the functioning of the human mind. Behavioralist psychology emphasized the role of instincts and habits. Shira Lewin notes, for the institutionalist, the psychological critique of neoclassicism was only "a springboard for [their] more important campaign for the increased study of economic institutions and evolutionary change, rather than the formulation of more and more [as they saw it] metaphysical, static economic theories with no empirical content" (1996: 1300).

[39] While the indifference curves were first introduced by Edgeworth (1881), it is Pareto (1906), along with Irving Fischer (1892), who first argued that cardinal utility could be dispensed with: "We have shown that, by starting from the indifference lines given directly by experience, it is certainly possible to determine economic equilibrium and thence certain functions, among which ophelmity, if it exists, will be

ordering of commodity bundles (i.e., preference orderings), and thereby evading the cardinal comparison of marginal utilities, the concept of indifference maps eliminated the need and the possibility of interpersonal comparison of well-being (Arrow, 1963). Moreover, with this ordinalist-turn, *the utility function* lost its role as the universal index of well-being and traded its foundational place as the subjective foundation of the theory of demand with *the pair-wise preference orderings*. In this new architecture of choice, the concept of utility began to serve a secondary, supporting role to the preference orderings. The utility values are now assigned to different commodity bundles only in order to represent their rankings, but not the magnitude of "well-being" of the intensity of preference.

The concept of efficiency that corresponds to the ordinalist architecture of choice could not be the utilitarian concept of efficiency where the idea was to maximize the total utility of community by adding the utilities and disutilities of each and every member of the community. The concept of Pareto optimality describing the state of the economy where no one can be better off without making someone worse off would soon become the favored concept of efficiency of the neoclassical tradition after the ordinalist turn.

In the North American context, there were, at least, two versions of the ordinalist turn: whereas Paul Samuelson's "revealed preference" approach for developing "the theory of consumer's behaviour freed from any vestigial traces of the utility concept" (1938: 71) was the empiricist version, the Arrovian social choice theory and the theory of consumer choice that underpins the Arrow-Debreu vintage general equilibrium

---

included" (Pareto, 1906: Appendix, Sec. 2, n. 1; cf. Ingrao and Israel, 1990: 133). For succinct historical accounts, see (Backhouse, 2002: 256; Blaug, 1980: 164-168; Mandler, 1999: 110-122).

models was the rationalist version. This is, of course, not to claim that the two approaches are mutually exclusive—in fact, a quick look at the recent economic literature would reveal that the established practice, true to the spirit of a positivism that harmonizes empiricism and rationalism, is to assume that the ordinal utility functions based on axioms of rationality can themselves be derived from the actual choices of the economic agents. Along with these two versions of the ordinalist turn, I will also discuss the pragmatist approach to the theory of demand as entertained by the proponents of the Chicago School. The Chicago response to the psychologism controversy differs from the other two responses by its explicit rejection of the foundationalism of the Samuelsonian operationalism and the Arrovian formalism.

2. 1. 2. 1. The empiricism of the revealed-preference approach

According to Samuelson, the foundational concept of the neoclassical theory of consumption (and therefore, the theory of demand) can neither be the cardinal notion of utility nor the ordinal preference orderings unless they are "revealed" and empirically observed by the economists. For Samuelson, preference orderings, given their introspective nature, were empirically unobservable, and therefore, they were neither "operationally" useful nor methodologically sound (Hausman, 1992: 19).[40] Instead, Samuelson argued that the primitive concept of the theory of demand should be nothing but the empirically observable "choices" (i.e., the actual behavior) of the

[40] Samuelson's "operationalist" program demanded that the scientificity of an economic theory (or any theory) should be assessed on the basis of its intersubjectively observable, empirical consequences. Empirically invalid or untestable portions of a given theory should be discarded. Hence the strong desire to discard the introspective portions of the theory of choice. For further discussions, see (Mirowski and Hands, 1998: 282; Blaug, 1980: 99-103; Hausman, 1992: 156-8).

consumer.[41] If a subject chooses the commodity bundle *x* over another bundle *y* (when she has sufficient resources to buy either), she has directly revealed a preference for *x* over *y*. In particular, according to the Weak Axiom of Revealed Preference (WARP), if the subject *directly* reveals a preference for *x* over *y*, she must not reveal a preference for *y* over *x*.[42] The pair-wise choices of this subject will be *consistent* and *transitive* as long as they satisfy the WARP (Sen 1982: 57-9). Nevertheless, subsequent research demonstrated that the WARP was not enough to construct all the standard assumptions regarding consumer preferences (Katzner, 2006: 99).

It is, however, important to distinguish between two distinct interpretations of the revealed-preference approach. Whereas the first interpretation claims that the choices *reveal* the underlying preferences, a second interpretation claims that the actual choices make any reference to the underlying preferences dispensable (see for

---

[41] This description glosses over the twists and turns in Samuelson's own understanding of the "revealed-preference approach" and the role it plays in the neoclassical theory of demand. According to Wong's (1978) narrative, Samuelson has begun his journey in 1938 with a radically "operationalist" objective of constructing the demand functions without needing to refer to unobservable concepts like utility or preference. Ten years later, in 1948, abandoning the initial objective of complete eradication of "psychologism," Samuelson described the revealed preference approach as a means to reconstruct the Hicks-Allen ordinal utility theory in an empirically grounded manner. And, finally in 1950, he would grant that the revealed preference approach is observationally and logically equivalent to the ordinal utility theory. It is possible to read these re-interpretations and secondary elaborations as various attempts to domesticate the radical and somewhat traumatic nature of the 1938 purge. Similarly, Hicks, who initially endorsed the revealed preference approach as "the study of human beings 'only as entities having certain patterns of market behavior; it makes no claim, no pretence, to be able to see inside their heads'" (Sen, 2002: 124; internal quote is from Hicks, 1956: 6), has become, later on, less enthusiastic and more doubtful (Sen, 2002: 124).

[42] While direct revealed preference refers to those situations where the agent choses *x* over *y* when she can afford both, the *indirectly* revealed preference refers to situations where no direct observation is available but a sequence of direct revealed preference leads to the conclusion that *x* is revealed to be more desireable than *y*.

instance, Little, 1949). When Amartya Sen argues that "[the] rationale of the revealed-preference approach lies in the assumption of revelation and not doing away with the notion of underlying preferences" (Sen, 1973: 244), he endorses the first interpretation. In fact, Sen argues, the second interpretation is logically untenable, as the WARP has to presuppose the existence of underlying preferences for the consistency of the ranking:

> Preferring *x* to *y* is inconsistent with preferring *y* to *x*, but if it is asserted that choice has nothing to do with preference, then choosing *x* rather than *y* in one case and *y* rather than *x* in another need not necessarily be at all inconsistent. What makes them look inconsistent is precisely the peep into the head of the consumer, the avoidance of which is alleged to be the aim of the revealed preference approach. (Sen, 1973: 243)

In other words, the choices can be consistent only with respect to an underlying preference ordering. For if we don't refer to an underlying preference ordering (a relation that satisfies the axioms of connectedness, reflexivity, and transitivity), there is no reason to assume that the choices are "inconsistent"—for the supposed inconsistency can easily be explained away by referring to an infinite number of other factors (e.g., change opinion, commitments; see also Sen, 1993). A further layer of criticism of the revealed-preference approach and its "extreme empiricism" is articulated by Daniel Hausman (2000). After reminding that choice depends on *both* beliefs and preferences, Hausman (2000: 102) argues that, unless we assume that choices are made "in contexts in which unproblematic a priori information about beliefs is available," it is impossible not to refer to the "'unobservable' subjective states" including, for instance, subjective probability distributions. To recapitulate, both Sen and Hausman argue that the empiricist variant of the ordinalist turn, despite its operationalist aspirations, could not evade making psychological assumptions about the human mind. Even though Sen and Hausman articulated their critiques

against the "extreme" empiricism of the revealed-preference approach, their arguments implicate the concept of preference ordering as well. As we will see in the next section, as long as the concept of preference ordering is used to theorize the human subject within the theoretical problematic of neoclassical humanism, it will inevitably be charged by a normative content that refers to the "'unobservable' subjective states." Let us now turn our attention to the concept of preference ordering.

2. 1. 2. 2. The rationalism of preference orderings

The rationalist variant of the ordinalist turn was articulated by the economists associated with the Cowles Commission which is perhaps most well-known for providing the requisite institutional and financial support for the inauguration of the social choice theory (Arrow, 1951; 1963) as well as the axiomatization of the Walrasian general equilibrium models (Arrow and Debreu, 1954; Debreu, 1959).[43] Rather than beginning from the "observable choices" of the economic agents, the approaches of social choice theory and the general equilibrium theory take an axiomatic definition of rationality as their point of departure and embark upon establishing the conditions under which individual and collective rationalities can be

[43] The Cowles Commission, a think-tank for statistical and mathematical research in economics, was established in 1932. It was based, first in Colorado, then briefly at the University of Chicago, and finally at Yale University. Among some of the well-known affiliates of the Cowles Commission are Oskar Lange, Leonid Hurwicz, Jacob Marschak, Trygve Haavelmo, Tjalling Koopmans, Lawrence Klein, Armen Alchian, Arrow, Hahn and Debreu. For brief assessments of the different ways in which the Cowles Commission has been instrumental in giving shape to the neoclassical formalism of the second half of the twentieth century, see (Ingrao and Israel, 1990: 255-7; Arrow, 1991; Backhouse, 2002: 248-68). For a more detailed narration, see (Mirowski 2002).

reconciled. For this reason, the epistemological perspective of these approaches is a rationalist one. Let us consider both strands in more detail.

We can begin with noting that social choice theory considers the market mechanism as one of the many methods of aggregating individual preference orderings. In this sense, social choice theory defines its domain very abstractly and broadly as the study of the formal aspects of the construction of social welfare functions by aggregating individual preference orderings. In doing so, social choice theory re-defines the neoclassical problematic: is it possible to reach a social preference ordering (that satisfies the consistency criterion of transitivity) that aggregates the individual preference orderings in a manner that satisfies a "reasonable" number of the assumptions regarding the aggregation procedure (i.e., unrestricted domain/universality, Pareto inclusiveness/positive association of social and individual values, independence of irrelevant alternatives, non-imposition/citizen sovereignty, and non-dictatorship)?[44] The Arrow impossibility theorem states that there is no aggregation procedure that can simultaneously satisfy the five conditions mentioned above *and* produce a social preference ordering that is complete and transitive.[45]

---

[44] For a succinct statement of the conditions of Arrow's impossibility theorem, see (Katzner, 2006: 467).

[45] The condition of unrestricted domain states that the aggregation procedure should be able to accommodate all logically possible orderings by individuals. The condition of Pareto inclusiveness states that if all individuals prefer x over y, then society should also prefer x over y. The condition of independence of irrelevant alternatives states that the social preference between two alternatives should depend solely on how individuals rank these two alternatives. The condition of non-dictatorship states the social ordering should not coincide with the ordering of a single individual regardless of what others may think. The proof of the (Arrow impossibility) theorem states that given the objective of constructing a rational (complete and transitive) social ordering out of individual preferences, it is impossible to construct a social ordering "without

To be able to understand the significance of the Arrow impossibility theorem in terms of the trajectory of theoretical humanism in neoclassical economics, it is necessary to understand not only the implications of the "reasonable" assumptions regarding the aggregation procedure but also the concept of human subject that informs this reformulation of the problematic. To being with, Arrow took the individual preference ordering as inviolate. In particular, the condition of unrestricted domain, as it permits all possible preference orderings, is an indicator of the importance of the autonomy of the agent for the social choice theory.

Second, Arrow, echoing the general ordinalist concern with falling into "psychologism," was not very keen on making assumptions regarding the motivations that underpin the preferences of the agent.

> It is assumed that each individual in the community has a definite ordering of all conceivable social states, in terms of their *desirability* to him. It is not assumed here that an individual's attitude toward different social states is determined exclusively by the commodity bundles which accrue to his lot under each. It is simply assumed that the individual orders all social states by whatever standards he deems relevant. (Arrow, 1963: 17; emphasis added)

To put it differently, the concept of preference that underpins social choice theory is indifferent to the motivational basis of the agents, as long as the preferences are connected, reflexive, and transitive, that is as long as they constitute an "ordering" (Arrow, 1963: 12-7).[46]

---

making that ordering coincide in all respects with the preference ordering of just one of the individuals" (Weal, 1992:210). A very useful and clear discussion of the subject can be found in Sen (1970). But also, see Weal (1992) and Mueller (1989: 384-407).

[46] This does not mean that Arrow achieves what Samuelson intended. It is important to note that Sen's dissection of the revealed-preference approach discussed above applies to the Arrovian concept of preference orderings as well. Any concept of rational choice, even if it is defined solely in terms of the internal consistency of choice, cannot escape referring to underlying preferences: "…the very idea of *purely*

And finally, the condition of independence of irrelevant alternatives rules out any form of cardinalization of preference orderings. For instance, if a society chooses *x* over *y* when the choice set include only *x* and *y*, then that society should also choose *x* over *y* when the choice set includes other alternatives. If the presence of other alternatives changes the final choice, then this could be thought to mean that the outcome is dependent on the relative intensity of preferences and hence we introduce *a form of cardinalization*. For instance, the Borda count which assigns weights to individual orderings violates the independence of irrelevant alternatives.

This resistance toward "cardinalization" of orderings may, in part, be explained by referring, as Arrow does, to the conceptual difficulties involved in the measurement, comparison, and aggregation of utilities—the age-old empiricist critique of the concept of utility applied to this context. Nevertheless, a historically relevant condition of existence of the Arrovian ordinalism may be found in Arrow's aversion to "non-democratic" central-planning models of socialism.[47] When combined with Arrow's well-known market-skeptic leanings, it is possible to see the contours of a modernist vision of market socialism: The project of aggregating individual preferences without reverting to "dictatorship" or "customs" is informed neither by a conservative impulse to legitimize capitalist liberal democracies nor by a "socialist" impulse to legitimize central planning but by a modernist impulse to design social and

---

internal consistency is not cogent, since what we regard as consistent in a set of observed choices must depend on the *interpretation* of those choices and on some features *external* to choice as such (e.g., the nature of our preferences, aims, values, motivations" (Sen, 1987: 14).

[47] Dennis Mueller argues that, for Arrow, allowing public officials "to engage in cardinal, interpersonal utility comparisons would vest them with a great deal of discretionary power and might be something to be avoided" (1989: 394-5). The other three conditions, the conditions of Pareto inclusiveness, citizen sovereignty, and non-dictatorship should also be considered in this light.

economic institutions that can facilitate the rational governance of the society. In other words, the Arrovian social choice theory reveals a theoretical humanist impulse to study formally the conditions under which autonomously and rationally defined preferences of the individuals can be rationally reconciled at the level of the social.[48]

What is the significance of the Arrow impossibility theorem, then? Perhaps, the significance of the theorem is not so much in its conclusions and implications but rather in the debate that it has generated. In the years that followed the publication of Arrow's *Social Choice and Individual Values,* a substantial literature that wrestles with the various aspects of the Arrow impossibility theorem has emerged. Sen, whose *Collective Choice and Social Welfare* (1970) provides an excellent companion to Arrow's text, argues that it is quite easy to circumvent the impossibility theorem by changing any single one of the assumptions regarding aggregation process. For instance, Sen considers relaxing the independence of irrelevant alternatives assumption—in order to be able to use an aggregation procedure that would assign intensities to individual preference orderings (e.g., the Borda count). Indeed, Sen argues that the Arrow

---

[48] Referring to Arrow's aversion to assigning intensity to the individual preference orderings and his deliberate broadening of the motivational basis of the preference orderings, John B. Davis (2003) argues that the conceptual apparatus of social choice theory does not need to specify the "mental" composition of the human subject or even refer to a human subject. Davis (2003: 92) argues that "Arrow put a new slant on the old ordinalist conception of a preference. Mathematically speaking, a preference is simply a formal relation between an agent and the objects to which the agent's preference applies. However, in excluding information about preference intensity, this formal conception of a preference also eliminates the need for saying anything about the individual actually *experiencing* having a preference. Indeed, this conception of preference makes no necessary reference to the idea of preferences being part of a "mental" apparatus, this allowing "mental" processes to be modelled as computational processes. Thus, whereas in earlier ordinalism preferences always belonged to individuals, with Arrow's formal conception preferences in principle can be implemented in any sort of hardware." If we translate it to the concepts used in this dissertation, Davis is claiming that the theoretical humanist notion of human subject is not a necessary component of the concept of preference.

impossibility theorem and the other "possibility theorems" should be "viewed not as arguments for nihilism, but as positive contributions aimed at clarifying the role of principles in collective choice systems" (1970: 199). In other words, the Arrow impossibility theorem functioned as a "Hitchcockian McGuffin," a plot device that does not mean much in itself but gets the story rolling. It is not the actual theorem articulated therein, but its particular reformulation of the neoclassical problematic in terms of symbolic logic made Arrow's *Social Choice and Individual Values* a milestone text.

Moreover, the purported indifference of the Arrovian concept of preference ordering to the motivations of the individuals is compromised when the concept is used in the context of the general equilibrium theory. In the Arrow-Debreu models, the preferences of the agents are defined over consumption plans. Given all the relevant information about the commodities, the consumers would choose the consumption plan that would satisfy their preferences the best. Building up the architecture of the theory of demand on the ordinal utility theory, a significant attribute of these models, at least for the purposes at hand, was the persistent necessity to refer back to the subjective and introspective realm of the human psyche in order to motivate the normatively charged efficiency claims about the general equilibrium outcomes. The *preferences* of the economic agents were not only taken as the rock bottom of the theory of demand, but also they were assumed to be reflecting the *welfare* of the subject. This also, of course, requires a "peek into the head" of the individual and a reference to the subjective and introspective realm of human psyche. To put it differently, in the context of general equilibrium theory the concept of preferences is associated with a particular motivation: preference orderings that reflect the well-being of the

individual constitute the normative microfoundations for the welfare properties of the equilibrium outcomes.[49]

In conclusion, the ordinalist turn in the neoclassical tradition does not entail an abandonment of theoretical humanism. On the contrary, the centered, autonomous, and rational concept of human subject continued to underpin the normative implications of the general equilibrium theory and, even the social choice theory. Even though it is impossible to compare the states of well-being of each individual with one another (hence the ordinalism), the individual is still assumed to know what her/his preferences are and able to articulate these preferences in his/her choice. In general equilibrium theory, in contrast to the Arrovian social choice theory, it is additionally assumed that the preferences of the individual reflect her/his well-being. In the case of social choice theory, no assumptions need be made regarding the motivations informing the preferences. Nevertheless, this should also be read as sign of a deep-seated respect for the presumed individuality and singularity of human subjects. By remaining indifferent towards the motivations informing the preferences of individual, Arrovian social choice theory articulates its own take on the neoclassical problematic, which is no less humanist for that.

---

[49] In particular, "the optimality of the equilibrium, i.e., whether the market can lead to a position which yields maximal social welfare in some sense, is […] examined in terms of preference with the convention that a preferred position involves a higher level of welfare of that individual" (Sen, 1982[1973]: 66-7). In other words, in order to substantiate its basic normative conclusions (i.e., the desirability of equilibrium), the Arrow-Debreu model has to rely on a residual argument pertaining to the psychic, subjective state of the agent, that the agent always makes choices that will improve his/her welfare.

2. 1. 2. 3. The pragmatism of the Chicago School

For the proponents of the Chicago approach such as Frank Knight, George Stigler, Milton Friedman, and Gary Becker, neither the Samuelsonian revealed-preference approach nor the Cowlesian formalism were necessary. Rejecting the both variants of foundationalism, the Chicago School distinguished itself with its peculiar sort of pragmatism (McCloskey, 1988: 288). In his famous methodological essay, Friedman argued that it does not make sense to ask whether the assumptions of a theory "are descriptively 'realistic,' for they never are" (1953: 15). Instead, he argued, we should judge a theory by the accuracy of its predictions: "Its performance is to be judged by the precision, scope, and conformity with experience of the predictions it yields" (Friedman, 1953: 4).

In order to be able to see the implications of this positivist/pragmatist methodological approach to the neoclassical theory of price, it is sufficient to recall that for the proponents of the Chicago School there is no reason to go behind the demand curve. Indeed, the downward sloping demand curve is the last instance of the Chicago version of the neoclassical theory of price. For instance, in his 1949 discussion of the Marshallian demand curve Friedman (1953: 47-99) does not refer to the preference orderings of the individual. Whenever he invokes the assumption of utility maximization subject to budget constraint, he bothered neither to reveal it retroactively from the choices nor to reconstruct it axiomatically. The disregard of the proponents of the Chicago School towards the micro-foundational concerns of other neoclassical economists went so deep that, only a decade later, another Nobel Laureate Chicago economist, Becker (1962) argued that in order to derive the downward sloping aggregate demand curve for a commodity, no assumptions

regarding their rationality need be made as long as the budget constraint limited the opportunity set of the individual subjects. And if the Chicago economists continue to rely on the optimization assumption, they would argue that they do so only because of its convenience.

Given its pragmatist methodology, it is usually suggested that, for the Chicago School, the utility concept is simply a useful, expository device, a "convenient fiction" (Mirowski, 2002: 204). Nevertheless, to claim that the concept of utility is dispensable for the proponents of the Chicago School would entail neglecting the importance of the notion of utility (or wealth) maximization for the derivation of the welfare implications of the market outcomes. The normative authority derived from the welfare properties of the market outcomes underpins their commitment to markets. As it is suggested above, the Chicago School is committed to the idea that the markets always produce *efficient* outcomes. But more specifically, the markets can maximize "social" welfare only to the extent that they enable individual subjects to maximize their own welfare. As such, to be able to derive their welfare conclusions and policy recommendations, they must rely on a notion of preferences that reflects a subjective and introspective notion of individual welfare. The fact that the proponents of the Chicago School do not explicitly acknowledge this link is beside the point. The concepts of utility and the assumptions about human psychology remain indispensable for the Chicago-style neoclassicism.[50]

---

[50] In a revealing passage, Becker compares his approach with one of "modern psychology": "Moreover, the economic approach does not assume that decision units are necessarily conscious of their efforts to maximize or can verbalize or otherwise describe in an informative way reasons for the systematic patterns in their behavior. Thus it is consistent with the emphasis on the subconscious in modern psychology and

2. 1. 3. Conclusion

Let us recapitulate the discussion so far. Up to 1930s, there were two basic formulations of the neoclassical problematic. On the one hand, there was the general equilibrium tradition that originated at Lausanne and was marked by the rationalist Cartesian philosophy of science. On the other hand, there was the tradition of the utility calculus that originated in Britain, constituted by the Humean empiricism of the Scottish Enlightenment as well as the Benthamite utilitarianism, and consolidated in Marshall's theory of demand and supply. Their differences notwithstanding, in both traditions we find a variant of the marginalist analysis of equilibrium states. In the Walrasian tradition, there is the concept of *rareté* and the idea of general competitive equilibrium. In the Marshallian tradition, there is the concept of utility, and the idea of market equilibrium.

As the neoclassical tradition began to assert its disciplinary hegemony, especially through Marshall, Edgeworth, and Pigou's efforts, the other traditions within the discipline of economics began to question its assumptions. In particular, American institutional economists such as Thorstein Veblen, W. S. Mitchell, and J. R. Commons began to criticize the "psychologism" of the neoclassical concept of utility (Rutherford, 1994: 52-66). These and other controversies (e.g., the marginalism controversy) combined with the positivist aspirations of neoclassical economists, have

---

with the distinction between manifest and latent functions in sociology" (1976: 7). This interpretation is in stark contrast with the concept of unconscious in psychoanalysis. For psychoanalysis, unconscious articulates symptoms in singular ways for each and every subject. There may be social symptoms (e.g., the "Jew" in Nazi Germany) that many subjects share at any given time, but even then, these social symptoms are conjunctural and not eternal and they function as "social" symptoms only because they serve as blank screens on which the subjects project their own *singular* fantasies. In contrast, Becker's notion of subconscious is nothing but a particular behavioral pattern (optimizing behavior) unwittingly practiced by every one in the same way. See also (Lewin, 1996: 1318-9).

led the neoclassical economists to try to minimize (and in the limit, eliminate) the assumptions that they make –implicitly or explicitly– regarding the mental capacities and the psychological attributes of the human subjects. The first move in this direction was to substitute the ordinal indifference maps for cardinal utility function. In Samuelson's hands the ordinalist turn took an operationalist twist aiming to discard the empirically invalid or untestable portions. Arrow, on the other hand, rendered the concept of preference orderings indifferent to the motivational basis of the agents. And finally, the Chicago approach attempted to by-pass the entire question of "psychologism" by arguing that it is not necessary to make realistic assumptions –or, for that matter, any assumptions– regarding the "mental" states of the economic agents to derive the downward-sloping Marshallian demand curve.

Nevertheless, despite these various attempts at purging the embarrassing references to some substantive theory of human psyche, the neoclassical tradition continued to betray a persistent need to peek into the mind of the human subject. What, then, accounts for this unwelcome persistence of "psychologism"? I believe the answer, in part, can be found in the neoclassical problematic that informs all these efforts. As long as their constitutive theoretical problematic remains to be the aggregate reconciliation (e.g., equilibrium) of the autonomously and rationally defined demands of individual agents it is inevitable for these scholars not to refer to "unobservable subjective states." Because, unless the welfare attributes of these states of (partial or general) equilibrium are grounded in the rational choices of autonomous agents that reflect their welfare, it is impossible to establish the desirability of the equilibrium states of reconciliation. If the desirability of equilibrium cannot be established the neoclassical project will lose its normative power.

In the remaining two sections of this chapter, building upon the historical context provided by the preceding discussion of the "psychologism" controversy and the subsequent ordinalist turn in neoclassical economics, I will discuss how the formalization of general equilibrium theory and the articulation of the "selectionist arguments" by the proponents of the Chicago School have led to an unexpected eruption of "structuralist moments" in neoclassical economics. In the immediate aftermath of the WWII, in the early years of the Cold War, neoclassical economics was split into these two distinct skeins (Mirowski and Hands, 1998; Mirowski, 2002; de Vroey, 2003). On the one hand, there was the Walrasian tradition mainly consisting of socialist leaning émigré economists who viewed the society as an object of social engineering and represented the economy as an interdependent system of general competitive equilibrium. Among the institutional supports for the Walrasian tradition was the Cowles Commission (Mirowksi, 2002). Given the left-leaning profile of Walrasian economists, it should not come as a surprise that the most significant policy conclusion of this skein was "markets are never enough." (Precisely for this reason, Arrow and others found it necessary to develop social choice theory as a *general* theory of *all* forms of preference aggregation (market mechanism being only one of them). On the other hand, there was the Marshallian tradition as embodied in the Chicago approach. The Chicago Marshallianism, in contrast, helped cultivate an unflinching belief in the motto that "there are never enough markets," focused on partial equilibrium analysis, formulated models with representative agents, and established itself as a tradition that survives even in the late neoclassical context.

2. 2. Theoretical humanism in crisis: The case of Walrasian economics in the post-war period

In the late 1960s and the early 1970s, when the invisible hand theorem was fully formalized in the Arrow-Debreu general equilibrium models, a number of neoclassical economists swiftly recognized and acknowledged that there are indeed problems with this neoclassical model of the market equilibrium (Hahn, 1984; Arrow, 1987; Kirman, 1992; Katzner, 1998; 2004; 2006). Essentially, the problem was the difficulty in bringing together the two aspects (i.e., a unique and globally stable general equilibrium and the autonomous and rational choices of the individual agents) of the neoclassical theoretical problematic in a logically seamless manner. The problem was especially aggravated in the context of the growing tendency to assume as little as possible about the motivations of the individual agents. In this section, I will first overview the general properties of an Arrow-Debreu economy. I will then proceed to discuss the structuralist moments as well as the perceived political/policy/normative implications of the structuralist moments of the Arrow-Debreu model.

2. 2. 1. The Arrow-Debreu model: Formalism without apologies

Let me begin with noting that the Arrow-Debreu model is not the only re-formulation of the Walrasian general equilibrium model. Up to 1950s, there were already a number of different formulations articulated by, among others, Cassel (1918), von Neumann (1928; 1937), and Hicks (1939). Moreover, there are important differences even between Debreu's *Theory of Value* (1959) and Arrow and Hahn's *General Competitive Analysis* (1971). For instance, while the latter text, written a decade later, tried to recast the Arrow-Debreu model so as to accommodate the concerns of the economic

discourse of the day, Debreu insisted on not compromising the formalism of his method. In his introduction to the *Theory of Value*, Debreu wrote:

> The theory of value is treated here with the standards of rigor of the contemporary formalist school of mathematics. The effort toward rigor substitutes correct reasonings and results for incorrect ones, but it offers other rewards too. […] It may also lead to a radical change of mathematical tools. In the area under discussion it has been essentially a change from the calculus to convexity and topological properties, a transformation which has resulted in *notable gains in the generality and the simplicity of the theory*. Allegiance to rigor dictates the axiomatic form of the analysis where *the theory, in the strict sense, is logically entirely disconnected from its interpretations*. (Debreu, 1959: x; emphasis added)

The contemporary formalist school of mathematics that Debreu refers to is the Nicolas Bourbaki group (Weintraub, 2002). Formalism of this mathematical structuralism entailed "emptying the theory radically and uncompromisingly of all empirical reference" (Ingrao and Israel, 1990: 285) and the creating of an abstract and universal "root" model that can be applied, with the appropriate modifications, to different theoretical and empirical contexts.[51] An important implication of formalist effort for our purposes was to assume as little as possible about the individual agents.

Given the importance of the book and the compactness of its expository format, I will refer mainly to Debreu's *Theory of Value* in the following discussion of the A-D model.

---

[51] Ingrao and Israel (1990: 300) note that Debreu's "uncompromisingly formalist" exposition of the A-D model is indeed an aberration in a long line of efforts that concentrate on demonstrating "the *existence*, the *uniqueness*, and the *global stability* of the equilibrium" (1990: 3). They argue that unlike, for instance, Arrow and Hahn (1971) who explored the aspects of the questions of uniqueness and global stability of the equilibrium through introducing a number of "ad hoc" assumptions, Debreu, in his *Theory of Value*, given his commitment to formalism and aversion to "ad hoc" assumptions, did not address these questions. In fact, Ingrao and Israel argue, "[t]he clarity of Debreu's approach to the subject soon leads him to recognize that the other cornerstones of the Walrasian program—uniqueness and stability—present enormous difficulties or, are, in fact, blind alleys" (1990: 303) Let us register, for the moment being, that the very concept of "ad hoc" assumptions is not without its problems: What assumptions qualify as "ad hoc" and what assumptions do not? I will further discuss this point below.

I will begin the discussion with the definition of an Arrow-Debreu commodity, then I will proceed on discussing the production and consumption decisions, and I will conclude with a discussion of the concept of general equilibrium and the concept of Pareto efficiency.

Debreu defines the Arrow-Debreu commodity as "a good or a service completely specified physically, temporally, and spatially" (1959: 32). This notion of commodity is very important for the Arrow-Debreu model to establish its domain, for the concept transforms the heterogeneous mass of "things" into logical "objects" that can be manipulated in the language of mathematics.[52] Through this concept of the commodity, the Arrow-Debreu economy establishes a commodity space. The concept of commodity abstracts from the concrete properties of the "thing." As long as goods and services are properly specified with respect to their physical properties, location, temporal coordinates, and so on (e.g., a black umbrella, on May 11, 2005, in Northampton, MA) anything can be brought into the purview of the general equilibrium model. Specification of the *temporal dimensions* of a commodity, enables the Arrow-Debreu model to incorporate "saving, or lending of money […] as the purchase today of a particular future dated commodity" (Geanakoplos, 1989: 44). Specification of the *location* provides the opportunity to include the transportation costs into the price of the commodity. In this sense, for the Arrow-Debreu model, the commodity—what is being purchased by a consumer or a producer— as a logical

[52] In this sense, an Arrow-Debreu commodity is a "logical object" and not a "thing": "Objects are defined as logical entities as opposed to things, which are empirical...[T]he abolition of the thing, the suppression of all its attributes [gives] rise to a logical object" (Copjec, 1994: 171-2).

object is free of the ambiguities of the actual "thing" and the commodity space is flexible enough to be infinitely inclusive and temporarily infinite.[53]

In the A-D model, the producers are conceptualized as economic agents that choose a *production plan* (into the future), namely a plan that specifies the quantities of all its inputs and outputs that will maximize profits. As such, in the model, the process of production, as a process of transformation of inputs into outputs, is treated as a "black box". Similarly, the technology is exogenously given and the production functions are assumed to be convex. The assumption of convexity imposes strong restrictions on the model: Neither the indivisibility of outputs nor the increasing returns to scale in production are permitted. In short, for the A-D model, the production is a frictionless, automatic process of optimization.

In a structure parallel to the production, the consumer in the A-D model does not choose a single consumption bundle but chooses a complete *consumption plan* according to her/his preferences. Preferences should be complete, reflexive, transitive, continuous, insatiable, and convex. While assumptions pertaining to completeness, reflexivity, and transitivity are seen to be the basic assumptions of economic

---

[53] Even "uncertainty" can be incorporated into the model through expanding the definition of the commodity: "A contract for the transfer of a commodity now specifies, in addition to its physical properties, its location and its date, an event on the occurrence of which the transfer is conditional (Debreu 1959:98)." In this framework, "uncertainty" is explained through the metaphor of an *anthropomorphized* "nature" that makes choices among a finite number of alternatives. Each alternative is an *event*. Therefore, a black umbrella, on a *rainy* May 11, 2005, in Northampton, MA, will be a different commodity than a black umbrella, on a *sunny* May 11, 2005, in Northampton, MA.

rationality,[54] the insatiability and convexity are necessary specifically for proving the *existence* of the equilibrium price vector.

Which brings me to the matter of equilibrium and its efficiency. The A-D model does establish the *existence* of an equilibrium price vector that would clear all markets.[55] Moreover, the A-D model offers two theorems (also known as the *Fundamental Theorems of Welfare Economics*) pertaining to the efficiency of the general competitive equilibrium (Debreu, 1959: 90-7). The first theorem shows that under the given assumptions pertaining to the commodity space, production, and consumption, any competitive equilibrium is Pareto optimal. As noted in the previous section, the achievement of Pareto optimality relies on the assumptions that the producers maximize profit and that the consumers choose "a consumption plan to which none is preferred" (Debreu, 1959: 50). The second welfare theorem, on the other hand, shows that there is an

---

[54] In particular, if the axioms of reflexivity, completeness, and transitivity hold, then the individual is considered to have a *preference ordering*; if the axiom of continuity also holds, the individual's preference ordering can be represented as a utility function (Hargreaves Heap, 1992: 6).

[55] Without doubt, the existence theory discussed above refers to existence only in the mathematical sense of the term. In fact, the A-D model had very little to say about the functioning of the actual markets. But for a mathematical economist like Debreu, the formalism that underpins the A-D model was not a shortcoming, but rather an asset. Yet despite all the formalist aspirations (i.e., "the generality of the theory" or "the disconnectedness of theory from its interpretations") articulated by Debreu, there is still a privileged type of market that silently structures the A-D model: the auction market. Ingrao and Israel highlight this point when they write: "…Debreu's intention in the *Theory of Value* is to take the Walrasian description of the market as what we are tempted to call an empirical frame of reference but is more correctly defined as a *framework of images and intuitive figures*. Moreover, not content with the most orthodox form, he chooses a hyper-simplified version in order to obtain a simple and compact model description. […] Debreu's point of reference is the theorization of the Lausanne school, *which appears only in the background as a set of intuitive images* since his is a full-blooded axiomatic theory. The Walrasian paradigm is thus revived in a new form: the phoenix rises again from the ashes, even though its wings now glitter with axioms" (1990: 300; latter emphasis added).

equilibrium price vector that corresponds to each Pareto optimum allocation. In other words, because there exists an equilibrium price vector that corresponds to each of them, it is possible to reach any of the possible Pareto optimal allocations by rearranging the initial distribution of wealth and re-enacting the *auction process* until the corresponding equilibrium price vector is reached.

2. 2. 2. Two "structuralist moments" of the Arrow-Debreu model

Even though it offered a formal proof of the *existence* (and Pareto *efficiency*) of an equilibrium price vector, the Arrow-Debreu model, perhaps as a result of its clearly delineated axiomatic expository format, revealed to its practitioners that the number and the scope of the assumptions necessary to prove the *uniqueness* and the *global stability* of a general equilibrium in a decentralized economy with rational economic agents were quite extensive (Ingrao and Israel, 1990: 314).[56] Unless further restrictions are imposed on the type of preferences that the consumers can have in an Arrow-Debreu exchange economy with the standard price-adjustment rules, it was impossible to obtain a proof of the global stability and the uniqueness of the general

---

[56] The uniqueness of a general equilibrium refers to the situation where an Arrow-Debreu economy has a single possible equilibrium price vector. The question of stability, on the other hand, aims to address whether or not there is a tendency towards equilibrium when the economy is not in an equilibrium state. The Sonnenschein-Mantel-Debreu results showed that desired properties of uniqueness and stability of the general equilibrium cannot be obtained from the [standard] assumptions on the individuals in the economy" (Kirman, 1992: 122). In particular, Debreu (1974) establishes that the unrestricted individual utility functions of the kind found in (Debreu 1959) do not imply anything about the market excess demand functions other than continuity, Walras' Law, and homogeneity of degree zero. This would mean that it would be possible to have a perverse situation where the aggregate demand for a commodity goes up as the price of the commodity rises.

equilibrium.[57] Imposing further restrictions, however, for many commentators (but not all), meant the loss of the intended generality of the general equilibrium model. Reverting to the assumption of identical agents (i.e., to the models with representative agents) was tantamount for many Walrasians, when combined with the auctioneer based price-adjustment rules, to a complete abolition of the microfoundations project for the sake of the uniqueness and the global stability of the general equilibrium, for imposing further restrictions on the agents would make the model incapable of accommodating the uniqueness and the individuality of the agents (Kirman, 1992; Rizvi, 1994; 1998; Mirowski, 2002; Davis, 2003).

It is important to distinguish the mathematical question of stability from the process of price adjustment (price determination)—even though both constitute the different facets of the same question: "Are there forces at work capable of ensuring the imposition of a price system that is an equilibrium price vector?" (Ingrao and Israel, 1990: 25). The metaphor of auctioneer is invoked in order to motivate the *tâtonnement* (a French word meaning 'groping' as in 'groping one's way in the dark') process through which the suppliers and the buyers modify their plans (in relation to everyone else's plans) until the equilibrium is finally reached. During the non-temporal process of tâtonnement no transaction takes place. Every time the auctioneer announces a price vector, production and consumption plans are modified accordingly. The process continues until the economy reaches equilibrium.[58] Nevertheless, unless the

---

[57] For instance, Katzner's recent model of an exchange economy shows that when all agents are endowed with Cobb-Douglas utility functions, uniqueness and global stability obtain (Katzner, 1998; 2004; 2006). More on this below.

[58] As Brian Loasby, an eminent post-Marshallian (but not Chicago) economist, eloquently puts it, in the A-D model, "all markets open simultaneously, and once

auctioneer adjusts the price vector according to a set of laws, there is nothing that guarantees the convergence towards the equilibrium. For instance, if the excess demand for a particular good is positive, the Auctioneer would increase the price and vice versa. And it's precisely for this reason the conditions for stability must be present. Otherwise, the market excess demand functions may fail to respond to the Auctioneer in an appropriate amount and in the right direction!

I consider these two clusters of problems (pertaining to the conditions for stability and to the conceptualization of the price adjustment process) as the two "structuralist moments" of the A-D model. The auctioneer and its contradictory position within the purportedly individualist framework of Walrasian system have already been identified by a number of scholars as a structuralist moment of an otherwise theoretical humanist discourse (Amariglio, Resnick and Wolff, 1990; Charusheela, 1998; see also, Hahn, 1984).[59] Charusheela, for one, insists that Walrasian economics is structuralist only with respect to "the equilibrium requirements of the paradigm" (1998: 43). With respect to "the notion of economic subjectivity," she argues, Walrasian economics is an individualist framework.

---

only; when a complete set of equilibrium contracts is in place, they all close—forever" (1999: 108). Since both production and consumption plans are into the future, once they are chosen in a way that permits all markets to clear, there will be no need for markets anymore. The remaining task for each producer and consumer is to routinely carry on his or her already set plans into the future.

[59] S. Charusheela argues that "the desire for closure in the face of contradictions creates collapses [into structuralism] for [a humanist] theory" (1998: 33). It should be noted, however, that it is not an abstract "desire for closure" that propels the proponents of a discourse to revert to structuralism but rather the theoretical problematic of reconciliation of the individual and the collective rationality itself sets up "closure" as the objective of theoretical practice.

The second structuralist moment in the A-D model pertains to the Sonnenschein-Mantel-Debreu results. As the aforementioned Sonnenschein-Mantel-Debreu results suggest, under the standard price adjustment rules outlined above, in order to be able to obtain the desired uniqueness and stability results, it is necessary to impose further restrictions over preferences. In this case, the structuralism can be found on the side of the agents, in the fact that they are "idealized" agents. Consider, for instance, a recent model of an exchange economy with individual agents who are endowed with Cobb-Douglas utility functions (Katzner 1998; 2004; 2006). With this particular assumption (which has almost a canonical status in the tradition) about the shape of the utility functions of the agents in this economy, Katzner is able to obtain the conditions for uniqueness and global stability. Nevertheless, because it imposes a particular structure on the preferences of the individual agents, it compromises on the desired level of generality.[60] In other words, from the formalist perspective of Debreu, to assume that the individuals are endowed with Cobb-Douglas utility function would be undesirable for it would entail imposing an "ad hoc" structure on the model.[61]

---

[60] The same argument holds for "the agent-price-adjustment-story" proposed by Katzner (2004: 13-16) as an alternative to the auctioneer story. The agent-price-adjustment story effectively decentralizes the function of the auctioneer to the individual agents. But, in doing so, the agent-price-adjustment story adds one more assumption to the "postulate of rationality." Katzner (2004) openly acknowledges this, when he suggests lumping together price-adjustment rules with agent maximization "in what might be regarded as an expanded 'postulate of rationality'" (13). Interestingly enough, in the contemporary context of late neoclassical economic, especially considering the considerably expanded conceptions of rationality used in game-theoretic contexts, this particular extension of the rationality postulate scarcely stands out.

[61] On the other hand, if there is no such thing as "pure formalism" or "full generality," if there is nothing but "ad hoc" assumptions, what's wrong with "adding extra hypotheses"? In fact, in order to be able to begin rethinking, and perhaps revitalizing, general equilibrium theory, it is necessary to drop the formalist

By many a commentator, these two "structuralist moments" (the questions of uniqueness and stability and the conceptualization of the process of price adjustment) have been deemed the main culprits of "the demise of general equilibrium theory" (Davis, 2003: 82; for similar assessments, see Screpanti and Zamagni, 1993: 344-8; Backhouse, 2002: 261-2). But more importantly, a significant number of late neoclassical economists identify "the demise of general equilibrium theory" with "the death of neoclassical economics" as such (See Chapter 3 below). I couldn't disagree more. For it is neither appropriate to read these developments as evidence of "the demise of general equilibrium" (for there are a number of vital research programs within the neoclassical tradition who continue to operate within this framework, computable general equilibrium analysis being one of them) nor to equate the loss of the disciplinary hegemony of general equilibrium analysis with "the death of neoclassical economics." If one defines the neoclassical tradition as an amalgamation of a number of theoretical positions inhabiting the neoclassical problematic, then it will be possible to interpret the loss of the disciplinary hegemony of the general equilibrium theory and the subsequent changes within the mainstream of the discipline as a set of developments within the neoclassical tradition, as a re-configuration of the neoclassical tradition, rather than its death.

In fact, the thesis that I would like to substantiate is the following: the reason for the loss of the disciplinary hegemony of the general equilibrium theory was not that it simply failed with respect to some particular methodological criteria (e.g., logical incoherence, empirical irrelevance). Rather the problem with the post-war theoretical

---

imposture: "However, the issue of how 'close' to full generality it is possible to come is still an open question. And to give up before answering it is to foreclose on the possibility of finding conditions of 'reasonable' generality" (Katzner, 2004: 9). Without doubt, how to define "reasonable" generality is also an open question.

developments in axiomatic general equilibrium theory was their policy implications and normative consequences. In other words, to be able to understand the loss of the hegemony of the general equilibrium theory, it is necessary to situate it in the historical context of the pro-intervention versus pro-market debate within the neoclassical tradition.

Against this backdrop, it will be useful to re-consider the socialist calculation debate. Within the neoclassical tradition, the socialist calculation debate is not a historical curiosity but an ongoing debate. It is now well known that the Walrasian tradition has always attracted socialist-leaning economists who perceived the general equilibrium model not as a template of a competitive market economy but a model of command economy where the Central Planning Board replaces the imaginary Auctioneer. While the broader neoclassical tradition has been celebratory of individual freedom and to a large extent for minimal government control over the economy, the Walrasian tradition has repeatedly attracted the neoclassical economists with a socialist bent. In particular, many of the émigré economists (e.g., Oskar Lange, Jacob Marschak, Tjalling Koopmans) who were convened around the Cowles Commission and contributed in one form or another to the development of the Arrow-Debreu model had patent socialist and pro-government leanings.[62] This meant that the Walrasian model of the economy was open to two different (and radically opposed) interpretations. It could either be treated, on the one end of the

---

[62] Mirowski (2002: 232-308) traces the links between Lange's earlier work on market socialism and the subsequent works of a number of other affiliates (e.g., Marschak, Tjalling Koopmans, Klein, Arrow) of the Cowles Commission. These scholars were highly fascinated by the social engineering aspect of market socialism; their motivation was to construct mathematically tractable models that will enable them to specify the appropriate ways in which to intervene to the economy.

spectrum, as an abstract model of a competitive market economy or it could be treated, on the other end of the spectrum, as an abstract model of socialist command economy.

Let us begin investigating the matter by considering the policy implications of the Fundamental Theorems of Welfare. The first theorem shows that under the given assumptions pertaining to commodity space, production, and consumption, any competitive equilibrium is Pareto optimal. The A-D model specifies an idealized model of the economy. Consequently, to the extent that its assumptions cannot be met in real-world economies (e.g., when there are externalities, when certain public goods cannot be provided by the competitive markets), the model sanctions government intervention to remedy these "market failures."[63]

The second welfare theorem, on the other hand, shows that under overlapping but slightly different conditions there is an equilibrium price vector that corresponds to each Pareto optimum allocation. This theorem implies that "any desirable final allocation of resources and commodities requires 'only' a redistribution of private ownership rights in the means of production" (Roemer, 1995:112). That is, in order to be able to establish a particular Pareto optimum allocation, provided there is always an equilibrium price vector that would satisfy it, it is sufficient to re-arrange the distribution of initial endowments and then let the agents to trade towards that final allocation of resources. Once again, to the extent that its assumptions cannot be

---

[63] Without doubt, what is "failure", and therefore, what needs to be "remedied" is determined retroactively, only after establishing, within theory, what counts as the proper functioning of the economy. Consequently, the remedies are themselves designed to mimic the idealized vision of the economy. This constitutes a perfect example of the way in which the modes of intervention to the economy are overdetermined by the particular conceptualisation of the economy.

met in real-world economies, the model sanction government intervention to lead the economy to towards equilibrium.

In addition to these two channels (i.e., the government interventions that would supplement the normal functioning of the markets and the redistribution of assets) theorized by the A-D model for the government involvement in the economy, the two "structuralist moments" discussed above gave another reason. Many scholars found in the Sonnenschein-Mantel-Debreu results with their implications for the uniqueness and stability of the equilibrium (Kirman, 1992) and the numerous logical difficulties involved with the various specifications of the *tâtonnement* process (Hahn, 1984) a strong case for the necessity of actual non-market institutions to usher the economy towards the equilibrium:

> …the foregoing models are […] incomplete as competitive *tâtonnement* models, and that to make them complete it is necessary to provide them with a central market authority and the *tâtonnement* rules and procedures that it enforces. (Walker, 1972: 353)

Indeed, the problem of *stability* offers an interesting litmus test for distinguishing pro-market Walrasians from their pro-intervention brethrens. For those who wanted to conceptualize the economy along the lines of Adam Smith's "invisible hand," it was necessary "to show that the economy is capable of attaining this state spontaneously, that the system's variables of state—i.e., prices—vary and adjust in such a way as to arrive at a vector of equilibrium prices" (Ingrao and Israel, 1990: 331). Ingrao and Israel further argue that "[t]he distance between those considering it essential to maintain the theories of existence and uniqueness together with that of stability and those who do not regard the last as indispensable is the same as that between those firmly convinced of the self-regulating virtues of a free market and those who believe

that the only way to achieve compatibility between contrasting individual interests is to decree the "final coherent state"—i.e., equilibrium—through planning" (1990: 331-2). Precisely for this reason it is necessary to distinguish the Fundamental Theorems of Welfare which provide justification for the government involvement in a market economy from the Sonnenschein-Mantel-Debreu results and the auctioneer controversy which provide justification for the substitution of the command economy with a market economy. To put it differently, the post-war theoretical developments in general equilibrium theory tilted the balance too much in favor of the government involvement in the economy to the dismay of the pro-market camp.

2. 3. Theoretical humanism in the evolutionary mode: The case of Chicago School in the post-war period

In the 1950s, as the early versions of the Arrow-Debreu model were being published, a number of high-profile proponents of the Chicago School, well known for their pro-market affinities, developed "Marshallian" models of market adjustment (Alchian, 1950; Friedman, 1953; Becker, 1962; for surveys, see Vromen, 1995; Loasby, 1999). Curiously enough, these Marshallian scenarios of market adjustment were also structuralist models, albeit a different sort than the structuralism of the Auctioneer. In these models, the intentional and rational human agency was replaced by the "impersonal market forces" that function as the central causal engine that generates equilibrium outcomes.

It is important to recognize that, while they seem to jettison the assumption of marginal calculus (a core concept of Marshallian neoclassicism), these essays were written in defense of the neoclassical marginalism. In the late 1930s and 1940s, a number of non-neoclassical economists began to question the realism of the marginal

calculus in the context of firm theory. Two British economists, based on the surveys that they conducted with actual entrepreneurs, argued that the pricing and output decisions of firms are not governed by the marginal calculus (Hall and Hitch, 1939). On this side of the pond, R. A. Lester (1946) claimed not only that the information that is necessary for the marginality calculations were not available to the actual entrepreneurs, but also that the immediate reactions of the firms to the increases in labor costs were not to reduce the output and employment levels but to search for ways to increase the production efficiency and to implement labor-saving technological changes. (For surveys of this early debate see, Lavoie 1990; Vromen 1995: 14-17; Mongin 1998.)

Nonetheless, these critiques of the neoclassical theory of the firm were only a small sample of a broader critical countercurrent to neoclassicism. Since the beginning of the century, the proponents of American institutional economics were persistently questioning the realism and the relevance of marginalism. I have already mentioned the "psychologism" controversy and its effects on the neoclassical theories of demand in general. In the field of macroeconomic research and policy-making, given its failure to successfully respond to the Great Depression, the legitimacy of the marginalist neoclassicism was seriously undermined by the Keynesian revolution and its immediate policy success. And finally, Walrasian general equilibrium theory was coming into its own as the mathematically equipped émigrés (Lange, Koopmans, Marschak, von Neumann, Oskar Morgenstern, and even Debreu who came to the

US in 1948) began to settle into their careers in the North American academia (Mirowksi, 2002).[64]

The papers by Armen Alchian (1950), Milton Friedman (1953), and Gary Becker (1960), which articulate, with slightly different accents, the same "selectionist argument," should be read as responses to this context. While they are indeed responses to those who question the realism of the marginal calculus both in the sphere of consumption ("psychologism" and related criticisms) as well as the production sphere (the marginalism controversy), it is important to recognize their function as an alternative, dynamic take on the invisible hand theory. Indeed the Marshallian image of the market-adjustment process should be seen as an alternative to the static and timeless general equilibrium models that rely on the auction metaphor to theorize the price-adjustment process.

2. 3. 1. Selectionist arguments: Anthropomorphizing the evolution

Alchian's (1950) intervention is usually referred to as the first neoclassical text to introduce a biological analogy. Alchian's contribution is a characteristically Marshallian response, as its argument revolves around the distinction between the

---

[64] From 1939 to 1955, the Cowles Commission was based at the University of Chicago. In this period, a number of the affiliates of the Cowles Commission were also the members of Economics Department. Debreu describes his experience of the period to Roy Weintraub: "[The conflict between the Chicago economics group itself and the Cowles people] must have been much more obvious in the department meetings which I did not attend. But I am sure when I say that tension occurred between, let us say, Milton Friedman and the Cowles group it must have been substantial from many different grounds. Because at Chicago the non-Cowles people were devotees of Alfred Marshall, and the Cowles group took a more general equilibrium viewpoint, and that was one difference. And I am sure that the non-Cowles group thought that the Cowles group used far too much mathematics. And then there were ideological differences. One of the issues of the day was rent control, and this found its way into our discussions. But occasionally antagonism flared up" (Weintraub, 2002: 151).

individual firm and the representative firm. A "representative firm" of an industry is "a set of statistics summarizing the various 'modal' characteristics of" (1950: 217) that industry. Alchian concedes that, under the conditions of uncertainty and incomplete information, it would be wrong to assume that the individual firms will be able to undertake and follow the marginal calculations. But, even if each and every individual firm would follow a different (and non-marginalist) decision criterion, the industrial average will still tend towards the pattern of behavior as predicted by the neoclassical theory. And the mechanism that would make sure that the industry average, the non-existent "representative firm" will approximate the behavior of the profit maximizing neoclassical firm would be *the selection mechanism of the market forces*.[65]

This argument was based on the assumption that, in the limit, the hypothetical neoclassical firm represents the essential characteristics of the firms that will survive the selection mechanism of the market forces. In other words, for neoclassical predictions, explanations, and diagnoses to hold at the industry level, it is not necessary for the individual firms to consciously maximize profits by following the marginal calculus. As long as the market forces run their course unhindered, the only firms that will survive in the marketplace would be the ones that "realize positive profits." In other words, by *adopting* the firms that are actually realizing positive profits and eliminating the others, an "economic" selection mechanism will make sure

---

[65] In response to one of Lester's criticism, Alchian writes: "…in attempting to predict the effects of higher real wages, it is discovered that every businessman says he does not adjust his labor force. Nevertheless, firms with a lower labor-capital ratio will have relatively lower cost positions and, to that extent, a higher probability of survival. The force of competitive survival, by eliminating higher-cost firms, reveals a population of remaining firms with a new average labor-capital ratio. The essential point is that individual motivation and foresight, while sufficient, are not necessary" (1950: 217).

that the neoclassical theorems about the directions of the changes, if not actual amounts of the changes, will hold at the industry level (Alchian, 1950: 220).[66]

The second and bolder formulation of the selectionist defense of marginalism was articulated by Friedman (1953). Friedman argued that since the selection mechanism will make sure that the surviving firms will be the ones that "approximated behavior consistent with the maximization of returns"(1953: 22), regardless of how actual firms behave, it is "not at all unreasonable" to construct models that assumes that individual firms maximize expected returns. Sharing the same Marshallian premises with Alchian, Friedman argued that the predictions of the profit-maximizing model should be tested at the industry level rather than at the level of the individual firm. The difference between the two approaches, however, resides in the notion of maximization-of-expected-returns hypothesis that informs Friedman's understanding of the behaviour of the surviving firm. For Alchian, the actual motivations of the successfully selected individual businesses do not have to approximate a notion of profit maximization. For neoclassical theorems to hold as *tendencies*, it is sufficient to have an "economic" selection mechanism (i.e., competitive markets) that would force the industry average, or the representative firm, to move towards the predicted directions in response to changes in independent variables. For Friedman, in contrast, the selection mechanism will select those firms that behave according to the maximization-of-expected-returns hypothesis. To put it differently, the surviving

---

[66] Alchian did not discount "the likelihood of observing 'appropriate' decisions" (1950: 216). While his argument does not require ascribing non-random, adaptive behavior to the firms, Alchian did discuss two other mechanisms that provide some breathing space for some minimal intentionality: namely, "imitation" and "trial and error".

firms must be the ones that have approximated the neoclassical firm: if they weren't maximizing their expected profits, they wouldn't be able to survive.

The final installment of the selectionist defenses of marginalism was Becker's 1962 essay, "Irrational Behavior and Economic Theory." In this essay, after distinguishing between the behavioral motivations of the individual households (and firms) and the aggregate market outcomes, Becker argued that the markets will tend to produce rational results that would systematically satisfy the basic predictions of neoclassical economic theory, even if the consumers and the producers do not respond to the changes in prices in a rational manner. Becker defines irrational behavior as a spectrum of modes of behavior that range from "impulsive" to "inert": while impulsive behavior would mean random, inertia refers to the resistance to change. According to Becker, changes in the opportunity sets (budget constraints), induced by the changes in relative prices, will force "the *average* economic actor" to behave the way the neoclassical theory predicts her/him to behave, regardless of how the *actual* economic actors behave. In other words, for Becker, the shifts in the opportunity set provide the sufficient "structural" conditions to ensure the law of demand which specifies an inverse relation between price and quantity demanded. That is, the famous law of demand may still be reproduced at the level of the population average, without any reference to the well-behaved preferences of the individual actors.[67]

---

[67] No wonder, then, that in some contemporary introductory textbooks the discussion of preferences and indifference maps is relegated to the appendix of the chapter on consumer choice. For instance in (Stiglitz and Walsh, 2002), the demand curve is first derived without referring to the utility maps of the individual. In other words, the changes in budget constraint are deemed sufficient to demonstrate the negative relation between the price and the change in quantity demanded.

On the production side, the Becker's narrative is quite similar to that of Alchian's: "firms could not continually produce, could not 'survive', outputs yielding negative profits, as eventually all the resources at their disposal would be used up" (1962: 10). Repeating the story he told on the demand side, Becker argues that changes in "relative input prices" will shape the production opportunity set in a manner that dictates "rational behavior": a rise in the relative price of an input will move the input mix of the industry average away from that input.[68] In short, according to Becker, the *structure* is embodied in the *scarcity* imposed on the economic subject by the budget line. The budget line itself, at the level of the market, is enough to derive the basic theorems of the neoclassical economics.

Each of these three models explicitly claim that it is not necessary for individual agents to undertake optimization; the market forces will make sure that the surviving agents would be the ones that meet or beat the average (Alchian, 1950; Becker, 1962), or, in the case of Friedman (1953), the ones who do the optimization. I consider these formulations to be inconsistent with methodological individualism for they privilege an aggregate mechanism as the casual essence that establishes the equilibrium market outcomes. But are these models really structuralist models of the economy? For at least two reasons these models should still be considered variations on the ultimately same neoclassical problematic, i.e. theoretical humanism. I have already discussed

---

[68] One important criticism of Becker's formulation is precisely the unexplained nature of the changes in relative real prices. Israel Kirzner (1962) asks, if no one in the economy is behaving rationally, if everyone is a price-taker, what causes the shifts in relative prices? Interestingly enough, in the context of Walrasian model, we observe a similar problem and the fiction of Auctioneer is there precisely to fill up the exact same problem: "Each individual participant in the economy is supposed to take prices as given and determine his choices as to purchases and sales accordingly; there is no one left over whose job is to make a decision on price" (Arrow 1959: 43). If every agent in the economy is a price-taker, then who changes the prices?

the first reason in the section on the pragmatism of the Chicago School: to be able to argue that the markets always produce *efficient* outcomes, it is necessary to assume that the surviving agents maximize their own welfare. As such, to be able to derive their welfare conclusions and policy recommendations pertaining to the desirability of (however generated) market outcomes, the proponents of the Chicago schoolmust rely on a notion of preferences that reflects a subjective and introspective notion of individual welfare. In this sense, the "selectionist arguments" of the Chicago School are similar to the false consciousness arguments found in the Marxian tradition: the actual agents within a given economy may not know what is really good for themselves; but through the help of the market forces (and the economists who advocate for the institution of more markets), they are forced to come to terms with what is really good for them. In this sense, the competitive dynamics of the markets do not only make sure that the survivors will be the optimizers, but also teaches the economics agents how to behave "rationally" and hence, "efficiently."

The second reason runs deeper: When Alchian invokes "environmental adoption" (1950: 214), he is, in effect, anthropomorphizing the market forces. Indeed, all the "selectionist arguments" of the Panglossian kind[69] involve the anthropomorphization of evolution as an optimizer. But, if we could go behind this anthropomorphization of the structure, don't we find an essentialist concept of *anthropos* with a given (human) propensity to survive, to reproduce its existence? Indeed, it is this humanist presupposition that underpins this structuralist machine: what silently motivate the

---

[69] "Panglossian modes of thought often involve the assumption, one that Darwin himself was sometimes keen to avoid, that evolution always means increasing progress, a beneficient journey from the lower to the higher form of organization of life, and from the inferior to superior" (Hodgson, 1993: 224).

"scarcity" assumption used by Becker (1962) are the presupposed unlimited (insatiable) wants and desires of the economics agents. Without this (unarticulated) theoretical humanist presupposition, it is impossible to motivate the idea of scarcity as a reified condition of human existence. In other words, the "selectionist arguments" made by the proponents of the Chicago School are yet another formulation of the neoclassical problematic.

2. 3. 2. Panglossian evolutionarism as the economic ideology of neoliberalism

In their subsequent writings, considering the prevalence of evolutionary themes/arguments in these seminal essays, none of these economists systematically explored evolutionary economics.[70] In retrospect, it is quite clear that they articulated these selectionist arguments as rhetorical tools to fend off criticisms against the optimization assumption.[71] Despite this lack of sincerity in mobilizing evolutionary models, the late neoclassical reception of these "structuralist" texts has been exceptionally enthusiastic: some consider them as the foundational texts of the new institutional economics (North, 1990; Vromen, 1995); some consider them as the antecedents of the evolutionary game theory (Samuelson, 2002); some find inspiration

---

[70] Becker's (1976) evolutionary game-theoretic model which provides a rationale for the existence of altruism in a population inhabited by selfish agents is the only exception. Nevertheless, the evolutionary game theoretic model used in the 1976 paper is different from the Marshallian evolutionary model articulated in Alchian's 1950 and Becker's 1962 papers.

[71] The symptomatic unwillingness of these Chicago economists in further pursuing evolutionary theorising is also highlighted by Tjalling Koopmans (1957: 140): "…if [evolutionary selection] is the basis for our belief in profit maximization, then we should postulate that basis itself and not profit maximization which it implies in certain circumstances." Eminent evolutionary economists Richard R. Nelson and Sidney G. Winter also lament the absence of rigorous and formal engagement in these early elaborations of economic selection mechanisms (1982: 141).

for their simulation based experimental economics (Gode and Sunder, 1993; 1997). The enthusiastic adoption of these singular texts into the late neoclassical camp is all the more surprising given their explicit privileging of "market forces" at the expense of individual intentionality and rationality (the hallmark presuppositions of neoclassical humanism). Given the presence of "structuralist moments" in both the A-D model and the "selectionist arguments," what accounts for the discrepancy between the late neoclassical reception of the these two post-war developments?

I believe the answer, at least in part, lies, again, in the opposing normative implications and policy consequences of these two variations on the neoclassical problematic. As I argued above, the Walrasian understanding of the functioning of the markets privileges the *price-adjustment* path to equilibrium. In this sense, in the Walrasian model there is no entry or exit, but rather a tâtonnement process in which a fixed number of producers and consumers adapt their excess demand function to the declared price vector. In the final analysis, a general equilibrium model is premised on an understanding of the economy as an all-inclusive system without an outside. In this sense, what makes the model attractive to modernist economists with socialist, social democrat, and egalitarian leanings is its all-inclusive understanding of the economy. In an A-D economy, at the end of the tâtonnement process, no one will be left out.

In contrast, the Marshallian partial equilibrium analyses, in part due to their short-run focus, privilege the competitive dynamics of the markets. In the Marshallian model, equilibrium is arrived through the exit and entry of the firms and consumers. In the Marshallian model, there is an outside to the economy—the equilibrium state is not all-inclusive. The equilibrium is not all-inclusive, because equilibrium can only

be arrived at when there is no incentive left to *enter* into the economy (or equivalently, when the inefficient firms are forced to *exit* the market). This particular difference between the Walrasian and the Marshallian models cannot be explained by the difference between multi-market focus of the former and the single-market focus of the latter. It is a difference that arises from their respective understanding of how markets function.

An important policy implication of this difference pertains to the relation between the state and the markets. The mobilization of evolutionary analogies furnishes these Chicago economists with a concept of selection mechanism that ensures that the markets will indeed tend towards equilibrium without any need for a central market authority. If the perceived poverty of the Walrasian model in explaining the process through which equilibrium is attained has rendered the economy susceptible to government intervention, the evolutionary metaphors mobilized by the proponents of the Chicago School have rekindled the neoclassical trust in the efficacy (as well as efficiency) of the competitive markets economics. It is in light of this defining difference between the Walrasian and the Marshallian conceptualizations of the functioning of the markets that I make sense of the stark differences in the late neoclassical receptions of the full-development of axiomatic general equilibrium theory and the "selectionist arguments" of the Chicago approach.

But there is another way in which the full-axiomatization of general equilibrium theory and the "selectionist arguments" differ from one another. While the A-D model was intended to give the general equilibrium theory as much generality as possible (in part, to establish it as a root model for subsequent analysis and, in part, out of commitment to a methodological individualism that wishes to impose as limited

assumptions as possible on the individual agents) through formalism, the selectionist arguments articulated by Alchian, Friedman, and Becker, by conflating the biological notion of "natural selection" with the Marshallian understanding of market forces, reified (or "naturalized") the latter into an overarching social ontology that explains *mutatis mutandis* everything. In this sense, the stark discrepancy between the late neoclassical receptions of these two post-war developments shows that, whereas the former project of making the A-D model the "root" model of the subsequent research has lost its disciplinary hegemony, the latter project of conceptualizing all social phenomena through the lenses of an ontology of competition (e.g., "the survival of the fittest/er") has gained a new found prominence.

In the final analysis, the analogy between a Panglossian understanding of "natural selection" and the Marshallian conceptualization of market forces is far from an innocent metaphor. Certainly, the situation is not one of a pragmatic use of an idea borrowed from biology to better understand an economic phenomenon. Not unlike the way early neoclassical economics gained something extra (e.g., scientific credibility) from borrowing concepts from physics, I believe the post-war and late neoclassical tradition has gained something extra from toying with biological analogies: the elevation of competition to an ontological status. Once competition is naturalized and ontologized, it can then be applied to all social phenomena, indiscriminately. I believe that these post-war developments and their subsequent differential reception in the late neoclassical period can contribute to our understanding of the theoretical foundations of neoliberalism as the hegemonic ideology of contemporary times.

2. 4. Conclusion

In this chapter, I discussed two important post-war developments (i.e., the full-development of axiomatic general equilibrium theory and the "selectionist arguments" of the Chicago approach) against the background of a widespread tendency within the neoclassical tradition to assume as little as possible about the human subject. Tracing back the genealogy of the developments to the psychologism controversy as well as the marginalism controversy, I demonstrated that both the Arrow-Debreu model and the "selectionist arguments" of the Marshallian Chicago School entail a similar destitution of the agency and the subjectivity of the individual consumers and producers. In order to be able to make sense of the subsequent late neoclassical turn towards the study of the mind of the individual agent as a response, a reaction, to the destitution of the role that the individual plays in the post-war neoclassical ontology, it is necessary to take these two "structuralist moments" as the point of departure of our analysis.

On the other hand, however, it is necessary to also make sense of the discrepancy between the late neoclassical receptions of these two developments. If anything, their similarities make the diametrically opposed reception of these parallel developments in post-war neoclassicism all the more striking. However, making sense of the discrepancy in the late neoclassical receptions of these developments requires an appreciation of the internal struggles within the neoclassical tradition over how to formulate its constitutive theoretical problematic. In this vein, I argued that a third condition of agitation of the "selectionist arguments," along with the marginalism and psychologism controversies discussed above, was the disciplinary struggle between the pro-market Chicago approach and the pro-interventionist Cowles approach over how

to define the neoclassical problematic. In Walrasian economics, the market is conceptualized through the auction metaphor and the equilibrium is reached through an iterative adjustment of the price vector. By the 1950s and 1960s, in the aftermath of the socialist calculation debate, it became clear that the metaphor of the Walrasian auctioneer and its particular understanding of how markets function lend themselves almost too easily to government control over the economy. In contrast, according to the Marshallian conceptualization of markets that informed the economists of the Chicago school, market forces tended to produce efficient ("optimizing") outcomes if they were left alone. Read in light of this internal struggle within the neoclassical tradition between the pro-interventionist social engineers and the pro-market social Darwinians, it becomes possible to read the "selectionist arguments" not only as "belated" responses to the marginalism or psychologism controversies but also as a timely response to the Walrasian skein of the neoclassical tradition. As I argued earlier, the selection metaphor of the Chicago School is indeed a formulation of the neoclassical problematic which presents itself as an alternative to the auction metaphor of the Walrasian skein. Accordingly, the proponents of late neoclassical economics, to the extent that they define themselves in opposition to the Arrow-Debreu model, tend to affirm the "selectionist arguments" and renounce general equilibrium modeling. Let us now turn our attention to late neoclassical economics.

CHAPTER 3

LATE NEOCLASSICAL ECONOMICS

3. Introduction

It is no doubt that the loss of the disciplinary hegemony of the general equilibrium theory in mainstream microeconomics has been productive of an abundance of new economic approaches and research agendas. Among approaches and research programs that gained prominence in the last three decades, the following can be mentioned: new institutional economics, new information economics, behavioural economics, social choice theory, experimental economics, classical game theory, evolutionary game theory. The question this dissertation aims to answer is the following one: To what extent have these new approaches and research agendas stepped outside of the neoclassical paradigm? In contrast to a number of commentators who identify a radical break between neoclassical economics and the various contemporary mainstream microeconomic approaches, I argue that these late neoclassical approaches, even though they display a significant amount of internal diversity (which deserves to be studied and made sense of on its own right), have so far failed to occasion a paradigm shift. They all remain committed to the presuppositions of neoclassical humanism and for this reason, I propose to gather them together under a term that signals their *philosophico-theoretical* and *historico-genealogical* continuity with, as well as their differences from, the neoclassical tradition: Late neoclassical economics.

The purpose of this chapter is to state the basic contours of the central argument of the dissertation and to prepare the reader for the remaining three chapters that offers a critical account of a number of central theoretical themes and debates of late neoclassical economics. Section 3.1 introduces the three central theses of the dissertation: the characterization of the late neoclassical condition as one of dispersion and unity, the continuity of late neoclassical approaches with neoclassical economics, and the status of late neoclassical economics as a response to a perceived crisis of Walrasian neoclassicism. While Section 3.2 develops the idea that late neoclassical context is characterized by unity and dispersion, Section 3.3 lends an ear to the writings of the prominent late neoclassical figures and documents their own representations of their relation to neoclassical tradition in general and the Walrasian neoclassicism in particular. A common theme that unite the self-representations of these diverse group of prominent economists is a claim to have occasioned a break with the neoclassical tradition, an accentuated wish to distinguish their position from that of Walrasian neoclassicism, and an equation of neoclassical economic with Walrasian economics. Section 3.4 offers an outline of the remaining chapters.

3. 1. Three theses on late neoclassical economics

This dissertation proposes three theses pertaining to the character of late neoclassical economics: that it is unified despite a significant degree of internal diversity; that it remains within the neoclassical problematic; that it is a response to the purported crisis of Walrasian economics and that it entails a restoration, re-activation and re-elaboration of the theoretical humanist presuppositions of neoclassical economics. Let me briefly unpack these three theses.

The unity and dispersion thesis. The first thesis states that late neoclassical economics is an articulated discursive formation consisting of a diverse group of economic approaches and research programs that share a common problematic and a common enough set of concerns and concepts that enable them to sustain—recurring failures in communication notwithstanding—an ongoing conversation among themselves even as they differ from one another methodologically, thematically, and politically. The central theoretical problematic of late neoclassical economics is the exploration of the conditions of existence of a harmonious and contradiction-free socio-economic order (i.e., an efficient and stable state of equilibrium-in its various versions) that would best accommodate the needs of human subjects as they are postulated in theory (i.e., according to the axioms of rationality). As I argued in Chapter 2, this was also the central theoretical problematic of neoclassical economics.

The continuity thesis. This brings me to the second thesis: Contrary to the claims of its many proponents (as will be documented momentarily), late neoclassical economics does not constitute a radical departure from the neoclassical tradition. Late neoclassical economics inherits its constitutive theoretical problematic, its conceptual lexicon, and its policy concerns from the neoclassical tradition: It continues to seek the reconciliation of the individual rationality with the collective rationality (defined as a Pareto efficient state of equilibrium), it takes key neoclassical concepts (e.g., opportunity cost, utility maximization, axioms of rationality, labor as disutility) as its basic lexicon, and its spectrum of policy positions continues to be limited to, on the one end, the pro-market ("there aren't enough markets") position and, on the other, the market-skeptic ("the markets are not enough") position.

The response thesis. And finally, late neoclassical economics is a patchwork of *responses* (with a certain degree of internal diversity) developed by economists who were trained in the neoclassical idiom to the perceived crisis and fall from grace of the Walrasian skein of neoclassical economics. The most accentuated characteristic of these late neoclassical *responses* to the purported crisis and demise of Walrasian economics is that they all display a concerted effort to rehabilitate (albeit in different and sometimes conflicting ways) the two theoretical humanist presuppositions of neoclassical economics, namely, the notion of human subject as a unified and rational self-consciousness and the pre-destined vision of an harmonious socio-economic order. As I will demonstrate below, these rehabilitative efforts may take the following forms: more "realistic" models of the economy that take market failures into account, models that analyze the internal social organization of the firm, models with rational actors with other-regarding and non-selfish motivations, models with actors with bounded rationality, the functionalist use of institutions as equilibrium selection devices for non-cooperative games with multiple Nash equilibria, the use of metaphors borrowed from evolutionary biology, etc. In these and other cases, the central concern of late neoclassical economists is to explain why and how societies may fail to reconcile individual and collective rationality and how (already existing or to-be-designed) "institutions" (do or will) solve the problem of the mediation of the relation between the individual rationality and its aggregate counterpart—without ever questioning either the assumption of a human subject as a unified self-consciousness or the deeply normative concepts of equilibrium and efficiency.

3. 2. Unity and dispersion in late neoclassical economics

In this section, I carefully delineate the sources of *unity* and *dispersion* in late neoclassical economics. Let us begin with the source of the *unity*: each late neoclassical approach positions itself in relation to the concept of perfect competition and the invisible hand theorem as it is defined and formalized in the A-D model. There are two ways in which a theoretical approach can position itself in relation to the A-D model: a late neoclassical approach can *either* focus on and isolate one or two assumptions of the A-D model and construct (local) economic models based on these weakened assumptions without questioning the constitutive presuppositions of neoclassical humanism *or* reformulate the neoclassical problematic in a new way. The latter, in turn can be accomplished either by drawing upon the non-Walrasian skeins of the neoclassical tradition (e.g., the evolutionary themes of the Marshallian/Chicago approach, the concept of transaction costs of the neighboring Coasean tradition, the Nash equilibrium concept of classical game theory) or by importing new concepts and methods from other disciplines (e.g., cognitive sciences, behavioural psychology, cyborg sciences). These two moves, i.e., the weakening of the isolated assumptions and the reformulation of the problematic, allow late neoclassical economists to explain *either* why it is impossible to obtain the conditions necessary for the invisible hand theorem to hold true (i.e., "the markets are not enough") *or* why it is necessary to do something to institute the conditions necessary for the realization of the invisible hand theorem (i.e., "there are not enough markets"). In other words, the neoclassical problematic ("Is it possible to aggregate in a rational manner the diverse needs and demands of rational and autonomous actors?") and its corollary policy debate (between the pro-interventionist "liberal" position and the *laissez faire* conservative

position) is reproduced, albeit in new forms, in the late neoclassical context. (More below on the contours of the late neoclassical policy debate and its similarities with and differences from the neoclassical policy debate.)

Some of the key late neoclassical concepts and strategies of containment that will be discussed in this and subsequent chapters provide an excellent illustration of how late neoclassical economics remains within the theoretical problematic of neoclassical humanism: transaction costs, price dispersion, information failures, bounded rationality, rent-seeking behavior, the ubiquitous treatment of non-market institutions as devices for solving market failures. The concept of *transaction costs* relaxes the assumption of the effortless formulation and enforcement of contracts that informs the perfect competition model and explains why it may be more efficient to supersede the markets with other economic institutions (Coase, 1937; 1960); the concept of *price dispersion* relaxes the assumption of price uniformity and explains why the same good can be both and sold at different prices (Stigler, 1961); the concepts associated with the *information failures* (i.e., moral hazard and adverse selection) relax (up to a point) the assumption of the perfect availability of all the relevant information and provides explanations for the existence of phenomena such as credit rationing and unemployment (Arrow, 1974; Shapiro and Stiglitz, 1982; Bowles and Gintis, 1990); the concept of *bounded rationality* relaxes the assumption that the human subject as such has unbounded computational capabilities and provide explanations why individual actors may fail to function as the standard theory predicts them to behave (Simon, 1976); and the concept of *rent-seeking behaviour* (*malfeasance*, *opportunism*) transforms the standard model of imperfect competition to a generalized theory of government failures and bureaucratic corruption (Krueger, 1974). All of these late neoclassical

conceptual innovations, in turn, feed into the ubiquitous functionalist treatment of "institutions" as devices that exist to solve the various failures of the price-mechanism to deliver a unique Pareto efficient equilibrium outcome (Schotter, 1981; Williamson, 1985; North, 1991).[72] The common denominator of all these *late neoclassical concepts* is the investigation of the conditions that derail or prevent markets from confirming to the predictions of the perfect competition model. In doing so, all these approaches, while remaining within the overarching neoclassical problematic (i.e., the

---

[72] The late neoclassical concept of *institutions* is perhaps best formulated by Douglass C. North: "Institutions are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights). Throughout history, institutions have been devised by human beings to create order and reduce uncertainty in exchange. Together with the standard constraints of economics they define the choice set and therefore determine transaction and production costs and hence the profitability and feasibility of engaging in economic activity. […] Institutions provide the incentive structure of an economy; as that structure evolves, it shapes the direction of economic change towards growth, stagnation, or decline. […] Effective institutions raise the benefits of cooperative solutions or the costs of defection, to use game theoretic terms. In transaction cost terms, institutions reduce transaction and production costs per exchange so that the potential gains from trade are realizable" (1991: 97-8). It is commonplace to theorize games themselves as institutions: For instance, Samuel Bowles, another late neoclassical economist who considers game theory to be an indispensable tool for doing economics, defines institutions as "the laws, informal rules, and conventions that give a durable structure to social interactions among the members of a population" (2004: 47-8). Institutions qua games, therefore, determine the payoffs associated with each strategy, who will play when, who knows what, and so on. In this sense, institutions can be seen as durable environments that structure the choices of individuals, they are structures that individual subjects take as given. Nevertheless, late neoclassical economists tend to argue that games are *recursive* "in the sense that among the outcomes of some games are changes in the rules of this or other games" (Bowles, 2004: 54). In other words, "the rules of the games" (or "institutions") that subjects take as given in making their (strategic) choices are themselves the outcomes of previous games where the subjects had to have taken another set of rules as given and so on… It should be clear that this train of thought leads to an infinite regress. Unless we assume the possibility of an institution-free state of nature, or unless it is possible to conceive the act of "choice" without referring to a pre-given structure (qua a choice set and a reason to choose), methodological individualism has to interrupt the argument at some stage and assume the existence of a *piece* of structure (qua choice set) that cannot be reduced to prior choices and actions of individual agents.

reconciliation of the individual and the collective rationality), produce concepts that explain *either* why the price-mechanism (on its own) may fail to achieve such a reconciliation *or* why the only solution to achieve this reconciliation is the institution of new markets (i.e., privatization, trade liberalization, financial liberalization).

Let me emphasize, however, that the study of the aspects of *market imperfections*, the defining theme of late neoclassical economics, can only be thought in reference to the concept of *perfect competition*, a concept that can found in all the skeins of the neoclassical tradition. Put differently, the model of perfect competition underpins all the late neoclassical treatments of market imperfections. All the key late neoclassical concepts that pertain to or lead towards market imperfections and failures (transaction cost, information failures, bounded rationality, interdependent preferences, corruption, coordination failures, etc.) serve the purpose of explaining *either* why perfect competition can never realize (i.e., the liberal position) *or* what prevents perfect competition from realizing (i.e., the conservative position). In doing so, both positions take "the ideal state" of perfect competition as their point of departure. In this sense, the late neoclassical approaches are unified around a very particular theoretical humanist problematic: the theoretical problematic of *late neoclassical* humanism presupposes and positions itself in relation to the theoretical problematic of *neoclassical* humanism.

Let us now turn to the source of the *dispersion* that characterizes the late neoclassical condition. Indeed, the political (as hinted above), the methodological, and the thematic topographies of the late neoclassical condition in mainstream economics are internally differentiated and fragmented. As noted in the previous paragraph, each late neoclassical approach is developed around the investigation of a particular

assumption or a set of assumptions of the A-D model. *The new institutional economics*, for instance, uses the concept of transaction costs (which weakens the Arrow-Debreu assumptions pertaining to the commodity space) to explain the existence of economic institutions such as firms. *New information economics*, on the other hand, begins with the non-existence of many future markets and proceeds to weaken (but only in certain ways) the informational assumptions of the A-D model (e.g., moral hazard and adverse selection). *Behavioural economics* of Herbert Simon weakens the assumptions pertaining to the cognitive capabilities of the rational agent (e.g., bounded rationality). Other behavioural economists, using experimental methodologies borrowed from behavioural psychology, ask whether or not non-selfish preferences (e.g., altruism, reciprocity, multiple preference orderings) exist and, drawing upon evolutionary game theoretic models, try to predict their viability as motivational traits in mixed populations (that include selfish A-D agents along with non-selfish ones). And yet another cluster of game theoretic approaches tackle the questions of uniqueness and stability of equilibrium in various game theoretic contexts (e.g., Nash equilibrium solution, "institutions" as equilibrium selection devices, evolutionary stability). This specialization (hence fragmentation) of research around the various assumptions of the Arrow-Debreu model is the source of the *thematic heterogeneity* of late neoclassical economics.

Moreover, each late neoclassical approach adopts a different research methodology for "unpacking" their particular pet "black box" (e.g., the contract, the firm, the rationality, the preferences, the government). Some run laboratory experiments with college students and others use computer simulations. Some borrow from engineering calculus, others from evolutionary biology. In other words, late

neoclassical economics lacks a central research methodology and a central formal model, a "definitive analytic mother-structure" that could be "re-interpreted" in and adjusted for new theoretical and applied contexts (Weintraub, 2002: 121).

Let me be as precise as possible here about how late neoclassical economists relate to the A-D model. Weintraub (2002: 121) argues that Debreu, inspired by the mathematical structuralism of Bourbakism, intended his *Theory of Value* either to function as "the definitive analytical mother-structure" or to be treated as an ideal model whose assumptions will gradually be weakened and contextually modified. Unfortunately, late neoclassical economists did not treat the Arrow-Debreu model as "the root structure" of microeconomic research, as an "abstract core model" to be adjusted for and applied to new theoretical and empirical contexts. In practice, they either chose to weaken the assumptions of the A-D model (i.e., Debreu's second route) or to re-formulate the neoclassical problematic in non-Walrasian or new ways (e.g., by handling uniqueness and stability of equilibrium through the concept of "evolutionary stability"). In this sense, the A-D model did and continues to serve a central role, but, at best, as a point of departure, as a benchmark, as a reference point, and, at worst, as a "scapegoat." Therefore, when the students of mainstream economics study the Arrow-Debreu model, they do not do so in order to extract from it a particular way of doing economics. Rather, they treat the Arrow-Debreu model as the ultimate repository of a set of *assumptions* to be revisited, revised, and relaxed in order to re-activate and re-elaborate the neoclassical problematic.

In addition to this "negative" condition (i.e., the lack of interest in the A-D model as a root model or a source of research methodology), there is another factor that accounts for the *diversity of research methodologies* in late neoclassical economics. The growing

importance of applied fields (e.g., labor economics, agricultural and resource economics, development economics, economic geography, environmental economics, public economics, financial economics, economics of transition economies and area studies) have put the discipline of economics and those economists who were trained within the neoclassical idiom in touch with other disciplines such as sociology, political science, area studies, cognitive sciences, behavioural psychology, law, organizational theory, management studies, engineering sciences, applied mathematics, earth/environmental sciences and biology. In the process, a certain amount of concept trading took place between late neoclassical approaches and those research programs in these adjacent fields that adhere to the theoretical humanist presuppositions and the modernist epistemology of neoclassical economists.[73]

The *political* topography of late neoclassical economics also presents itself as a realm of *heterogeneity*. Here, the two central policy positions within neoclassical economics, i.e., pro-market conservative and pro-government liberal positions are repeated albeit with certain modifications. For instance, the late neoclassical pro-market response to the emerging discourses on market failures was to develop extensive analyses of rent-seeking behaviour in bureaucracies and produce an equally effective discourse of

---

[73] To what extent this was largely a matter of applying neoclassical concepts (e.g., opportunity cost, scarcity, equilibrium, efficiency) in these applied fields or of introducing new concepts and techniques culled from the field into economics, no doubt, requires a detailed study. Nonetheless, such a study will not affect the basic point that is being made here. For even if the concept and technique trading was mutually enriching, the important point that should not be missed is that this "cross-fertilization" occurred only among theoretical humanist traditions. For instance, if there was any trading between psychology and economics, this happened between neoclassical economists and the theoretical humanist traditions of psychology (e.g., ego psychology, cognitive psychology, experimental behavioural psychology) and not, for instance, those Freudian and Lacanian traditions of psychoanalysis that are highly critical of the core of concepts of theoretical humanism such as unified and centered subject qua self-consciousness.

government failures. The concept of "good governance", a concept that is being promoted by the World Bank, is, in part, a product of this late neoclassical debate on government failures. Moreover, it will be misleading to refer to late neoclassical liberalism as pro-government. Late neoclassical liberal position argues for the necessity of "incentive compatible" non-market institutions to supplement the market mechanism in order to remedy its shortcomings.[74] These "incentive compatible" non-market institutions could range from social norms to NGOs. In this sense, in the late neoclassical conversation, theoretically speaking, the government has lost its credibility as a viable locus of agency for intervening to the economy. In this regard, the late neoclassical political topography is different from the earlier neoclassical political spectrum. While the conservative position is still resolute in insisting on the necessity of further privatization and economic liberalization ("there aren't enough markets"), the liberals need to supplement "the markets are not enough" motto with a series of qualifications that acknowledge the "shortcomings" of the government.

To recapitulate, the late neoclassical condition is characterized by both *unity* and *dispersion*. Late neoclassical economics is an articulated discursive formation consisting of a number of research programs and schools of thought that display a thematic, methodological and political diversity yet that share the theoretical humanist problematic of the reconciliation of individual and collective rationality. Moreover, each late neoclassical approach defines its research program in relation to, and as a response to perceived demise of, the Walrasian neoclassicism. Therefore, they are not only unified in their theoretical humanism, but also in their relation to neoclassical

---

[74] "Incentive compatibility" entails the design of institutions with the appropriate incentive schemes that would elicit the desired level of effort from the participating agents even when they are assumed to be self-interest seeking.

humanism. In Chapters 4, 5, and 6, I offer a detailed mapping of the late neoclassical condition and show why and how different contemporary mainstream approaches remain within the theoretical humanist problematic of, and define themselves in relation to, neoclassical humanism and therefore should be counted as various skeins of late neoclassical economics. But before proceeding to that, I will now turn my attention to the self-representations of some prominent figures of what I identify in dissertation as the late neoclassical program and juxtapose their self-representations with the representation proposed in this dissertation.

3. 3. The so-called "break" thesis: The specter of Walrasian economics

In this dissertation, I argue that late neoclassical economics consists of a series of research programs and schools of thought that are developed as responses to the perceived "shortcomings" of Walrasian neoclassicism. As indicated above, I argue that, in response to the loss of the disciplinary hegemony of the Arrow-Debreu model, neoclassical economists began to "unpack" and weaken (in various ways) the various assumptions of the Arrow-Debreu model.

It is important to note that many Walrasian economists themselves recognized and even encouraged this parasitical appropriation of the Arrow-Debreu model. I have already mentioned Debreu's Bourbakist intentions. Weintraub (2002: 121) reminds that the "'weakening' of assumptions" was one of the paths of future research that Debreu would have encouraged. Another eminent Walrasian economist, Frank Hahn, articulated a similar position merely three years after the publication of *General Competitive Analysis* (Arrow and Hahn, 1971). According to Hahn, when confronting

those who unequivocally believe in the powers of the price mechanism to allocate resources efficiently, the response of an economist should be…

> …to note that an Arrow-Debreu equilibrium must be an assumption that [the believer] is making for the economy and then to show that why the economy cannot be in this state. […] This negative role of Arrow-Debreu equilibrium I consider almost to be sufficient justification for it, since practical men and ill trained theorists everywhere in the world do not understand what they are claiming to be the case when they claim a beneficent and coherent role for the invisible hand. But for descriptive purposes of course this negative role is hardly a recommendation. (Hahn, 1984: 52)

Without doubt, this ascription of a "negative role" to the Arrow-Debreu model is premised upon the implicit assumption that the Arrow-Debreu model is the only way to represent Smith's theory of invisible hand in a scientific manner. This assertion (perhaps deliberately) ignores the existence of the alternative treatments of the invisible hand scenario: In Chapter 2, I described an alternative formulation proposed by the Marshallian-Chicago tradition where the competition process was represented as a selection mechanism. In the passage quoted above, when he chides "practical men and ill trained theorists," Hahn reduces "economics" to neoclassical economics and the latter to Walrasian economics.

It is possible to read an insecure undercurrent in Hahn's disregard towards alternative research programs and schools of thought (both neoclassical and non-neoclassical). By the 1970s, it was already clear—especially for the pioneers of the general equilibrium theory—that the conditions that are required to achieve the existence and efficiency of the general equilibrium, let alone its uniqueness and global stability, could not reasonably be satisfied by actual economies. By the 1970s, the very pioneers of general equilibrium theory (e.g., Hahn, Arrow, Radner) were already trying to create a research project for themselves within the soon-to-change topography of the mainstream microeconomics. The Walrasian model was defended

by the affiliates of the Cowles Commission, first from the Hayekian charge against the Barone-Lange-Taylor models of market socialism that were easily grafted on the Walrasian general equilibrium models of the 1930s and 1940s (Adaman and Devine, 1995; Mirowski, 2002), and then from the attacks coming from the Marshallian-Chicago tradition in the 1950s and 1960s (De Vroey, 2004). Once the limitations of the Walrasian model became the new consensus, perhaps ironically as a result of the very efforts of the Walrasian economists themselves (i.e., the so-called Sonnenschein-Mantel-Debreu results), the only way to salvage the research agenda was to treat the model as an "ideal-type" and to re-orient the research agenda towards the study of the deviations from the model.

In short, the Walrasian economists wanted the model to be treated as an "ideal-type." According to the "continuity" scenario that I subscribe to, the Arrow-Debreu model was indeed treated by late neoclassical economics, in the precise sense described above, as an "ideal type". Nevertheless, late neoclassical economists and those who find a "break" between the neoclassical economics of the 1950s and 1960s and the contemporary mainstream microeconomics do not agree with this "continuity" scenario. For instance, Samuel Bowles and Herbert Gintis argue that the Walrasian model was a competition to, and not a pre-condition for the development of, the "nonwalrasian approach" [their term for late neoclassical economics]:

> Perhaps the full development of the Walrasian model was a necessary precondition for developing analytical models of incomplete contracts and broader models of human behavior. […] But the founding contributions to incomplete contracts, game theory, and behavioral economics did not await the development of the Walrasian model. Rather, the foundations of a nonwalrasian approach were laid down by prominent economists in the period from 1937 to 1957, precisely the period in which the Marshallian paradigm was displaced by the nascent Walrasian paradigm, subsequent to which two generations of economists were taught Walrasian general equilibrium as the core of modern

> economic theory. […] In short, all of the underpinnings of a nonwalrasian economics had been set in place by 1960. Walrasian economics was not the precondition of these innovations—it was their competition. (Bowles and Gintis, 2000: 1429)

According to Bowles and Gintis, Walrasian economics was an unnecessary detour and there is practically no relation between the contemporary mainstream microeconomics and Walrasian neoclassicism. Instead they find the origins of the contemporary mainstream economics in the Marshallian paradigm. Steven Cheung, a prominent new institutional economist trained in the Chicago tradition, constructs a similar narrative of antagonism between new institutionalism and Walrasian neoclassicism (here, coded as "welfare economics"):

> All this was subtly changing in late 1950s and the early 1960s. By the 1970s, the drive for economic explanation had gained such momentum that welfare economics has since been on the decline. The new institutional economics is a part of this significant development. *Of course, its ideas did not crop up overnight.* Knight (1924), Coase (1937), Hayek (1945), and Director had earlier done significant work in the field. *Yet these seminal contributions, scattered over a 30-year period, failed to break the field open.* It was a different era when, in 1960, Coase published his paper on social cost, followed by Stigler's paper on information (1961) and Arrow's on the appropriability of returns (1962). They had the support of the profession at large, because by this time interest in the real world was spreading. The joint effort ignited a fire. (Cheung, 1992: 49; emphasis added)[75]

In these and other narratives, the disciplinary hegemony of the Walrasian economics is seen not as a useful pre-condition of the development of the contemporary mainstream economics but rather as a dark shadow that prevented its flowering.[76] In

---

[75] Note that Cheung is including Kenneth Arrow's work on the non-excludable character of research and development as a part of what he understands to be "new institutional economics".

[76] Joseph Stiglitz, a prominent figure of the new information economics, also makes a similar claim: "I want to argue…that the competitive paradigm [or, the neoclassical or Walrasian model] not only did not provide much guidance on the vital question of the choice of economic systems but what "advice" it did provide was often misguided. The conceptions of the market that underlay that analysis mischaracterized it; the standard analyses underestimated the strengths—and weaknesses—of market

fact, if anything, the received wisdom regarding the contemporary state of mainstream economics is that its heterogeneity is a healthy and pluralist antidote to the monochrome austerity of the standard neoclassical model (see also, Thompson 1997; Bowles and Gintis 2000; Colander 2000). Yet, at the same time, it is difficult to not to notice that even in their denial of a relation, even as they define themselves by differentiating themselves from the Walrasian model, they acknowledge the existence of a relation.

The late neoclassical emphasis on "institutions" is usually seen as what renders it more open to pluralism. Since they purportedly do not impose a single model for the analysis of different social formations, since they take imperfect, rather than perfect, competition as the norm, it is argued that the contemporary mainstream approaches made the flourishing of a variety of different economic models with contextualized assumptions pertaining to economic agents and institutional constraints possible.

Nevertheless, the reason for the internal diversity (and hence the purported pluralism of the late neoclassical context) is not so much that individual late neoclassical approaches have abandoned the "formalism" of neoclassical economics and embraced the "substantivism" of the American institutional economics.[77] Far from it. Individual late neoclassical approaches continue to apply the same concepts (transaction costs, information failures, opportunism, etc) universally and even if they take market imperfection as the norm, the very concept of market imperfection itself presupposes perfect competition as its hidden norm. The diversity, therefore, does

---

economies, and accordingly provided wrong signals for the potential success of alternatives and for how the market might be improved upon" (Stiglitz, 1994: 5).

[77] For a recent discussion of the formalism-substantivism debate in economics and economic anthropology, see (Adaman and Madra, 2002).

not arise from the substantive and context-sensitive analyses of institutions. As argued above, all late neoclassical approaches explain "institutions" as "person-made devices" that are intended to solve market imperfections. They differ only in the particular ways in which they theorize market imperfection.

Each late neoclassical approach (new institutional economics, new information economics, behavioural economics, etc.) posits its trademark concept of market failure (transaction costs, information failures, bounded rationality) as the reason why the "standard" neoclassical model was wrong and why "institutions" matter.[78] For instance, the founder of new institutional economics (also known as transaction-cost economics—an important late neoclassical approach), Ronald Coase claims the key concept that was missing from the standard neoclassical model was the concept of transaction costs:

> Adam Smith explained that the productivity of the economic system depends on specialization (he says the division of labor), but specialization is only possible if

---

[78] For instance, in a brief yet revealing essay on new institutional economics (an important late neoclassical approach), Coase finds neoclassicism faulty for being too abstract and detached from what happens in the real world: "Mainstream economics [microeconomics], as one sees it in the journals and the textbooks and in the courses taught in economics departments has become more and more abstract over time, and although it purports otherwise, it is in fact little concerned with what happens in the real world. [Harold] Demsetz has given an explanation of why this has happened: economists since Adam Smith have devoted themselves to formalizing his doctrine of the invisible hand, the coordination of the economic system by the pricing system" (Coase 2000: 3). Contrast this position, however, with that of eminent economic historian Douglass North. North identifies continuity between neoclassicism and new institutional economics: He claims that the latter is not trying "to replace formal neoclassical price theory," but "to make it applicable and useful for human beings" (2000: 8). The common thread of both positions is the idea that new institutional economics is an economic approach that is more in touch with reality than neoclassical economics. More generally, whenever late neoclassical economics emphasize the continuity between their particular approach and neoclassical economics, they usually do this in order to underscore the superiority of the former over the latter.

> there is exchange—and the lower the costs of exchange (transaction costs if you will), the more specialization there will be and the greater the productivity of the system. But the costs of exchange depend on the institutions of a country: its legal system, its political system, its social system, its educational system, its culture and so on. In effect it is institutions that govern the performance of an economy, and it is this that gives the "new institutional economics" its importance for economists. (Coase 2000: 5)

Contrast this position with that of Joseph Stiglitz, a prominent figure in late neoclassical models of information failures. For him the salvation lies in the *new information economics*:

> The fundamental problem with the neoclassical model […] is that [it fails] to take into account a variety of problems that arise from the absence of perfect information and the costs of acquiring information, as well as the absence or imperfections in certain key risk and capital markets. The absence or imperfections of these markets can, in turn, to a large extent be explained by problems of information. During the past fifteen years, a new paradigm, sometimes referred to as the information-theoretic approach to economics (or, for short, information paradigm), has developed. This paradigm is explicitly concerned with these issues. The paradigm has already provided us insights into development economics and macroeconomics. It has provided us a *new new welfare economics*, a *new theory of the firm*, and a new understanding of the role and functioning of financial markets. It has provided us new insights concerning traditional questions, such as the design of incentive structures. (Stiglitz, 1994: 5)

Bowles and Gintis offer a more ecumenical perspective. They argue that the missing ingredient was the concept of *incomplete contracts*, a concept that brings together ideas culled from new institutional economics (transaction costs and social norms), new information economics (information failures), radical economics (power and social norms), game theory (strategic behavior), behavioural economics (bounded rationality), and experimental economics (bounded rationality and non-selfish motives). In doing so, they are careful not alienate the *formalist* (in the model-building sense of the term) sentiments of mainstream economists:

> The first implication [of abandoning the familiar terrain of complete contracts] is that where some aspect of an exchange is not subject to a costlessly enforceable contract, social norms and psychological dispositions extending beyond the selfish motives of *Homo economicus* may have an important bearing on outcomes, even in

> competitive markets. The second implication is that market outcomes depend on strategic interactions in which something akin to "power" in the political sense is exercised. Where contracts are complete…there is nothing for power to be *about*, but where much remains to be determined after the handshake, the institutional details of the exchange process determine the strategic opportunities and effectiveness of the parties concerned. The result of these two consequences of incomplete contracts is that economic analysis must become more social and psychological in its treatment of the human actor, more institutional in its description of the exchange process, yet no less analytical in its model-building and no less dedicated to the construction of general equilibrium models. (Bowles and Gintis, 2000: 1412)

In short, each late neoclassical approach positions itself in relation to the standard neoclassical model. In most cases, the standard neoclassical model refers to the Walrasian model. In doing so, late neoclassical economists represent their various research agendas (e.g., new institutional economics, new information economics, game-theoretic approaches, behavioural economics) as genuine alternatives to the standard neoclassical way of thinking. According to the "break" narrative expounded by these scholars, while neoclassical economics lacked institutional content, late neoclassical approaches attend to institutional specificity; while neoclassical economics was monolithic and homogeneous, late neoclassical economics is pluralist and heterogeneous; while neoclassical economics was abstract and useless for real economies, late neoclassical models are easily applicable and useful for human beings; while neoclassical economics was static, late neoclassical approaches explain institutional change. And most importantly for the purposes of this dissertation, many of these scholars believe that late neoclassical approaches have occasioned a radical break from the "invisible hand scenario" that informed neoclassical humanism. For instance, Stiglitz argues that *the first fundamental theorem of the welfare*, which asserts the Pareto efficiency of every competitive economy,

> …is the modern rendition of Adam Smith's invisible hand conjecture [and it] provides the intellectual foundations of our belief in market economies. Like any

> theorem, its conclusions depend on the validity of the assumptions. A closer look at those assumptions, however, suggests that the theorem is of limited relevance to modern industrial economies. (Stiglitz, 1994: 28)

Similarly, in a recent lecture, economic historian Douglass North, a prominent figure of new institutional economics, announces that it is necessary to abandon the idea that price mechanism on its own can reconcile the uncoordinated actions of economic agents:

> We should begin by recognizing that there is no such thing as *laissez-faire*. Milton Friedman is a great man but we should realize that any society, economy or polity is structured and the structure is *a person-made* function of the way in which we order the society. The structure is a complex mixture of rules, norms, conventions and behavioral beliefs, all of which together form the way in which we operate and determine how successful we are in achieving our goals. (North, 2000: 7; emphasis added)[79]

According to North's understanding, "we" have common goals (e.g. economic growth, efficiency) and there are various (in the final analysis, "person-made") institutions, means and mechanisms, including the price mechanism, that mediate the uncoordinated actions of independent economic agents for "achieving our goals." "The most important" task of a new institutional economist is "to understand the process of economic change so that we can improve the performance of economies" (North, 2000: 9). In other words, for North, the difference between *laissez faire* economics and new institutional economics is not so much in the question that they ask (i.e., What are the conditions of existence of a harmonious socio-economic order that would best accommodate the needs and interest of rational subjects?) but rather in *how* they *pose* the question and *how* they *answer* it.

---

[79] Note that North is very careful in specifying that the ontological nature of the social, economic, or political structure is "person-made." This is because North, like all other late neoclassical economists, subscribes to the fiction of methodological individualism—the idea that it is possible to sustain a thoroughly individualist account of all social phenomena.

Despite their differences, these late neoclassical figures are unified in finding a *discontinuity* between what they are doing and what neoclassical economists were doing up to the late 1960s and the early 1970s. Without doubt, there are differences between neoclassical economics and the various late neoclassical approaches. Moreover, there are important differences among the late neoclassical approaches. But as much as there are discontinuities between the mainstream microeconomics of today and the mainstream microeconomics of yesterday, there are both *historico-genealogical* and *philosophico-theoretical* continuities. The important task is to try to study and understand both the discontinuities and the continuities.

To begin with, as I have already argued in Chapter 2, contrary to the representations of the proponents of the discontinuity narrative, neoclassicism has never been monolithic or unified. In fact, an important condition of possibility of its disciplinary hegemony was its internal heterogeneity (see also, Mirowski and Hands, 1998). Second, the late neoclassical approaches emerged both from *within* the neoclassical tradition, in response to the perceived crisis of the Walrasian microeconomics research agenda, and from *without* the neoclassical tradition as the latter began to enter into concept trading with the theoretical humanist strands of the neighboring disciplines (see section 3.2 above). In this sense, neither a "clear break" narrative nor a reductionist "there is nothing new here" narrative is useful. What is necessary is to understand the overdetermination of neoclassical concepts as the mainstream economics goes through its changes and to assess whether new and borrowed concepts and methodologies reinforce or subvert the core presuppositions of the tradition.

Third, and most importantly, while it is indeed true that many late neoclassical approaches are not subscribing to the invisible hand scenario, this does not mean that late neoclassical economics breaks from the theoretical problematic of neoclassical humanism. In fact, there have always been market-skeptic neoclassical tendencies. In Chapter 2, I discussed the case for liberal- or socialist-leaning neoclassical economists who had serious reservations about what competitive markets can do. Moreover, the rejection of the invisible hand scenario does not mean giving up the possibility of the harmonious reconciliation of the rationally and autonomously defined interests of human subjects. For both neoclassical and late neoclassical economists, the so-called "invisible hand" of the market forces has always been just one of the numerous potential ways of reconciling the autonomously determined rational choices of human subjects.

For instance, Bowles and Gintis, who reject the invisible hand scenario, are committed to the policy objective of "getting the rules right". After informing the reader that "most modern economists see both market failures and state failures as common rather than exceptional" (2000: 1425), they claim that "markets and states are now seen not as *competing* but as *complementary* institutions in the quest to 'get the rules right,' and many formulations see a broader range of institutions of economic governance as essential in this task, including small-scale communities—neighborhoods, nongovernmental associations, and the like—as well as families" (2000: 1425-6). For Bowles and Gintis, "getting the rules right" means the design and the implementation of that appropriate institution that would "improve allocative efficiency" (2000: 1427). Stiglitz is also committed to the idea of "getting the rules right":

> [In the absence of] formal models of the market process, it is not possible to assess claims concerning the efficiency of that process, and second (and relatedly), in the absence of such modeling, it is not possible to address the central issues of concern here, the mix and design of public and private activities, including alternative forms of regulations (alternative "rules of the game" that the government might establish) and the advantages of alternative policies toward decentralization-centralization. (Stiglitz, 1994: 25)

The utopia of harmonious social reconciliation of individual interests is still articulated in key "normative" concepts of late neoclassical economics such as "economic growth," "the performance of the economy," "the efficiency of institutions," "Nash equilibrium," "evolutionary stability," and so on. Even when the objects of inquiry are "inefficiencies," "path dependencies," "limitations of rationality in strategic interactions," "market failures," "government failures," and so on, in the backdrop there is still the ideal of social harmony that informs, motivates, and drives the late neoclassical research.[80]

3. 4. Conclusion

In this chapter, I proposed three thesis pertaining to contemporary mainstream economics. I argued that the contemporary mainstream economics is characterized by both *unity* and *dispersion*: I argued that the contemporary mainstream economics is an articulated discursive formation consisting of a number of research programs and schools of thought that, while displaying a thematic, methodological and political diversity, continues to share the theoretical humanist problematic of the reconciliation of individual and collective rationality. In this sense, I argued that, contrary to the claims of late neoclassical economists quoted above, despite the fact that each contemporary approach defines its research program as a *response* to the purported

[80] Moreover, the scenario of "invisible hand" still continues to have a legitimate place within the late neoclassical conversation.

crisis of Walrasian neoclassicism, the contemporary mainstream has failed to occasion a substantial break with the post-war neoclassicism and should therefore be referred to as late neoclassical economics.

In the following three chapters, I aim to substantiate the three theses that I have simply asserted in this chapter: the representation of the late neoclassical condition as one characterized by *dispersion and unity*, the claim that late neoclassical approaches display *continuity* with the neoclassical tradition, and the reading of late neoclassical economics as a response to a purported crisis of Walrasian neoclassicism. In order to accomplish this task, I need to demonstrate that these late neoclassical approaches reproduce, reformulate, repeat, revise and return to the theoretical problematic of neoclassical humanism—even when they seem to be diverging from it.

Recall the invisible hand theorem, the most privileged version of the theoretical problematic of reconciling the individual and the aggregate rationality: Competitive markets, combined with the institution of private property, if they are let to function on their own, are supposed to reconcile the interests of selfish, autonomous and rational individuals. Taking this scenario as my point of departure, the following three chapters will trace the trajectory of the three components of the "scenario": the concept of markets and the role of non-market institutions, the concept of selfish, autonomous and rational human subject, and the idea of equilibrium as the harmonious reconciliation of diverse interests.

Chapter 4 looks at the growing late neoclassical literature on *market failures* and *economic institutions* and asks whether or not the late neoclassical efforts in these areas represent a break with the theoretical problematic of neoclassical humanism. Focusing on the

adjacent literatures on *transaction costs* and *information imperfection*, the two trademark late neoclassical themes that are referred to in explaining market failures, the chapter argues that these concepts extend, rather than delimit, the scope of the commodity space. The extension of the logic of commodity exchange (even to non-market social phenoma) is premised upon the re-activation of the neoclassical humanist presupposition pertaining to the human subject, namely the assumption of *opportunism* (self-interested non-satiation). In short, the late neoclassical approaches, not unlike the neoclassical tradition, view the world from the perspective of the sphere of exchange. The chapter illustrates this point with a critical evaluation of the late neoclassical theories of the firm and the labor contract and demonstrates how late neoclassical economics, contrary to the claims of its proponents, continues to treat the sphere of production and the firm (the quintessential non-market institution), just like neoclassical economics did, as yet another (albeit imperfect) exchange relation.

Chapter 5 focuses on the treatment of the concept of human subject in late neoclassical economics and offers a critical evaluation of the accentuated pre-occupation of the late neoclassical approaches with the various dimensions of the assumption of rationality. On the one hand, there is the question of the proliferation of the motivational orientations (selfishness, altruism, reciprocity, envy, etc.). While some segments of the literature asks if there is indeed a motivational diversity, others who are convinced of the existence of a diversity focuses on understanding and explaining the nature of this diversity. (Does a human subject freely choose among the different motivational orientations or a motivational orientation is assigned to us by an evolutionary mechanism?) On the other hand, there is a growing dissatisfaction with the "unrealistic" assumptions made in standard neoclassical models regarding

the cognitive capacities of human subjects. This dissatisfaction has led to the development of economic models based on agents with limited cognitive capacities (e.g., bounded rationality). The chapter demonstrates that the late neoclassical turn towards a "richer" and more "subtle" concept of human subject that incorporates bounded rationality and self-reflexivity constitutes not only a rehabilitation of the theoretical humanist project of the early neoclassical economics but also a response to the impoverished concept of human subject that was expounded by the post-war neoclassicism.

Finally, Chapter 6 focuses on the concepts of *equilibrium*, *efficiency*, and *institutions* in the game theoretic corridors of the late neoclassical condition. The chapter traces the trajectory of a transition from the concept of Nash equilibrium associated with classical game theory to the concept of evolutionary stability associated with the evolutionary game theory. In doing so, it differentiates between the left-liberal, pro-market, and conservative variants of the paradigmatic late neoclassical idea of conceptualizing "institutions" as "solution concepts" for games with multiple equilibria[81] or for games with Pareto inferior equilibrium outcomes. The chapter demonstrates how these concepts and their various refinements are developed for revitalizing, rather than abandoning, the concept of harmonious reconciliation of the interests of autonomous and rational actors.

---

[81] In game theoretic situations where there are multiple Nash equilibria, institutions are invoked to help coordinate the strategies of the agents. The agents, with the aid of institutions that facilitate communication between them or that serve as "focal points," can coordinate their actions and gravitate to the same equilibrium. This is, of course, highly functionalist theory of institutions according to which institutions exist to solve games with multiple Nash equilibria. More on this in Chapter 6.

Organization of the literature around these three themes renders visible the continuity between the neoclassical tradition and the multitude of approaches of the late neoclassical condition. If one were to study each late neoclassical approach in isolation, it would have become difficult to recognize the relation of each approach to the broader neoclassical problematic. In this manner, however, it becomes possible to demonstrate how seemingly different approaches are aiming to tackle a particular aspect of the neoclassical problematic (e.g., the definition of the commodity space, the theories of the firm, the aspects of rational choice, the idea of equilibrium) with the conceptual tools inherited from the neoclassical tradition (e.g., opportunity cost, arbitrage behavior, labor as disutility, choice as a reflection of welfare, natural selection metaphors to explain functioning of market forces).

CHAPTER 4

MARKET FAILURES AND ECONOMIC INSTITUTIONS IN LATE NEOCLASSICAL ECONOMICS

4. Introduction

Neoclassical economics views the economy from the perspective of the sphere of exchange, as a nexus of mutually beneficial exchange relations, and whenever it articulates a theory of production it does so from the perspective of exchange. In fact, the inability of neoclassical economics to theorize the production process has been a recurrent critique of the tradition (i.e., the "black box" critique of the neoclassical theory of the firm). A number of late neoclassical approaches discussed in this chapter claims to have addressed this criticism by theorizing firms, as well as other non-exchange institutions of "command" (non-choice), as social devices that "supplement" *or* "supplant" markets when the latter *fail* to function the way predicted by the standard neoclassical models.

In this chapter, my aim is to offer an assessment of the late neoclassical debates on *market failures* and *economic institutions* (in particular, the institution of the firm as a site of production) in light of the three theses on late neoclassical economics proposed in Chapter 3: the characterization of the late neoclassical condition as one of dispersion and unity, the continuity of late neoclassical economics with neoclassical economics, and the status of late neoclassical economics as a response to a perceived crisis of Walrasian neoclassicism. Accordingly, the three questions that I answer in this

particular chapter are as follows: To what extent do the late neoclassical debates on market failures and economic institutions exhibit *unity and dispersion*? To what extent do the late neoclassical treatments of the production sphere represent a *break* from *the exchange perspective* that defines the neoclassical tradition? The latter question pertains to the objective of this dissertation because the exchange perspective, with its underlying ontological presuppositions pertaining to the rational and autonomous agents and the harmonious reconciliation of their diverse interests in the contractual exchange, is yet another name for the constitutive theoretical problematic of neoclassical humanism–so, late neoclassical economics failure to break with the exchange perspective signals its *continuity* with the neoclassical tradition. And finally, to what extent does the late neoclassical turn towards theorizing market failures and economic institutions represent a *response* to the purported crisis of the Walrasian dominance of the post-war period?

The structure of the chapter is as follows. Next section offers a historical genealogy of the neoclassical tradition as a tradition that views the economy from the perspective of the sphere of exchange. The remainder of the chapter is divided into two main sections. Focusing on the sphere of exchange, section 4.2 offers a discussion of the two alternative late neoclassical ways to theorize market failures: the Coasean and the post-Walrasian approaches. As outlined above, the concept of market failures is critical for late neoclassical economics for it opens up a locus for the insertion of non-market institutions within the market-centric edifice of neoclassical economics. The discussion will highlight the differences as well as the similarities between these two approaches. With section 4.3, the chapter moves from the sphere of exchange to the sphere of production and offers a discussion of the differences and similarities between

the ways in which these two late neoclassical approaches make sense of the production process and theorize the firm (the quintessential non-market institution) and asks whether they have succeeded in moving beyond the exchange perspective that has structured the constitutive theoretical problematic of neoclassical humanism for so long.

4. 1. The exchange perspective in the history of economics

Maurice Dobb (1945) once noted that the line that divides the discipline of economics into two different camps is the one that separates the spheres of exchange and production. According to Dobb, one either speaks from the perspective of the sphere of exchange and subscribes to a subjective (utility) theory of value or from the perspective of the sphere of production and subscribes to an objective (labor) theory of value. The realist epistemology that underpins the distinction between the "objective" and the "subjective" theories of value notwithstanding, Dobb's distinction has a remarkable validity in delineating the contours of a central theoretical debate that gave and continues to give shape to the history of economic thought since Adam Smith. Indeed, even Smith's *The Wealth of Nations* articulated two distinct, and contradictory, perspectives on the problem of value. On the one hand, Smith formulated a perspective that put the sphere of production at the forefront ("Labour was the first price, the original purchase-money that was paid for all things." (Smith, 1776/1991: 36)), and, through his labor theory of value, articulated a discourse on social classes and class conflict (Hunt, 2002: 41-65). On the other hand, in the pages of the same book, Smith proceeded to formulate a perspective that centered on the sphere of exchange and, in stark contradiction with his discourse on social classes, that

viewed the society as being composed of individuals (and not of collectivities such as social classes) who are busily exchanging commodities with one another.[82]

In late classical political economy, this split in Smith transformed into a more accentuated disciplinary split embodied, on the one hand, in the writings of David Ricardo and the subsequent Ricardian socialists (e.g., William Thompson, Thomas Hodgskin), who teased out the political and ethical implications of the labor theory of value, and, on the other hand, in the writings of Jean-Baptiste Say and Nassau Senior, who gave a Benthamite utilitarian turn to Smith's "adding-up" theory of value. According to Dobb, Marx's critique of classical political economy and the subsequent marginalist counter-revolution in the late nineteenth century (Jevons, Walras, Menger) is yet another manifestation of this divide that fractures the discipline of economics. Similarly, we can distinguish the production perspective articulated in the contemporary Sraffian and Kaleckian mark-up pricing theories of value from the exchange perspective found in the contemporary choice theoretic approaches to value (as embodied in, for instance, Debreu's *Theory of Value*, discussed in Chapter 2) where production is conceptualized as a series of exchanges (i.e., the labor contract, the buying and selling of capital, and so forth). Following Dobb's framework, therefore, it is possible to categorize post-war neoclassical economics as a tendency that views the

---

[82] For Smith, with the "appropriation of land" and the "accumulation of wealth," it became impossible to explain the value of a commodity only by referring to the amount of labor that goes into producing it. Accordingly, in Smith's second theory of value (the so-called "adding-up" theory of value), the value of a commodity is defined as the price at which labor, capital, and land are all receiving their "natural prices" as determined by the competitive dynamics of the market forces.

world from the perspective of the sphere of exchange, and whenever it articulates a theory of production, it does so from this perspective.[83]

In this sense, it may be useful to read the so-called "radical political economy" critique of post-war neoclassical economics and the late neoclassical response to this critique through the interpretative grid provided by Dobb. In the late 1970s and throughout the 1980s, a growing number of "radical political economists" began to question the absence, in neoclassical economics, of a theory of the production process, of a concept of "the internal social organization of the firm" (Bowles, 1985: 16).[84] In a particular sense, the late neoclassical developments in the field constitute a response to this critique: The late neoclassical approaches surveyed in this chapter claim to have addressed this criticism by theorizing firms as well as other non-exchange institutions of "command" (non-choice) as social devices that "supplement" *or* "supplant" markets when the latter fail to function the way the standard neoclassical models predict.

In this chapter, my aim is to assess the validity of the late neoclassical claim and to ask whether or not the late neoclassical treatments of production represent a break from the exchange perspective of the neoclassical tradition. This question pertains to the

---

[83] Nevertheless, this distinction is helpful only up to a point, because a third possibility (among numerous others) that escapes Dobb's classification—perhaps due to his realist epistemology—is a Marxian, and emphatically non-Ricardian, value theory which theorizes the spheres of production and exchange as being mutually constitutive of each other and articulates a view that takes the question of the social organization of the production, appropriation and distribution of surplus labor as its entry point to social theory (Wolff, Callari, and Roberts, 1982; 1984; Roberts, 1996; Zizek, 2002; Kristjanson-Gural, 2003).

[84] Among these radical political economists and sociologists associated with the journal *Review of Radical Political Economics*, it is possible to mention Stephen Marglin (1974; 1975), Richard Edwards (1979), and Michael Burawoy (1982; 1985), and Samuel Bowles (1985).

objective of this dissertation because the concept of "the exchange perspective" that Dobb articulates is yet another name for the theoretical problematic of neoclassical humanism. To ask whether or not late neoclassical economics continues to be an exchange theory (despite its claims to the contrary) is to ask whether or not late neoclassical economics continues to remain within the theoretical problematic of neoclassical humanism. Or, to put it yet in another way, through a reading the late neoclassical theoretical debates on market failures and economic institutions, I aim to assess to the extent to which the late neoclassical analyses of market failures (i.e., the late neoclassical modifications to the concept of commodity) and of economic institutions (i.e., new theories of the firm and other non-market institutions) occasion a break with the neoclassical problematic and its theoretical humanist presuppositions.

In order to establish the humanism of the exchange perspective, it will be helpful to recall the two foundational presuppositions of theoretical humanism as outlined in Chapter 1. On the one hand, theoretical humanism presupposes that the human subject is a centered, rational, and autonomous self-consciousness. On the other hand, it presupposes the existence of a social order that would enable the harmonious reconciliation of the diverse interests/demands of these rational agents at the level of society. Within the discipline of economics, and in particular within the neoclassical tradition, the (nebulous and ever changing) concepts of rational choice and social equilibrium correspond, respectively, to these two presuppositions. The neoclassical conceptualization of market exchange (which can be traced all the way back to Jevons' early formulation of neoclassical marginalism) as an idealized process constitutes a paradigmatic example of the neoclassical version of theoretical humanism: Two centered, rational, autonomous and opportunistically motivated

agents enter into an exchange which is destined to be mutually beneficial. The exchange must be mutually beneficial because, at the end of the transaction, the interests of both parties, who are assumed to be fully conscious of their true interests and capable of rationally seeking to improve their own lot exploiting all available opportunities (i.e. the assumption of *opportunism*), will be reconciled in such a manner that neither agent would desire to change their positions. In this sense, the two basic presuppositions (pertaining to the rational and autonomous subjects and the harmonious reconciliation of diverse interests) of neoclassical theoretical humanism are indeed embodied in a distilled form in this very idealized concept of exchange. In short, theoretical humanism, in its neoclassical mode, envisions the economy from the perspective of an idealized concept of exchange, as a nexus of exchange relations materialized in contracts.

In order to see how non-market institutions are inserted into this contractual ontology of the social in late neoclassical economics, let us recall the three basic assumptions of the standard neoclassical model as it was canonized in the mid-century Arrow-Debreu general equilibrium model: economic agents are assumed to be "unboundedly" rational, contracts are fully specified and effortlessly enforced, and a unique and stable equilibrium is assumed to exist. According to a late neoclassical consensus, when these idealized conditions of market exchange are not met (when contracts are incomplete, when the agent rationality is bounded, or when there are multiple equilibria), it becomes necessary to supplement or even supplant markets with non-market social institutions (governments, firms, self-help organizations, norms, conventions, etc.) in order to reconcile the choices of individual agents and to

establish a form of social order (taking the form of an equilibrium concept).[85] In this chapter, I focus my attention on the late neoclassical approaches that model those cases where it is too costly to write and enforce comprehensive contracts that would account for all the possible contingencies that could arise from the opportunistic behaviour of the contracting agents. In these cases, late neoclassical economists claim that to the extent that *firms* (qua hierarchies) economize on the transaction costs of writing and enforcing contracts, they supplant markets by internalizing what could otherwise be handled through a nexus of contractual exchange.[86] Therefore, within the neoclassical tradition, in order to be able to open up the black box of the sphere of production, it is first necessary to open up room within the sphere of exchange. In the next section, we will see how late neoclassical economists have done this in the 1980s.

---

[85] The introduction of non-market social institutions casts a dark shadow over the sacrosanct position that the idea of individual choice enjoys within the theoretical humanist ontology of the neoclassical tradition; to the extent that non-market institutions are impositions that individuals are compelled to adopt but not deliberately choose, they entail a delimitation of choice.

[86] Relaxation of the other two idealized conditions (i.e., "unbounded rationality" and "unique equilibrium") also makes it possible to insert "institutions" into the ontology of contracts. Consider, for instance, the status of "norms" and "habits" qua social institutions/devices in late neoclassical economics. Most late neoclassical economists would agree with the argument that human subjects are boundedly rational and would concede that human subjects need "norms" and "habits" to help them solve complex economic problems with which they are confronted in exchanging commodities. Or, consider situations where there is no unique equilibrium. Faced with multiple equilibria with no clear reason to choose between possible equilibrium outcomes, rational agents find themselves dependent upon the so-called "focal points" and "conventions" which enable them to coordinate their independent choices without communicating. In this case, non-market social institutions (e.g., conventions, government directives) are treated, in a functionalist manner, as social devices that coordinate the selection of an equilibrium among multiple equally-plausible ones.

4. 2. The sphere of exchange: Creating room for institutions

Commodity space is, by definition, the very object of economics, if the latter is understood as the analysis of price formation. In other words, the scope of economic analysis for neoclassical as well as late neoclassical economics is coterminous with the scope of commodity space. Accordingly, a precise definition of commodity space is a necessary condition of economic analysis for the neoclassical tradition.

In the Arrow-Debreu (A-D) economy, for instance, the concept of commodity holds a central place. An A-D commodity is completely specified according to its physical, temporal, and spatial attributes, and, under uncertainty, according to the state of nature. There are two different kinds of late neoclassical criticism of this theoretical construct: the *new institutionalist* "transaction costs" critique that descends from Ronald Coase's singular work in the British Marshallian tradition, and the "information failures" critique developed mainly by those economists who were trained within the tradition of general equilibrium theory (K. Arrow, J. Stiglitz, etc.). In order to highlight the genealogical and conceptual continuities, I refer to the latter critique as the *post-Walrasian* tradition. It is important to note from the outset that these two skeins are not necessarily compatible with each other. In fact, as I discuss, there is a significant degree of incompatibility between the concepts of "transaction costs" and "information failures" and disagreement between the two camps. Section 4.2.1. introduces these two tendencies and their respective concepts of failure. Section 4.2.2. offers a discussion of the scope and the limits of the theoretical disagreement between the new institutionalist "transaction costs" and the post-Walrasian "information failures" approaches.

4. 2. 1. Two paths to market failures: Transaction costs and information failures

4. 2. 1. 1. The new institutionalist concept of market failures: transaction costs

Both lines of criticism unpack the A-D concept of the commodity by focusing on the contract that specifies the nature of the commodity. The central thrust of the Marshallian-Coasean criticism was to remind economists that the exchange process itself is not without costs, that it is costly to write and enforce contracts, and that the maintenance of (market or non-market) institutions has costs.[87] The genealogy of this criticism can be traced back as early as 1937 to the writings of Ronald Coase on the theory of the firm, but also to his well-known critique of Pigouvian, pro-interventionist welfare economics (Coase, 1960). In the latter essay, Coase provided a verbal *reinstatement* of the first and the second fundamental theorems of welfare economics *in terms of legal rights and transaction costs*. To remind the reader, the first fundamental theorem of welfare economics (FFTW) states that under the A-D assumptions (discussed in Chapter 2) pertaining to commodity space, production, and consumption, any competitive equilibrium is Pareto optimal, and the second fundamental theorem of welfare economics (SFTW) states that there is an equilibrium price vector that corresponds to each Pareto optimal allocation. According to second

---

[87] In particular, the idea of *transaction costs* was used to explain the existence of non-market institutions (e.g., firms): if the cost of conducting a transaction in the form of a market exchange exceeds the cost of conducting it through the form of a non-market institution, then there is an "economic" reason for the existence of the latter. See subsection 3. 4. 2. below. Coase mentions the following as some of the costs of using the price mechanism: the cost of "discovering what the relevant prices are" (search cost) and "the costs of negotiating and concluding a separate contract for each exchange transaction" (1937: 390-1). Writing half a century later, Steven Cheung offers a more comprehensive list: "[Transaction costs] include not only those of contracting and negotiating, but also those of measuring and policing property rights, of engaging in politics for power, of monitoring performances, and of organizing activities" (1992: 51).

theorem, because there is an equilibrium price vector that corresponds to each of them, it is possible to reach any of the many possible Pareto optimal allocations by rearranging the initial distribution of wealth and then re-enacting the *auction process* until the corresponding equilibrium price vector is reached. The so-called "Coase theorem" states, analogously but in terms of legal rights and transaction costs, that as long as we let the markets run their course, traders will arrive at an efficient outcome (FFTW) and, from the perspective of Pareto efficiency, the initial allocation of legal entitlements does not matter (SFTW) as long as they can be traded in a perfectly competitive market (where there are no transaction costs, no market failures, etc.).[88] In Coase's view, markets run their course when the affected parties (those who hold the legal titles and those who bear the social costs (externalities)) negotiate over side-payments that would make up for externalities (the Pigouvian social costs).[89]

The first policy conclusion of the "Coase theorem" would be to delineate legal entitlements and private property rights as clearly as possible and to enforce private contracts. Many have read Coase's essay as the basis of a pro-market position that promotes the ever expansion of private property rights. Yet, other, and perhaps more subtle, readings of "The Problem of Social Cost" found a second policy conclusion: To compare the different costs and benefits involved when there is a problem of social

---

[88] In fact, as many others have noted, there is no clear statement of a "Coase theorem" in Coase's 1960 essay. Steven Medema (1994: 63), among others, notes that the first person to use the term "Coase theorem" is not Coase, but the eminent Chicago economist, George Stigler (1965: 113).

[89] The reader may note the hints of the British Jevonsian (or Edgeworthian) understanding of the market as an exchange of commodities between two contracting agents.

costs (i.e., externalities) one must resort to a different institutional mechanism (i.e., markets, firms, and governments) (Coase, 1960: 15-19; McCloskey, 1998: 240).[90]

This Marshallian-Coasean tendency has two well-recognized appellations: the *transactions costs approach* and *new institutional economics*. Henceforth, I will use the latter, broader, appellation to refer to both. Among the economists within this tendency are George Stigler, who applied the concept of transaction costs to the study of the phenomena of price dispersion and search costs (1961); Harold Demsetz (1967), who crafted a theory of property rights out of the transaction-cost theory and the "Coase" theorem; Oliver Williamson (1975; 1984; 1985), who applied the concept of transaction costs to explain the raison d'étre of "hierarchies" (i.e., non-market institutions); Steven Cheung (1982), who wrote extensively on comparative economic systems; and Douglass North (1990; 2005), who emphasized transaction costs in the historical study of institutional change and economic growth.[91]

4. 2. 1. 2. The post-Walrasian (new information economics) concept of market failures: asymmetric information

Those who were trained within the Walrasian tradition (e.g., Kenneth Arrow, Joseph Stiglitz, Michael Rothschild, Peter Diamond) levied a different criticism of the A-D notion of the commodity. They argued that the central problem with contracts is not

---

[90] One should resist reading these two policy conclusions (the "privatization" approach versus the "cost-benefit analysis" approach) to be in opposition with each other. More important is to recognize that these two policy conclusions are yet another manifestation of the way in which the two skeins of the neoclassical tradition are locked into an endless struggle with each other. In fact, the latter, "cost-benefit analysis" approach is itself a theoretical "public sphere" within which pro-market and pro-government intervention positions can offer policies and debate their feasibility in terms of costs and benefits. See also (Wolff, 2006).

[91] See also the various contributions to a recent volume edited by Claude Ménard (2000).

simply that it is costly to write and enforce them, and, so, they highlighted the informational requirements of any given contractual engagement. Beyond the simple cost of acquiring information, because of the absence of future markets and the existence of information asymmetries, there are a number of widespread and generic cases of information failures (e.g., adverse selection, moral hazard).[92]

This late neoclassical tendency is usually known, due to its emphasis on information failures, as *new information economics*. This name recalls the institutional and disciplinary context of the emergence of this strand of research. It is now established that these Walrasian neoclassicals, on their way to becoming Post-Walrasians, were interpellated by the mandate of the US Military and its affiliated research think tanks such as the RAND Corporation to explore the various aspects of C^3I [command, control, communications and information] (Mirowski, 2002). Walrasian economists were mostly affiliated with the Cowles Commission, and the latter was the portal through which the US Military financed economics research. But this institutional mandate was not the only reason that led these economists to develop their theories of incomplete information. On the one hand, there was the Hayekian challenge pertaining to the epistemic status of knowledge in the market process. On the other hand, there was the need to differentiate their understanding of information from the Stiglerian concept of information qua commodity (which will be discussed in detail in the next section). It was necessary for the Walrasian economists to tackle the question

---

[92] The problem of *adverse selection* results from the asymmetries of information among *contracting* agents (prior to the moment of exchange). When insurance companies cannot discriminate among high and low-risk groups they raise insurance rates across the board. This has the undesirable effect of driving low-risk groups out of the market, leaving the insurance companies with only high-risk groups—hence the problem of adverse selection. The problem of *moral hazard* results from the difficulty of monitoring the *contracted* agent.

of information and relax the perfect information assumption that undergirds the basic Walrasian model.[93] As a part of the broader tendency to develop partial equilibrium models of factor markets with asymmetric information, we can also mention *new Keynesian* macroeconomists, who use the concepts of adverse selection and moral hazard in order to provide "microfoundations" for certain Keynesian insights pertaining to non-clearing factor markets (e.g., unemployment, credit rationing).[94]

4. 2. 2. Two ways to address market failures: More markets or institutional design?

Therefore, in late neoclassical economics, there are two distinct ways in which the neoclassical concept of the commodity is complicated and the concept of market failure is articulated. On the one hand, there is the concept of *transaction costs* as

---

[93] As noted above, the first generation of émigré economists (e.g., Oskar Lange, Jacob Marschak, Leonid Hurwicz) who were affiliated with the Cowles Commission were engaged parties in the socialist calculation debate and they were implicated in Hayek's critique of the Walrasian assumptions pertaining to the epistemic status of knowledge. According to this critique, it was impossible for a Central Planning Board to gather the necessary information to calculate the equilibrium price because this information was in fact "tacit knowledge" that emerges during the competitive process and therefore cannot be revealed in the absence of actual competitive markets. Given that they were implicated in this critique, they may have felt the need to theorize "knowledge." Nonetheless, the epistemic status of Hayek's concept of (tacit) knowledge was radically different from the epistemic status of the concept of "information" (Caldwell, 2004). This, however, was not a concern for the Walrasian economists for they were more concerned by the economic policy implications (for it implied that "there are not enough markets") of Hayek's critique than its epistemological implications (Adaman and Devine, 1996). Even though Hayek's concept of tacit knowledge was different from Stigler's concept of information qua commodity, since their policy conclusions were the same, they were indistinguishable in the eyes of post-Walrasian information economists.

[94] Even though the absence of future markets was not an ontological absence as in the Post Keynesian notion of "fundamental uncertainty" (Davidson, 1991), but rather an absence due to the prohibitive costs of gathering information, new information economists, perhaps because of their underlying normative commitment to corrective government intervention, identified themselves, on certain occasions, as *new Keynesian economists* (see also, Rotheim, 1998).

elaborated by the Marshallian new institutional economists, such as Coase, Stigler, Cheung, and Williamson. On the other hand, there is the concept of *asymmetric information* as articulated by the post-Walrasian new information economists, such as Arrow, Stiglitz, and Shapiro. Since these two tendencies articulate the concept of market failure in different ways, they also articulate different policy prescriptions to remedy it. In this section, I first delineate the differences and points of disagreements between these two approaches, and then encircle the contours of the theoretical problematic that they share with each other.

It is possible to demonstrate the points of disagreements between the two tendencies in stark terms if we begin the discussion with the way a Marshallian economist (George J. Stigler) treats the question of information. As argued above, an important policy implication of the "Coase theorem" is to clearly assign property rights and then let title-owners work out efficient economic arrangements. Similarly, if it is costly to gather information, the solution, according to the new institutional economics, is to turn information into a commodity by introducing a new market for information! This theoretical maneuver constitutes the gist of Stigler's (1961) treatment of information.

In his well-known essay, Stigler (1961) investigates how the phenomenon of price dispersion (due to imperfect availability of information, "ignorance") will lead consumers to canvass various sellers. Alas, this "search" activity is not without its costs. Consequently, a rational consumer will continue to search only until the marginal cost of the activity of search equals its marginal benefit. Indeed, Stigler ingeniously introduces an implicit/shadow market for "information," where the price of information regarding the whereabouts of the cheaper commodity is the marginal

cost of search. As long as the benefit from gathering information continues to compensate for the increasing marginal cost of search, the search would continue. In other words, if a consumer is purchasing a commodity at a relatively high price, this does not mean that she is irrational. Rather, it simply means that in maximizing her utility function, the consumer is incorporating the costs of information. Moreover, advertisement and "firms which specialize in collecting and selling information" (1961: 220) are nothing but two modalities in which shadow markets materialize as concrete institutions. In this treatment of information qua commodity, the absence of information does not undermine the smooth functioning of the markets; if anything, it leads to the emergence of new commodities, new markets. Moreover, the problem of search may not be a problem at all. It may indeed be conceptualized as another mechanism through which competitive forces work: "the greater amounts of search will lead to a smaller dispersion of observed selling prices by reducing the number of purchasers who will pay high prices" (Stigler, 1961: 218). Those consumers, who either "value the gains of search more highly or have lower costs of search," will, by rendering concerns of reputation credible, reduce the price dispersion.[95]

Post-Walrasian new information economics, in contrast, is much less optimistic about the flexibility of markets to accommodate less than perfect availability of information. Taking the Arrow-Debreu model as its point of departure, this approach has insisted that information failures of the markets are not incidental, but endemic to the system (Stiglitz, 1994). In other words, for new information economics, the adverse effects of

---

[95] For a survey of the various criticisms of Stigler's search model, see Rothschild (1973). Peter A. Diamond (1971) argues that even when there are small search costs, the market equilibrium will result in monopoly price. For a discussion of the implications of Diamond's result for the role of competition under information problems, see Stiglitz (1994: 121-2).

information failures cannot "be kept within tolerable even comfortable bounds" without supplementing markets either with "well-designed" government intervention or with non-market organizational forms. There are two main reasons for this. First and foremost, to solve information failures with markets for information implicitly assumes that these markets themselves are immune to information failures. Second, when there is less than perfect information, new information economists argue, Coasean negotiations and side payment arrangements between title-owners may not result in efficient economic outcomes, as Coaseans seem to claim.

> …indeed mutually beneficial deals simply may not occur, as one party tries to convince the other the value of the relationship to him is small, in an attempt to appropriate a larger fraction of the surplus that accrues from the relationship. (Stiglitz, 1994: 12)

The difference, therefore, between these two skeins is indeed a conceptual one, and the difference *does* have policy implications. Their difference arises from the particular way in which they formulate what they mean by "market failure" and, accordingly, while for the Coasean new institutional economists like Stigler, Cheung, Demsetz, and Becker, "there are never enough markets," for the post-Walrasian new information economists like Arrow, Akerlof, and Stiglitz, "the markets are never enough." Moreover, it is also necessary to distinguish the post-Walrasian position from the earlier market-socialist/interventionist Walrasian position. Subscribing to the generally agreed upon late neoclassical thesis that the failures that haunt the markets would also apply to bureaucracies, new information economists are essentially concerned with "the *mix* and *design* of public and private activities, including alternative forms of regulations (alternative 'rules of the game' that the government might establish) and the advantages of alternative policies toward decentralization-centralization" (Stiglitz, 1994: 25).

Nonetheless, these conceptual differences (transaction costs versus information failures) and divergent policy positions (pro-market versus market-skeptic) should not prevent us from identifying their shared theoretical problematic. In both sets of criticisms, we see a concerted effort to provide an explanation as to why an equilibrium outcome may not be Pareto efficient. In both cases, a concept of perfect competition (respectively, the "Coase theorem" and the first fundamental theorem of the welfare) embodies the state of a Pareto efficient equilibrium outcome.

Moreover, both set of criticisms, while relaxing, revising, and reformulating the assumptions of the perfect competition model, remain committed to the theoretical humanist presuppositions of the neoclassical tradition. First, both set of criticisms are still committed to the theoretical humanist idea(l) that there can be an economic outcome which would be efficient for everyone in a given social formation—if only contracts could be fully specified and enforced. And second, in both cases, the failure to fully specify contracts arises from the "opportunistic" (i.e. selfish) nature of economic agents. Even though the term "opportunism" is articulated and deployed with a new found enthusiasm by late neoclassical economists of different stripes, it is nothing but the assumption of "non-satiation" released from the narrow confines of the Walrasian auction or the Jevonsian exchange and applied to all imaginable social activities (from voting to governing, from gifting to child rearing, from exchanging to contracting).

Let us take a closer look at this. As the new institutional economists would argue, there are costs involved in writing and enforcing well-delineated and extensive contracts precisely because the contracting agents are assumed to be opportunistic (i.e., non-satiating and rational) in a manner that they will be able to identify and be

compelled to exploit the existing grey areas in the contract in their favor.[96] Similarly, new information economists would claim that asymmetrically distributed information will cause problems for the writing and the enforcement of contracts because opportunistic economic agents will exploit their informational advantages in their favor and at the expense of their contractual partners.

To recapitulate, in these late neoclassical approaches, we do not only observe the presence of the model of perfect competitive markets as an ideal reference point, but we also observe the re-assertion of the opportunistic rational economic agent as a central figure. In other words, we observe a return to the central theoretical construct of neoclassical economics, to a notion of *homo economicus* without bounds, as the protagonist of both the Chicago-based, Marshallian transaction costs story and the post-Walrasian information asymmetry narrative. The theoretical disagreements pertaining to the nature of market failures and how to remedy them outlined above, therefore, should be understood as two positions that co-inhabit the same theoretical problematic: Given that the economy is populated by rational economic agents and given that it is impossible to fully specify the contract (either due to transaction costs or information asymmetries), how can we achieve an efficient equilibrium outcome at

---

[96] While this point is not explicitly articulated in Coase's early writings, it is clearly articulated in the more recent new institutionalist writing. For instance, Cheung is very explicit on this point: "That transaction costs arise is no doubt partly attributable to our ignorance or lack of information. This applies not only in searching and negotiating, but also in knowing about the goods we purchase and consume. Ignorance, however, is only one factor. Another is the universality of maximizing behavior. Economists have long supported the proposition that individual maximization benefits society because it brings gain for all. *Yet it is the same maximizing behavior when we steal, cheat, lie, shirk, or break promises*. To be sure, if all of us were perfectly honest, the costs of transactions would be far lower. But this would amount to saying that we do not really maximize, in which case all other costs (including other types of transaction costs) would be far higher and the economy would collapse" (Cheung, 1992: 52).

the social level? Regardless of the answers they give (more markets or institutional design), the two late neoclassical tendencies share the problem.

In this section, I have outlined the new institutionalist and post-Walrasian ways of relaxing the concept of contract through which the commodity is specified (respectively, through the concept of transaction costs and through the concept of information asymmetries). In the next section, I discuss the corresponding two ways in which the sphere of production is theorized within the conceptual space that is opened through a relaxation of the concept of contract. The objective of this discussion is to assess whether or not late neoclassical economics departs from the exchange perspective in its treatment of the sphere of production. In answering this question, I do not intend to obscure the internal heterogeneity of late neoclassical economics, for its unity is not simply weakened but rather strengthened by the extent to which its constitutive theoretical problematic accommodates different and opposing positions.

4. 3. The sphere of production: Opening the black box?

An important extension of the late neoclassical relaxation of the concept of commodity has been within the flourishing subfield of economics known as the theory of the firm. As noted earlier, a well-known criticism of the neoclassical tradition is that it lacked a theory of the firm, that the firm is treated as the proverbial "black box." In an influential essay that formulates the contours of a left-wing late neoclassical economics, Samuel Bowles claims as much:

> [In] the simple Walrasian model […] the production process is represented as a set of input-output relations selected from an array of feasible technologies by a process of cost minimization with respect to market-determined prices. The

> Walrasian model presents no analysis of *the internal social organization of the firm*. (Bowles, 1985: 16; emphasis added)

One of the most prominent accomplishments of late neoclassical economics, at least in the eyes of its practitioners, is the wide range of contributions it offers in this area. In this sense, an important reason why various late neoclassical economics can claim to be doing a new kind of economics that "takes institutions into account" is due to the fact that they (claim to) theorize, to paraphrase the title of Oliver Williamson's book, not only *markets* but also *hierarchies* such as firms. Indeed, Coase first formulated the concept of transaction costs in the context of his paper on the nature of the firm. Similarly, Arrow explored the broader implications of his own post-Walrasian work on information failures in 1974 in a monograph titled *The Limits of Organization* and intended his explorations to be a general theory of markets *and* organizations (e.g., the firm, the military, and the polity).

4. 3. 1. Two ways to open the black box: The Coasean and the post-Walrasian traditions

Once more, there are two skeins to the late neoclassical theories of the firm: the transaction cost/new institutional economics skein that descends from the Coasean tradition and, for lack of a better a term, the "efficiency-wage" skein that descends from the Walrasian tradition. While the former skein has the concept of transaction costs at its center, the latter has the concept of information failures (e.g., adverse selection and moral hazard). While there are some significant similarities and a good deal of room for conversation between the two skeins, there is one significant difference between the two: While the former aims to explain why firms exist, the latter aims to explain "the internal social organization of the firm" in the context of labor market equilibrium with unemployment (Akerlof, 1982; Shapiro and Stiglitz,

1984; Bowles, 1985). Let us now briefly discuss both skeins in order to establish for the reader why they both remain committed to the theoretical humanist presuppositions of neoclassical economics.

4. 3. 1. 1. The new institutional theories of the firm

The very idea of transaction costs was first elaborated by Coase in the context of his influential paper titled "The Nature of the Firm" (1937). In this paper, Coase argued that firms come into existence (as "islands of conscious power in this ocean of unconscious co-operation") when the costs of using the price mechanism (e.g., the discovery of the relevant prices, the costs of negotiating and concluding a separate contract for each exchange, and the risk and uncertainty of the short-term contracts) exceed the costs of organizing transactions within a firm, through long-term contracts. As noted in the previous section, the implicit assumption here is that contracting agents are ruthless opportunists and, given the opportunity to improve their own lot, they will default on the contract.

Armen Alchian and Harold Demsetz (1971) brought out what was implicit in Coase's incipient theory of the firm by incorporating considerations associated with metering and monitoring the performance of "cooperating inputs" in the context of "team production". According to Alchian and Demsetz, team production is production in which "several types of resources are used and the product is not a sum of separable outputs of each cooperating resource" (1971: 779). Nevertheless, since it is "costly to directly measure the marginal outputs of the cooperating inputs," and since individuals (i.e., input owners) are inherently selfish, and labor is a disutility, there are incentives to shirk. For Alchian and Demsetz, then, different types of firms (i.e., "forms of organizing team production") with their differential metering, monitoring

costs, and arrangements of who should be the residual claimant (the manager who specializes in the monitoring the performance of the members of the team or the members of the team themselves directly) are so many different answers to the following question: "How can the members of a team be rewarded and induced to work efficiently?"

The assumption of opportunism is prominently made by Oliver Williamson (1975; 1984; 1985) as well. For Williamson, in order to render the individual the agent of economic processes that s/he participates in, it is necessary to apply the assumption of opportunistic behaviour consistently throughout. In this sense, for new institutional economics, opportunistic behavior (defined as the desire to improve one's own lot) becomes synonymous with economic agency as such. However, in addition to the motivational assumption of opportunism, Williamson's transaction costs economics incorporates the concept of *bounded rationality* as its cognitive assumption. (More on the development of the concept of bounded rationally will be offered in Chapter 5.) Deploying this definitive insight of behavioral economics, namely, the idea that economic agents are "*intendedly* rational but only *limited* so" (Simon, 1961: xxiv), Williamson (1984: 198) asks the following question: "Given the limited competence, how do the parties organize so as to utilize their limited competence to best advantage?" In other words, Williamson understands the concept of bounded rationality as a form of constrained optimization. For new institutional economists, therefore, the firm as an economic institution is devised by human society to economize on transaction costs (which are, in part, caused by the opportunism of the contracting agents), to solve incentive problems arising from ubiquitous *opportunism*, and to make the best out of the limited competence of economic agents.

4. 3. 1. 2. The post-Walrasian (new information) theories of the firm

The main concern of the second, post-Walrasian, skein of late neoclassical theories of the firm, as noted above, is not to explain the existence of firms. Rather, the new information economics focuses primarily on the information problems that prevent factor markets (for labor and capital) from clearing and the consequences of this particular form of market failure (asymmetric information) on the internal social organization of the firm and the disciplinary mechanisms for the extraction "effort". [97] For instance, consider the case of labor market imperfections and the well-known scenario of the "efficiency wage" (for different versions of this argument see, Akerlof 1982; 1984; Shapiro and Stiglitz, 1984; Bowles, 1985; Bowles and Gintis, 1990).

Since it is impossible to write and enforce comprehensive labor contracts, since it is costly to monitor the performance of each and every worker, or more specifically, since it is difficult to differentiate among the varying performance levels of workers (*moral hazard*), in order to elicit the cooperation of the worker, capital pays an efficiency wage that is higher than the market clearing wage rate.[98] This rent makes sure that workers have something to lose. Moreover, the existence of employment

---

[97] There is another theoretical humanist presupposition that the late neoclassical theories of the firm inherit from the neoclassical tradition: the assumption that labor is a *disutility* for the economic agent. In neoclassical models, this assumption provides the legitimizing microfoundations for conservative labor market policies, for it pins the responsibility of unemployment to the individual agent: As long as there are no rigidities in labor markets, then unemployment is an effect of the labor supply decision made by the economic agent. In the late neoclassical models discussed in this paragraph, labor continues to be represented as a source of disutility. The key difference between post-Walrasian models of the firm and the neoclassical theory of the firm was the insertion of the idea of asymmetric information.

[98] This hypothetical notion of a market clearing wage rate (or the Walrasian wage rate) is that little thing that sticks out and re-marks the (ghostly) presence of the Walrasian Arrow-Debreu model with this late neoclassical model of the labor market.

rent means that there is an excess supply of labor. Since the higher the unemployment rate, the lower is the probability of an unemployed worker to find a new job, there are enough incentives for those who are employed to perform better so that they do not lose their job. Therefore, caught between the proverbial carrot of the employment rent and the proverbial stick of the cost of job loss (defined as a function of the rate of unemployment and the fall-back wage or the unemployment benefit), the worker's cooperation is elicited. And finally, since those who are bidding down the wage rate below the efficiency wage lack credibility (*adverse selection*), market forces fail to pull the wage rate to the market-clearing level.

4. 3. 2. Sameness and difference in the late neoclassical theories of the firm

The question, once more, is to see to what extent these late neoclassical innovations constitute a radical break from theoretical humanism in general and from the theoretical humanist presuppositions of neoclassical economics in particular. Or, to put it differently, do these late neoclassical theories of the sphere of production really break from the exchange perspective that has structured the neoclassical tradition since its origins in Adam Smith?

To begin with, the late neoclassical theories of the firm constitute a special case of the more general case of the late neoclassical theories of non-market institutions discussed in the previous section. In late neoclassical economics, institutions such as firms emerge as devices for reaping "the benefits of collective action" (Arrow, 1974: 34) when the price mechanism (market exchange) is comparatively more expensive to conduct due to *transaction costs* or when the price mechanism simply fails due to endemic *information problems*. Underlying these failures we find, once again, the

paradigmatic theoretical humanist presuppositions of the neoclassical tradition, namely, the opportunistic behavior of the economic agents and the teleological construct of efficient social outcomes (as embodied in firms qua institutions that provide efficient solutions to market failures). These theories reduce firms to a simple function: providing efficient solutions to market failures. In this particular sense, the late neoclassical theories of the sphere of production continue to understand and theorize production from the perspective of an idealized concept of exchange—as that which supplements the gaps within or offers solutions to the problems that arise throughout the contractual relations that are supposed to (under idealized conditions of perfect competition) fully determine the specifications of the commodity that is being exchanged. To put it differently, even though the markets may fail to deliver optimal social outcomes (given market failures), there exists a set of non-market institutions to make up for the failure of markets to deliver optimal social outcomes. In this sense, the firm qua non-market institution is theorized as an answer to the problems that pertain to the idealized notion of market exchange that informed the neoclassical model of perfect competition as embodied in the A-D model.

Nonetheless, it is important to make note of the existence of a politically overdetermined theoretical conflict between the neo-Marshallian new institutional and the post-Walrasian new information economists that manifests itself in two important areas pertaining to the question of efficiency, or more precisely, the *content* of efficiency. Before proceeding to the content of the disagreement, however, it is necessary to establish the status of the disagreement as one that is embedded within the context of a shared late neoclassical *belief* in a universal notion of efficiency as an indispensable attribute that renders equilibrium outcomes socially desirable.

Richard Wolff (2006), in a brief yet far-reaching analysis of the concept of efficiency and its practical correlate, cost-benefit analysis, after establishing from an overdeterminist perspective that "all efficiency analyses and results are relative" (304), distinguishes between two different ways of criticizing cost-benefit analysis. The first is to criticize a particular efficiency analysis—without questioning the idea of absolute efficiency analysis as such—for not taking into account certain effects and costs (gender- or ecology-related effects and social costs associated with them, monitoring costs that are necessary to extract effort from workers, and so on). The more radical second path is to criticize the very idea of an absolute efficiency analysis as such. In this particular sense, the difference between the two skeins of late neoclassical economics is in their respective "principles of selectivity in identifying their problems and solutions, their causes and effects" (305). Otherwise, they both subscribe to the existence of an "absolute efficiency calculus" (305). To put it differently, the disagreement between these two approaches does not pertain to the necessity of an "absolute efficiency calculus" but rather in their respective assessment of which institutions are efficient and which are not, what efficiency criteria should be used, and so on. In this regard, with respect to the theory of firms, the two late neoclassical tendencies disagree in two areas: whether "hierarchical" or "democratic" firms constitute the most efficient response to market failures and whether or not existence of an institutional form (e.g., firms, norms, states) is the proof of the efficiency of that institutional form.

Let us begin with the first disagreement. For the new institutionalist camp, the firm with a *hierarchical* organizational structure is a transaction costs *economizing* response to

the inherent opportunism of shirking workers (Williamson, 1984).[99] For the second camp, information failures in the labor market (adverse selection) and the failure to extract the contracted level of effort from the worker (moral hazard) necessitate the use of various other institutional disciplinary devices (the employment rent, the cost of job loss, and so on). In fact, precisely because information failures necessitate the deployment of monitoring and disciplining devices that incur additional costs for the firms, imperfect factor markets "generally fail to implement socially efficient resource use, in the sense that there exist transactions that are Pareto superior to the competitive equilibrium" (Bowles and Gintis, 1990: 80).[100] In other words, while for

---

[99] Williamson explains the essential aspects of the new institutional analysis of the firm in the following manner: "The study of firms, markets, and mixed modes is approached as a unified subject in which *transaction cost economizing is central*. Organizational variety is explained by the fact that transactions differ in their attributes, on account of which their governance needs vary" (Williamson, 1984: 196). On opportunism: "…opportunism refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, disguise, obfuscate, or confuse" (Williamson, 1984: 199).

[100] But a "Good Old Chicago" economist such as D. N. McCloskey is less than impressed by the so-called radical implications of the "efficiency-wage" model as a theory of the firm that introduces the dimension of power for the first time to economic modeling of the labor contract. Allow me to quote somewhat extensively: "To use the natural metaphor, transaction costs put walls around institutions, the way transportation costs put walls around an island. […] The cost of getting into and out of a job or a marriage or a country is like the cost of getting gold into and out of New York. At some differential between the price in Hong Kong and the price in New York the gold will flow from New York to Hong Kong; at the opposite differential it will flow in the opposite direction. The two differentials are of course the 'gold points.' At the gold points 'the market works.' That is, you won't find gold selling in New York for a price higher or lower than what it costs to bring some gold from Hong Kong. But inside the gold points the market doesn't 'work.' This means merely that strictly inside the range of prices set by the gold points a speculator would not find it worthwhile to send gold form one place to another. […] Outside the gold points the prices are determined by international competition; inside the gold points they are determined by something else… To repeat, within the gold points there is power" (McCloskey, 1994: 157-9). In other words, McCloskey claims that the transaction costs framework subsumes the information failures framework and that the transaction costs approach has already incorporated the dimension of power into

the new institutional economists the capitalist firm with an hierarchical structure is an efficient response to market failures, for post-Walrasian economists, the costs that pertain to the range of institutional disciplinary devices that characterize the various aspects of contemporary hierarchical firms cause them to be dominated by other institutional arrangements—in particular, by worker-owned "democratic" firms in which the workers are the "residual claimants." To put it differently, for post-Walrasian economists like Bowles and Gintis (1990) the democratic firm, where the worker remuneration is directly linked to the success of the firm, constitutes a better (more "efficient") response than the hierarchical firm to the market failures that are caused by the opportunism of contracting agents who exploit information asymmetries. [101]

---

its analysis. "It is apparent from the analogy with gold points" McCloskey continues, "that whether or not the market 'works" depends on how closely on is examining it" (1994: 158). More on this below.

[101] In an earlier article, Bowles (1985) claims that opportunism is not "simply a manifestation of human nature, but in part the result of the social institutions in which the production process takes place" (33): If, therefore, opportunism is an effect of one set of social institutions (e.g., "the capitalist firm"), then another set of institutions (e.g., "the democratic firm") may elicit cooperative behavior from the economic agents. Nevertheless, in their work that argues for the superior efficiency of democratic firms, they deliberately refrain from making any assumptions about economic agents other than opportunism (Bowles and Gintis, 1990). Indeed, for Bowles and Gintis, democratic firms are more efficient precisely because they accommodate the underlying opportunism of economic agents better than hierarchical firms. We can see the same rhetorical trope in the writings of George Akerlof (1982), yet another prominent figure of the new information camp. In a series of papers, Akerlof developed a model of labor contracts as *partial gift exchanges* where the bosses pay above-the-market-clearing-level wages to workers and receive in return an extra amount of effort. In these models, the "institutional disciplinary devices" that secure the "effort" of otherwise opportunistic workers are replaced by the norms of "fair wage" that constrain the behavior of economic agents who are essentially opportunistic—otherwise there would not be any need for a "gift exchange." (More on the debates on motivational diversity and the persisting primacy of opportunism at the level of preferences in Chapter 5.)

The second area of disagreement between the two approaches lies in the way they interpret the continuing existence, i.e., the survival, of the firms. Williamson (1993), for instance, holds that institutions emerging from the competitive process will be *comparatively* efficient" (Williamson, 1993: 107). New institutional economists argue that, at any given moment in history, the distribution of institutional forms such as firms and markets, or hierarchical and democratic firms, is determined by their comparative efficiency. In other words, late neoclassical economics posits a meta-selection mechanism ("the competitive process") that determines the distribution of institutions: Those institutions that are more effective than the average survive.

Some scholars, in their attempts to tone down the social Darwinian inflection of this idea, have suggested the concept of "path dependency" according to which a particular constellation of events might end up protecting and enabling the reproduction of an inefficient institution in such a manner that after awhile it becomes too costly to change paths, so to speak, and switch to the more efficient alternative (David, 1985). Relying on this concept, Bowles and Gintis argue:

> The inference that survival entails efficiency is unwarranted, for it ignores the path dependent nature of evolution and the possibility of multiple equilibria. In any model with multiple stable equilibria, biological or economic, where you end up depends on where you've been, and whatever optimality properties may be claimed for the equilibria are at most local rather than global. (Bowles and Gintis, 1993: 97)

In this sense, these two areas of disagreement are not unrelated. In fact, the two areas of disagreement are the two acts of a single debate pertaining to the comparative efficiency of hierarchical and democratic firms. The "path dependency" argument put forward by post-Walrasians is itself a response to the question posed by new institutionalist economists: if democratic firms are more efficient solutions to market failures, as post-Walrasians claim, why aren't there more of them?

It is important to underline the shared conceptual terrain on which the debate is being waged. Just like the concept of "imperfect competition" relies upon the concept of "perfect competition," the concept of "path dependency" relies upon the idea that there is a central tendency of History, in this case, of the unfolding "competitive process," in the form of a meta-selection mechanism that would "choose" the more "efficient" institutions. In other words, even post-Walrasian late neoclassicals, who invoke the concept of "path dependency" in response to the Coasean new institutionalists, rely upon a concept of an over-arching selection mechanism, a market-like meta-logic that governs the division of labor between markets and hierarchies, or the distribution of hierarchical or democratic firms, or the distribution of social norms, and so on.

Despite their many differences, post-Walrasians and the Coasean new institutionalists silently agree with each other with regard to their understanding of social ontology. This is the Panglossian social ontology of the Chicago approach that I discussed in Chapter 2. As I already suggested there, the biological concept of natural selection is more than a merely pragmatic or useful metaphor to theorize the process of adjustment of the markets towards equilibrium. The analogy serves the purpose of turning the logic of competition into an overarching social ontology. I believe that the late neoclassical debates around the concepts of "comparative efficiency" and "path dependency" demonstrate the extent to which the Walrasian metaphor of "price-adjustment" through auctions have been supplanted by the Marshallian metaphor of "market-adjustment" through selection.

4. 4. Conclusion

What McCloskey argues apropos of the status of the difference between the new institutional economics of Good Old Chicago tradition and the new information economics of the Stiglitz, Bowles, Akerlof, et al., is quite accurate:

> The market is like a post-impressionistic painting. If one steps back and squints, then the gold points fade to insignificance, and there is effectively one world price for gold. […] When one gets close enough to any market, on the other hand, the brush strokes appear. […] The close view is no more real than the far view. It may be more or less convenient for this or that human purpose to take a close view or a far view. That is all. (McCloskey, 1994: 158)

Both late neoclassical tendencies subscribe to an overarching, meta-ontology of competition. They share a common framework and common lexicon; they speak the same language. The only difference between them is that while those who subscribe to the liberal (and radical) positions look closely and form a pessimistic opinion about the virtues of the "competitive process," those who subscribe to the conservative (pro-market) position enjoy the "competitive process" from afar and form an optimistic perspective. Or to put it in terms articulated by Wolff (2006), they differ not in their belief in an absolute efficiency calculus, but rather in the particular set of costs and benefits that they deem important in making their efficiency calculations.

Late neoclassical economics theorizes firms (and other non-exchange institutions of "command") as "governance structures" or, more generally, social devices to supplement or supplant markets when the latter fail to function the way the standard neoclassical models predict them to function. Since they theorize market failures to be caused by the opportunism of the economic agents that enter into contractual relations, all late neoclassical treatments of the firm (or, all non-market institutions), whether they explicitly acknowledge it or not, rely upon the paradigmatic theoretical

humanist presupposition of *homo economicus* as that which causes the problems to which institutions are supposed to be solutions.

Moreover, it is necessary to pose the following question to the late neoclassical economists: What propels communities to devise transaction cost economizing institutions (assuming momentarily, for the sake of argument, that this is the case)? The late neoclassical answer lies in the other presupposition of the neoclassical problematic: the teleological construct of harmonious reconciliation through equilibrium. Both of the late neoclassical approaches discussed above presuppose the existence of a meta-competitive process, a meta-selection mechanism that adopts "comparatively efficient" institutions and weeds out inefficient ones. (Earlier versions of this elevation of competition into an overarching meta-ontology can be found in the "selectionist arguments" articulated by the proponents of the Chicago approach.) As noted above, the concept of "path dependence" does not break from these two presuppositions—it is a concept devised to "relativize" (within the bounds of last instance determinism) the essentialisms of the theoretical presuppositions of the neoclassical problematic.

Before concluding, let's revisit the three theses on late neoclassical economics outlined in Chapter 3, but now in relation to the debates discussed in the present chapter. To begin with, in the present chapter, I have demonstrated that the late neoclassical treatments of market failures and economic institutions display both *dispersion* and *unity*. In terms of dispersion, I have argued that the Marshallian/Coasean and the post-Walrasian traditions have both conceptual and political incompatibilities. In terms of unity (and *continuity*), I have argued that both tendencies subscribe to the two theoretical presuppositions of theoretical humanism ("opportunism" and

"reconciliation") and operate within the confines of the neoclassical problematic. Second, to the extent that late neoclassical theories of market failures and economic institutions remain within the neoclassical problematic of how to reconcile harmoniously diverse interest of self-transparent and unified human agents, they fail to break from the neoclassical tradition. Third, both late neoclassical approaches are, in their own ways, *responses* to the perceived "shortcomings" of the A-D model: the concepts of transaction cost and information failures are aimed at addressing the shortcomings of the A-D understanding of the commodity and commodity space; the concepts of "firm-as-a-nexus-of-principal-agent-relations" or "efficiency wage" are aimed at producing a theory of "the social organization of the production process"; and finally the Walrasian understanding of the "price-adjustment" process has been thoroughly supplanted by the Marshallian metaphor of "quantity-adjustment" through selection.

In conclusion, late neoclassical economics, despite the fact that it presents itself as capable of taking the sphere of production into account, does so only from the perspective of the sphere of exchange: it universalizes the centered, rational, and autonomous subject presupposed in the contractual fiction to the level of an ontological truth about all human beings. For this reason, late neoclassical economics continues to see the world and its institutions (firms, bureaucracies, and so on) from the perspective of the sphere of exchange, that is, from within the theoretical problematic of neoclassical humanism.

CHAPTER 5

THE CONCEPT OF THE HUMAN SUBJECT IN LATE NEOCLASSICAL ECONOMICS: MOTIVATIONAL DIVERSITY AND BOUNDED RATIONALITY

5. Introduction

This chapter, as the second installment of a three part mapping of the late neoclassical condition outlined in Chapter 3, traces the late neoclassical trajectories of the concept of human subject as a centered, self-conscious, and autonomous unity, one of the two constitutive presuppositions of neoclassical humanism. (The next chapter will address the trajectory of the concept of equilibrium, the other constitutive presupposition of neoclassical humanism.) In terms of the concept of the human subject, the dominant tendency in neoclassical economics from the 1930s up to the 1970s was to assume as little as possible regarding the preferences that underpin the actual choices. In contrast to the ordinalist neoclassicisms of the mid-twentieth century, the distinguishing characteristic of the late neoclassical debates on economic rationality is the *reversal* of this positivist (or, as it was in the case of the Chicago School, pragmatist) tendency to assume as little as possible regarding the decision-making criteria (i.e., motivations) and decision-making processes (i.e., competence) of the economic agents. (In this sense, these developments conform with *the response thesis* from Chapter 3 where I proposed that *the late neoclassical condition is best characterized as a patchwork of responses to the perceived crisis and limitations of the Walrasian economics*.) It is, therefore, possible to trace the genealogy of the late neoclassical debates on human rationality

all the way back to the turn of the century, to the psychologism controversy that haunted the early neoclassicism (as discussed in Chapter 2).

Nevertheless, as will be demonstrated in this chapter, this reversal never entailed a departure from the theoretical problematic of neoclassical humanism. On the contrary, all the efforts discussed below, even when they revert (sometimes unwittingly and sometimes self-consciously) to a structuralist framework, remain within the theoretical humanist problematic of how to reconcile the interests (however defined) of autonomous and rational human subjects at the level of the social in a harmonious, growth-inducing, and "efficient" manner. Conforming with *the continuity thesis* forwarded in Chapter 3, *the late neoclassical condition, far from representing a break from the neoclassical tradition, is squarely within it.*

Indeed, the late neoclassical departure from the mid-century (positivist or pragmatist) minimalist positions had a range of causes and the departure manifested itself in diverse and contradictory ways. In order to understand the diversity of late neoclassical approaches, it is better to organize the literature around two central debates. As I have done in Chapter 4, I wish to show not only *the differences among* but also *the presuppositions common* to the late neoclassical discourses. In this manner, I will be able to substantiate *the conjunction of unity and dispersion thesis* articulated in Chapter 3 in this particular theoretical context. The first debate pertains to the nature and origins of human motivations. Some late neoclassical approaches, as discussed in Chapter 4, vigorously embraced and systematically applied the assumption of *opportunism* (the assumption of non-satiation augmented with narrowly defined self-interest seeking) in their analyses of market failures and institutions. In these models, while opportunism is theorized as the cause of market failures, social and economic

institutions (including "pro-social norms" such as fairness, goodwill, trust) are theorized as devices that would "correct" these market failures. But this was not the only tendency that prevailed in late neoclassical economics. Others, rather than conceptualizing opportunism as the inherent motivational basis of human rationality, chose to devise economic models with agents that are somehow endowed with non-opportunistic motivational orientations (e.g., altruism, reciprocity). I write "somehow" because one of the two late neoclassical debates on the rationality postulate pertains to the theorization of the status and the nature of motivational diversity among human populations.

The other late neoclassical debate pertaining to the rationality assumption took place between, on the one hand, those late neoclassical writers who work within the Nash-refinements tradition of game theory and who continually augment the already over-stretched standard neoclassical concept of rationality (discussed in Chapter 2) with additional cognitive powers verging on "hyper-rationality," and, on the other hand, those late neoclassical economists who, as a result of their interdisciplinary self-positioning in the intersections of economics, psychology, organizational studies, and cognitive sciences, chose to acknowledge the limitedness of the cognitive competence of the economic agents and, as a result, embraced concepts of bounded and procedural rationality.

To what extent, then, does the increasing volume of late neoclassical explorations of and debates on the aspects of the rationality assumption constitute a break from theoretical humanism and to what extent are these developments manifestations of a wave of restoration and rehabilitation of theoretical humanism in mainstream microeconomics? In order to answer this question (and assess the validity of *the*

continuity thesis articulated in Chapter 3), it is necessary to establish the general concept and the architecture of economic rationality as it is produced, developed, and deployed by the proponents of the neoclassical tradition and to explain why it is a theoretical humanist construct. I have already discussed in Chapter 2, in the section on the ordinalist turn in the mid-century neoclassical economics, the positivist and pragmatist versions of the neoclassical concept of the rational actor. In section 5. 1 below, I recover some of that discussion with the purpose of outlining the late neoclassical extensions to, reformulations of, and modifications to the concept of rationality. In section 5. 2, I tackle the questions pertaining to *motivational diversity* in late neoclassical models of economic phenomena and offer a discussion of the late neoclassical debates on the origin and the nature of the preferences. In section 5. 3, I offer a discussion of the late neoclassical debates that pertain to the *cognitive competence* of the rational actors. Section 5. 4. offers concluding remarks.

5. 1. Aspects of economic rationality: Preferences, information, competence

The concept of rational choice, despite the significant amount of scrutiny it received, continues to retain its central place within the late neoclassical literature. Philosopher Jon Elster defines rationality as a "normative" (as opposed to "descriptive") concept that "tells us what we ought to do in order to achieve our aims as well as possible" (1990: 20). Invoking David Hume's oft-quoted dictum "Reason is, and ought only be the slave of the passions" (Hume, [1739] 1960: 415; cf. Elster, 1990: 21), Elster claims that the standard rationality assumption does not "tell us what our aims ought to be" (1990: 20). In other words, according to Elster, the rational choice theory takes the aims ("passions") of the subject as given and "instructs" the subject on how to achieve those aims as well as possible. In other words, according to Elster's definition,

rational choice theory is normative only in the sense that it instructs subjects on *how* to achieve their ends but not on *what* to achieve. With this formulation, Elster tries to push the questions of human motivation outside of the domain of the rational choice theory.

In Chapter 1 of this dissertation, I have defined the subject of theoretical humanism as an autonomous, self-transparent, and rational self-consciousness who knows what his/her true preferences are and what improves his/her welfare; who can consistently translate these true and essentially transparent and consistent preferences into his/her choices; and who recognizes himself/herself (and is recognized by others) as an intentional and autonomous subject who is responsible for his/her choices (as it is presupposed in the contract law). At some level, Elster's definition of the rational choice theory resonates with this minimalist yet theoretical humanist understanding of the human subject. The rational choice theory must be silent with respect to that which causes the preferences (desires, passions, or aims) of the rational agent for only the agent (as a sovereign and self-transparent self-consciousness) can know what his/her ends are. Accordingly, for Elster, the role of the rational choice theory is to help the subject achieve his/her ends.

Nevertheless, it is open to debate whether or not rationality is intended as a normative/instructive or a descriptive concept. On the one hand, some late neoclassical economists who embrace the augmented notion of (hyper-)rationality, when criticized by those who (logically or empirically) demonstrate the descriptive shortcomings of the assumption of rationality, claim that the concept is a normative one that describes not how people actually behave but how they ought to behave. Yet on the other hand, the neo-liberal prescription for the privatization of publicly owned

assets as well as the monetarist macroeconomic policy decisions are scientifically legitimized by models that assume *opportunism* (the rent-seeking behaviour argument) and *hyper-rationality* (the rational expectations hypothesis) regarding the economic agents and these models of economic behavior have unambiguous descriptive claims.

Moreover the concept of rationality, regardless of how it is intended, whether as a normative "toolbox" for decision-making or a description of how actual agents behave, belongs squarely to the theoretical humanist problematic. When it comes to the formal attributes of the preferences (reflexivity, completeness, transitivity, etc.), it presupposes unity, self-transparency, and consistency on the side of the subject; the idea that there is a unique and "rational" way of attaining one's "predetermined ends" assumes not only self-knowledge on the side of the subject but also presumes the existence of a uniform index with which we can rank different methods of achieving our ends; and finally, when combined with the other constitutive presupposition of theoretical humanism, namely the economic concept of equilibrium as a desirable (e.g., Pareto efficient) state, the rational choice theory posits that the preferred social state (or, bundle) is implied to be better for the subject than the one that it is preferred over.

In order to organize the late neoclassical debates on rationality, I propose to begin with differentiating between the two distinct aspects of the neoclassical concept of rationality: the preferences (with their particular properties) that guide the decision-making process and the act of, or the process of, decision making itself. To use a computer analogy, there is the *software*, the logical attributes of the preference orderings in general (including the motivational assumptions) and the particular information pertaining to the choice context under scrutiny, and then there is the

hardware, the processor that calculates and processes the available information pertaining to the choice problem under consideration, given the preferences (see also, Davis, 2003).

The conceptual architecture of rational choice under *uncertainty* in the neoclassical tradition (early and late) builds upon three different classes of data: preferences, beliefs, and information (Elster, 1990; Hargreaves-Heap, 1989). *Preferences* refer to the desires, passions, or aims of the subject. *Beliefs*, on the other hand, refer to the subjective probabilities that the subject assigns to the states of nature based on the available *information*. Accordingly, in making a rational choice, the agent gathers the best available *information*, revises his/her *beliefs* according to the available information and, based on his/her beliefs, takes the actions that will best satisfy his/her *preferences*. While the preferences, the information set, the subjective probabilities, and the rules of optimization pertain to the *software* aspect, the *acts* of preference formation, information gathering, belief formation, and optimization pertain to *hardware* aspect of human rationality.

Not surprisingly, in the Arrow-Debreu model, each of the abovementioned processes are assumed to function smoothly: the best available information was assumed to be readily available for the agent; the definition of the "contingent commodities" obviated the question of belief formation; [102] the actors were assumed to be endowed

---

[102] The ontological premise of the A-D model under uncertainty is that each economic agent has a complete description of all the possible states of nature, but does not know which state will actualize. In order to incorporate the dimension of uncertainty (as it is defined in the Arrow-Debreu universe), contracts are re-interpreted as *conditional contracts* and commodities as *contingent commodities*: For every commodity, agents will write conditional contracts in which the actualization of the transaction is made contingent upon the realization of a specified state. To put it

with the cognitive capacity and the competence to choose the consumption plans that would best serve their preferences and to devise the production plans that would maximize their profit. Moreover, even though the preferences are supposed to be a matter of "individual choice," they are assumed to be structured across the board by a very specific set of properties: completeness, reflexivity, transitivity, continuity, non-satiation, and convexity.

Let us take a closer look at the theoretical implications of the various axioms and presuppositions pertaining to the preference patterns, the informational requirements, and the cognitive competence of the rational economic agent in the A-D model. With regards to the axioms that structure the preference patterns: if the axioms of reflexivity, completeness, and transitivity hold, then the individual is considered to have a preference ordering (and hence the individual is conceived as a unified and self-transparent self-consciousness); if, in addition, the axiom of continuity (the relative openness of all upper and lower contour sets) holds, the individual's preference ordering can be represented as a utility function; the axioms of non-satiation and convexity are necessary specifically for proving the *existence* of the equilibrium price vector (and hence the existence of a harmonious and contradiction-free economic order is established); and finally, the implicit assumption that the individual choices reflect what is best for his/her well-being given his/her initial endowments drive the welfare implications of the A-D model. In contrast to the axiomatic approach that

---

differently, a contract could be written in such a way that it will not only specify its physical, temporal, and spatial coordinates but also the state of nature of its realization. Consequently, without needing to assign (subjective or objective) probabilities, the agent can define his/her consumption plan over these contingent commodities. Insurance policies are usually offered as a concrete manifestation of a contingent commodity. Nevertheless, "the range of contingencies for which conditional contracts are available is much more limited than would be ideally desirable in theory" (Arrow, 1974: 34).

undergirds the A-D model, the pragmatic Chicago understanding of the human rationality takes the utility function as its point of departure: "…all human behaviour can be viewed as involving participants who maximize their utility from a stable set of preferences and accumulate an optimal amount of information and other inputs in a variety of markets" (Becker, 1976: 14).

With regards to the assumptions pertaining to information: perhaps surprisingly, the amount of information that the economic agents in an A-D world need to know to make decisions is less than that of the Marshallian and the game theoretic agents. In an essay that compares the standard information assumptions made in these traditions, Michel De Vroey (2003) distinguishes between three different domains of knowledge: (1) Physical domain (including the quality of goods and the states of the environment); (2) private economic data; (3) public economic data. An Arrow-Debreu agent, in addition to his/her own private economic data and preferences (self-transparency, self-consciousness), is assumed to have a perfect knowledge of only the first and the third domains of knowledge. "Due to the presence of the auctioneer," De Vroey argues, "economic agents do not need to know market excess demand functions (nor their underpinnings)" (2003: 467): the presence of the auctioneer obviates the need to have information regarding the private data of other agents in the economy. Whereas in the Marshallian models of market exchange, the agents are regularly assumed to possess complete knowledge pertaining to all three domains listed above: they not only have information pertaining to the physical and public domains (as do the A-D agents), but also they are assumed to know the market excess demand functions (which requires, in turn, that they not only know their own but also the other market agents' private economic data). Similarly, the defining assumption

of game theoretic constructs (such as those underpinning the "efficiency-wage models" discussed in Chapter 4) is that the agent can and does *possess* and effectively *process* complete economic knowledge pertaining to all three domains—including the private economic data of *other* agents. [103]

And finally, with respect to the cognitive competence of the economic agents: In the A-D model, the questions of how the best available information is gathered, how

---

[103] Another way to understand the difference between an Arrow-Debreu agent and a game theoretic agent in terms of the amount of information that each is supposed to process is through differentiating between *parametric* and *strategic* rationality. Under the assumption of parametric rationality the agent treats others' choices as given; under the assumption of strategic rationality the agent has take into account the others choices in arriving a decision. As noted above, the strategic rationality burdens the agents with additional informational requirements pertaining to the private economic data of other agents (e.g., "peeking into their mind")—informational requirements that are not needed under parametric choice situations. Christian Knudsen (1993a: 144-5), following Leif Johansen (1981), distinguishes among three kinds of *interaction*: (1) unconscious, indirect, and parametric, (2) indirect and functional, (3) direct. The first category of interaction is what one finds in the context of the Arrow-Debreu type perfect competition models, where the agents make choices without taking into account other's choices (unconscious and parametric) and where there is no room for communication or collusion among agents (indirect). (Let us also note in passing that the term unconscious is used not in its psychoanalytical sense, but in the sense of something being done "automatically.") The second category of indirect and functional interactions captures the situations of imperfect competition where agents have to take into account each other's "reactional patterns in the shape of functional relation" (Knudsen, 1993a: 145). As an example of this case, consider the efficiency-wage models discussed in Chapter 4. In such models, even though there could be no communication among agents (indirectness), the Stackelberg leader (The Boss) *knows* the utility function of the Stackelberg follower (The Worker) and maximizes his profit function by taking the latter into account (hence, functional). This particular additional informational requirement of the efficiency-wage models is a quite remarkable one given the fact that the efficiency wage models were intended to incorporate information failures into the analysis of the labor contract. The apparent contradiction is usually glossed over in the literature (De Vroey, 2003). The third category of direct interactions refers to contexts where communication, collusion, and commitments are possible. In this sense, cooperative games are direct interactions. While parametric one-person rationality is sufficient for the first kind of interaction, the latter two requires strategic rationality. The second type, however, can be singled out as the one that imposes the strongest informational requirements on the subject. We will see below in Chapter 6 that the Nash equilibrium solution imposes the second type of informational requirements, namely indirect and functional.

beliefs are formed and revised, and what concrete and material practices are entailed in taking the right courses of action, i.e., the "hardware" questions, are not taken into consideration. It is assumed that these cognitive processes can be effortlessly undertaken by the economic agents. It should be emphasized, however, that the implied computer-like cognitive competence of rational agents did not fit easily with the theoretical humanist program of neoclassical economics. Accordingly, far from leading to a break with the theoretical humanist problematic, the questioning of the assumption of unlimited cognitive capabilities on the side of the economic agent actually entails a return to and a rehabilitation of theoretical humanism.

Much of the late neoclassical literature on rational choice inherits this architecture and proceeds to unpack its various aspects: the nature and the origin of the preferences of the subject, the process of information gathering and belief formation, and the scope of the cognitive capacities of the subject. Nevertheless, this unpacking never entails a departure from the theoretical problematic of neoclassical humanism. Since I have already discussed the various treatments of "information" in late neoclassical economics in Chapter 4, in this chapter I will refer to the questions of information only to the extent that they pertain to the supposed cognitive prowess of the human subject and concentrate only on the late neoclassical debates on questions pertaining to *the nature and the origins of preferences* (motivational diversity) and *the scope of the cognitive capacities* (bounded rationality) of the human subjecst.

5. 2. Questions of motivational diversity in late neoclassical economics

With the ordinalist turn, the neoclassical tradition claimed to have abandoned the project of peeking into the psyche of the economic agent. While the empiricist project

of Samuelson aimed at testing the axioms of rationality from the actual observed choices of agents,[104] the rationalist project of Arrovian social choice theory insisted on remaining silent regarding the motivations of the subjects. Similarly, whereas Debreu's formalist program aimed at deducing the existence, efficiency, uniqueness, and global stability of general equilibrium from the minimum amount of axioms necessary, the Chicago neoclassicals went so far as to declare the assumption of self-interest optimizing behavior dispensable. Over all, the defining tendency of the period was to assume as little as possible about the preferences of the economic agent.

This tendency is reversed in late neoclassical economics. The developments in the various branches of game theory and experimental economics, in behavioural economics, and in social choice theory began to explore what is behind the act of "choice." Late neoclassical economists may have been compelled to explain what is behind the actual behavior (or choices) of the individual agent for a number of reasons. One important reason may be the growing concern with the reductionism of the assumption of opportunism (the assumption of self-interested non-satiation). I have already discussed the importance of the assumption of opportunism for the Coasean and post-Walrasian theories of market failures and economic organizations in Chapter 4. The frankness with which these late neoclassical economists deployed the assumption of opportunism in their models of market failures, labor contracts, credit rationing, and rent-seeking reversed the dominant tendency to remain silent

---

[104] Paul Samuelson's desire to clean economic science from any assumptions regarding human psyche (i.e., "passions") was itself a corollary of another desire of neoclassical economists: the desire to separate the descriptive (or, predictive), and hence, the scientific aspect of economics from its normative/ideological aspect.

about what motivates the preferences. Ironically, the reversal itself made it possible to question the ubiquity of the assumption of opportunism.[105]

The questioning of the ubiquity of the assumption of opportunism took three forms. First, there was a perceived need to theorize the non-market and non-governmental ("third sphere") activities—such as gift-giving, voluntary contributions to charities, unpaid household labor—that are not easily modeled through the standard neoclassical models that are premised upon rational individuals with selfish preferences (e.g., Titmuss, 1971; Arrow, 1972; Becker, 1981; Sugden, 1984; Coate and Ravallion, 1993; for a critical survey see Adaman and Madra, 2002).[106] Second, accumulated experimental "evidence" suggested that the economic subjects do not behave as the standard *homo economicus* models predict them to behave (e.g., Rabin 1993; Ledyard, 1995; Fehr and Gächter, 1998a; 1998b; 2000). Finally, there were a growing number of methodological/philosophical critiques (from within mainstream economics as well as from without) of the narrowness of *homo economicus* assumption

---

[105] On this note, it is equally important to acknowledge an unexpected role played by the "value-neutral" treatment of preferences in the Arrovian social choice theory. By refraining from assuming anything regarding the motivations that animate the preferences, Arrow inadvertently set the necessary conditions for imagining the possibility that the preferences can be animated by a diversity of motivations: "It is simply assumed that the individual orders all social states by whatever standards he deems relevant" (Arrow, 1963: 17).

[106] Consider, for instance, the case of "gift-giving." According to the standard models, gifting is an inefficient practice, for the giver spends money on something without knowing the true preferences of the receiver. Since the probability that the giver will give a gift that fulfill the receiver's needs most probably will be less than 1, giving the money that the giver would be willing to spend anyway directly to the receiver would be a Pareto improving arrangement. The crassness of gift checks attests to the problematic (if not "anomalous") nature of this standard neoclassical version of "gift-giving."

(e.g. Sen, 1977; Collard, 1978; for a range of feminist views, see the various contributions to Ferber and Nelson, 1993).

These three factors combined instigated the late neoclassical debates on the nature of preferences. The debates centered around two related questions: Is there a motivational diversity? And if there is a diversity, how does one theorize the dynamics of this diversity? I will address these questions in this order and in doing so I will trace the vicissitudes of theoretical humanism in late neoclassical economics.

5. 2. 1. Is there a motivational diversity? (Opportunism, altruism, reciprocity)

The immediate late neoclassical response to the abovementioned questioning of the presumed ubiquity of opportunism was to remain committed to the standard assumption that human beings are, *by nature*, selfish, opportunist, etc. In order to explain behaviors that do not conform with the predictions of the standard *homo economicus* assumption (e.g., gift-giving, reciprocity, behavior confirming with norms of fairness), these economists devised models where the agent, even though s/he is selfish by nature, may be compelled to act (behave) *as if* s/he has non-selfish preferences when constrained by social norms or ethical concerns (e.g., Sugden, 1984).[107] For these late neoclassical economists, the problem of "seemingly" non-selfish behaviour became the portal through which *institutions* qua *constraints on actions* entered into

---

[107] The question of the origins of "social norms" and "ethical concerns" (Where do they come from?) that function as constraints over self-interest optimizing behavior of the agents remains unanswered within the framework of methodological individualism (Schotter, 1981; Elster, 1989; Greif, 1993). If one is serious about methodological individualism, institutions (i.e., social norms) should also be explained by referring to the behavior of the individual with selfish preferences. But weren't the social norms invoked in the first place to explain the non-selfish behavior of individuals with selfish preferences?

economic models. In short, these late neoclassical economists tried to accommodate the non-standard economic behaviour without changing the standard *homo economicus* assumption.

Nonetheless, not all late neoclassical economists were willing to accept that the human beings are selfish by nature. Following in the footsteps of Samuelsonian empiricism, a significant number of experimental economists began to argue that individuals "systematically" behave in non-selfish ways and that it may be incorrect to assume that this is only due to the effects of external constraints on the optimizing acts of agents who are essentially selfish (e.g., Rabin, 1993; Ledyard, 1995; Fehr and Gächter, 1998a; 1998b; 2000; Charness and Rabin, 2002). Consider, for instance, *the game of ultimatum* where the first subject divides up the pie as he wishes and offers a slice to the second subject, and the second subject either declines or accepts the offer (Güth, Schmittberger and Schwarz, 1982). If the latter declines the offer, neither gets to eat the pie. The standard models predict that the second subject should prefer the thinnest of slices to no slice at all. Nevertheless, experiments have shown that, unless the first subject makes a "fair" (50-50) offer, the second subject tends to reject the offer. This result, of course, violates the "non-satiation" assumption.

Nevertheless, one has to be careful in assessing the theoretical implications of these experiments. As it is always the case, the empiricism of experimental economics is not a "pure" empiricism, for the very design of the experiments themselves contribute to the results of the experiments (Hargreaves-Heap and Varoufakis, 1994). From an ontological perspective that takes overdetermination seriously, the regularities that are "discovered" in well-delineated and designed experimental contexts are not universal truths regarding the true essence of human subjectivity—they are simply regularities

(or "truths") that pertain to those experiments. The sheer fact that certain regularities and patterns emerge in experimental contexts does not warrant our interpretation of those regularities as the truth of human subjectivity. Precisely for this reason, it is quite possible to find experimental evidence that supports the assumption of universal opportunism as well as the assumption of motivational heterogeneity.

For instance, it would be quite useful to juxtapose the abovementioned experimental results that give credence to the construction of analytical models premised upon agents with non-selfish or other-regarding preferences with the experiments and simulations conducted by the likes of Vernon Smith (1990; 1994), Charles R. Plott (1990), and Dhananjay K. Gode and Shyam Sunder (1993; 1997). This group distinguishes between rationality as a concept that describes *individual behavior* and rationality as a concept that describes *market outcomes* and argue that the concept of rationality is best understood as a description of the "average" economic agent. Echoing the Marshallian "structuralism" discussed in Chapter 2, these economists argue that while the individuals may behave irrationally, if the "trading rules" are specified appropriately, the market outcomes will be consistent with the predictions of the standard neoclassical model. In fact, Gode and Sunder (1993; 1997) went so far as to simulate experiments with "zero-intelligent traders" (a computer algorithm that "behaves" random and does not "learn" from past experience) instead of human traders. For this group of researchers, as long as the appropriate "trading rules" are in place, it does not matter whether the individual actors act selfishly or not: "[W]hen embodied in market mechanism such as a double auction, [the invisible hand] may generate aggregate rationality not only from individual rationality but also from individual irrationality" (Gode and Sunder, 1993: 136). Not surprisingly, in this

literature, the main reference is to Gary Becker's 1962 article, "Irrational Behaviour and Economic Theory," where this prominent Chicago School economist argued that it is not necessary for individuals to behave rational or not—given the changes in opportunity sets, the behaviour of the average consumer will be in line with the predictions of the standard theory (i.e., the law of demand).

Nevertheless, even though experimental economists such as Smith and Plott and simulation economists such as Gode and Sunder try to generalize the allocative efficiency results that they gather from their "double-auction" experiments (where both sellers and buyers submit bids that are ranked highest to lowest to generate demand and supply schedules) to give substance to Adam Smith's "invisible hand scenario," their results are much more limited in scope and application. If, as Smith, Plott, and Gode & Sunder seem to imply and even acknowledge, what makes markets work are the "trading rules" qua "social algorithms," then maybe there is something in these results that is contingent upon the particular market algorithm (i.e., double-auction and not, for instance, posted-offer, the most prevalent form of market in contemporary economies) that is being used (Mirowski, 2002: 560). To put it differently, the claim that such experiments and simulations prove the invisible hand scenario is simply unwarranted. On the contrary, if anything they give credence to the importance of institutions (i.e., the rules of the experiments, the algorithms of the simulations) in shaping social outcomes. In the end, experiments and simulations, far from discovering the "true" nature of human preferences and conclusively establishing whether the human beings are, by nature, opportunistic or altruistic, have led to an endless back and forth between the two opposing positions.

Despite the continuing opposition to the idea that there exists a meaningful diversity of motivations and despite the ongoing insistence on the predictive relevance of the assumption of opportunistic behaviour, the late neoclassical period differs from the earlier periods of neoclassical economics in that there is a concerted effort to theorize motivational diversity. But to what extent does this late neoclassical effort signal a break from the neoclassical problematic? To the extent that a particular motivational orientation (whether it is opportunism, altruism, or reciprocity) is seen to be an inherent attribute of human nature, to the extent that the human subject of the late neoclassical condition, regardless of his/her motivational orientation, continues to be a rational, unified, and autonomous self-consciousness, the late neoclassical approaches remain within the theoretical humanist problematic. This brings me to the next set of questions that began to be debated among the late neoclassical circles: If there is a motivational diversity, is it caused by evolutionary dynamics or by deliberate and ethical human choice?

5. 2. 2. How to theorize the origins of the motivational diversity?

Indeed, the concern with the origins and causes of this motivational diversity is a distinctively late neoclassical concern. Nonetheless, the late neoclassical debate on this matter is far from settled. I will discuss two radically opposed ways of theorizing the cause of motivational diversity: the "structuralist" way of the evolutionary game theory and the "individualist" way of the social choice theory. A discussion of these two starkly opposed ways of handling the causes of motivational diversity should suffice to give the reader a sense of the theoretical horizon of this particular debate.

5. 2. 2. 1. The "structuralist" response of the evolutionary game theory

The evolutionary game theorists explain the origin of the preferences (and the origins of the motivational diversity, if they believe in it) by reverting to a structuralist language according to which the agency resides not on the side of the individuals but rather on the side of the selection mechanism.[108] Deploying models of "group selection" that they borrowed from the biological literature, the evolutionary game theorists[109] began to argue that, if the individuals with non-selfish preferences stuck together and behaved as a group, they could survive against their selfish opponents (Cohen and Eshel, 1976; Maynard Smith, 1982). In other words, whilst being engaged in the hallmark project of theoretical humanism, namely, the identification of the essence of the human subjectivity, evolutionary game theorists revert to a form of structuralism.[110] Nonetheless, the fact that the evolutionary game theory provides a

---

[108] Two examples should be sufficient to make the point:

> We will explore the evolutionary dynamics of populations in which individuals are "programmed," perhaps genetically or perhaps by cultural experience, to play either cooperate or defect in a game. (Bergstrom, 2002: 70)

> Notice a rough learning rule underlying differential replication has replaced the role usually assigned to conscious optimization. We do not specify why traits are copied. The previous paragraph leaves this issue open. Rather, we simply posit that successful traits are more likely to be copied. (Bowles and Gintis, 1998: 214)

In both cases, the individuals are treated as bearers (*träger*) of preference types ("traits").

[109] I insist on using "evolutionary game theory" rather than "evolutionary economics" as the latter term refers to the approach of the likes of Richard Nelson, Sidney Winter, and Geoffrey Hodgson, whose writings and research do not belong to the late neoclassical field.

[110] There are more sophisticated models of *differential replication* that take, alongside environmental *adoption*, individual *adaptation* (through learning, mimicking, etc.) into account (e.g., Bowles and Gintis, 1998) as well as those that distinguish between *random* and *assortive* group formation (e.g., Bergstrom, 2002).

structuralist explanation of the origins of the diversity of preferences (or, lack thereof, for that matter) should not deflect from the fact that this structuralist moment is ultimately in the service of a theoretical humanist project of unveiling the human nature. Moreover, let me also note that the concept of structure in the evolutionary game theory is decisively an anthropomorphized concept:

> Nature will be shamelessly *anthropomorphised* here, for the sake of vividness and conciseness. Thus, when we say that "Nature wishes" the individual to maximize biological fitness, this is shorthand for claiming that individuals who maximize fitness will ultimately dominate the population. That is, biological fitness is closely linked to the number of offspring. (Robson, 2002: 91; emphasis added)

It is indeed a matter of debate whether or not this anthropomorphization is only a "rhetorical" device deployed "for the sake of vividness and conciseness" or to what extent this language inadvertently reveals the teleological construct that undergirds the evolutionary game theoretic models. But, if we agree with D. N. McCloskey's (1994) call for taking rhetoric seriously, we should also take this anthropomorphization seriously. In fact, in a final turn of the screw, don't we find behind this anthropomorphization of the structure the humanist concept of anthropos with a given (human) propensity to survive, to reproduce its existence? Indeed, it is this theoretical humanist presupposition that underpins the structuralist machine of the evolutionary game theory.[111]

But there is yet another way in which these evolutionary game theoretical models, despite their structuralist armature, rely upon a theoretical humanist presupposition. In the models based on group selection, those groups that are selected do so because they solve a foundational prisoners' dilemma problem. Unlike selfish agents who

---

[111] This was also the gist of Paul Hirst's (1985) criticism of G. A. Cohen's (1978) famous defense of historical materialism.

choose to defect to pursue their narrowly defined self-interests (and failing to act as a collective), non-selfish, cooperating agents that abide by the pro-social norms have a better chance at cooperating with each other and thereby increasing their group fitness. We should ask however, for what problem is this group selection scenario offered as a solution? The underlying scenario of this evolutionary game theoretical model is a very basic variant of the theoretical problematic of neoclassical humanism and it serves as the silent humanist presupposition of its structural armature: How might we harmoniously and efficiently reconcile the diverse interests of autonomous economic agents? Yet what makes this a problem is the fact that, in the last instance, the evolutionary game theoretical models presuppose that human beings pursue their narrow self-interests—not unlike the concept of human subject that informs all the standard neoclassical models!

5. 2. 2. 2. The "individualist" response of the social choice theory

In contrast to the anthropomorphized selection mechanism of the evolutionary game theory, the social choice theory handles the question of motivational diversity at the level of anthropos proper. Amartya Sen, in his Nobel prize-winning work on the theory of social choice, developed a philosophically sophisticated and thoroughly individualist theory of preference diversity. According to Sen (2002: 5), *rationality*, defined as "reasoned scrutiny," means nothing without *freedom*. Sen's notion of freedom, however, is not simply the freedom of choosing among commodity bundles, but rather the freedom to choose how to choose or the freedom to choose according to what criteria to choose. Sen claims a "part of the freedom an individual enjoys is to entertain different preference rankings" (2002: 615). Sen handles this with his concept of *meta-ranking* (preference over preferences). The subject, through "reasoned

scrutiny," forms a ranking among the various criteria with which s/he can form preference orderings. This, for Sen, is true freedom. "Indeed," Sen argues, the "plurality of preferences can relate closely to the issue of the autonomy of a person" (2002: 617).

From its inception in the 1950s, the research agenda of the social choice theory has been to devise rules for the aggregation of individual preference "orderings" (reflexivity, transitivity, and completeness) into a collective choice that mirrored as much as possible the rationality of the individual at the aggregate level (Arrow, 1963; Sen, 1970). The "multiple-self" literature extended this research program to an analysis of the individual with multiple sub-individuals.[112] In this literature, the question of how to handle the multiple-selves is formally equivalent to the problem of aggregation of individual preferences at the level of the social. Sen's formulation of meta-ranking of rankings is, formally speaking, also a member of this family of multiple-self models.

Despite the similarity with the multiple-self models, Sen's formulation does introduce a very subtle philosophical twist by conceiving motivational diversity as a condition of the *freedom* of the subject. (This position should be contrasted with the aspects of the multiple-self literature that pathologizes the agent with the multiple selves.) It is, indeed, a worthwhile project to incorporate into the neoclassical framework the idea that the human subject can reconsider, alter, modify, or change his/her preferences. At first blush, the idea of "ranking of rankings" seems to open up the concept of

---

[112] See, for instance, the various contributions to (Elster, 1986) and (Kara, 1996). Kara (1996) formally demonstrates that problems of voting cycles arise when there are more than 2 selves!

rationality to interesting possibilities: First and foremost, the analytical framework of "ranking of rankings" makes it possible to think of a human subject capable of switching between different preference patterns. Secondly, the idea that preference can be submitted to scrutiny implies self-reflexivity on the side of human subject—an idea that has never been articulated within the neoclassical tradition.

Nevertheless, when rationality is defined as reasoned scrutiny and autonomy is defined as the "volitional possibility of changing one's preferences," the subject is once more conceptualized as the master of his own house. In other words, the preference patterns can indeed change in Sen's framework; but there is still an author, a chooser who chooses between the different preference patterns. In other words, Sen re-centers the question of diversity of preferences around the reasoned scrutiny of "truly" rational subjects. Therefore, in social choice theory, we find, once again, the central construct of neoclassical humanism: The human subject as a centered (albeit with a multiplicity of preferences) and autonomous self-reflexive self-consciousness.

* * *

To recapitulate the discussion so far, the late neoclassical debates on human motivations represent a significant widening and deepening of the research field, especially in contrast to the neoclassical silence on the matter. I have noted earlier that the predominant tendency within the neoclassical tradition was to assume as little as possible about the human mind and to evade falling into psychologism. Samuelson's revealed preference approach, Arrow's "value-neutral" reformulation of preference orderings, and even the various versions of the Marshallian "selectionist" arguments should be read as various moments of this process of "impoverishment" of

the concept of human subject. The two most significant characteristics of the late neoclassical treatments of the human subject have been their frankness regarding the assumptions that they make about the motivations of the economic agents (recall the emphasis on the "opportunism" of the economic agent in both the new institutional and new information economics) and their concerted effort to peek into the mind of the human subject (recall the various efforts in experimental economics) in order to offer a "richer" understanding of the motivations of the human subject (either as the survivor of a millions of years long evolutionary process or as a rational and autonomous self-consciousness). In this particular sense, the late neoclassical debates on the motivational basis of human action constitute a restoration, rehabilitation, and deepening of theoretical humanism in the mainstream economics. It is even possible to consider this late neoclassical interest in a richer (but no less humanist) concept of the human subject as a return to Adam Smith's *The Theory of Moral Sentiments.*[113] In this volume, in contrast to the *Wealth of Nations*, Smith constructed a knowledge of human subject who is capable of seeing things from someone else's point of view and argued that *sympathy* and *the desire for social approval* will make it possible for human beings to co-exist. Even though the sufficiency of sympathy and the innate desire for social approval for the reproduction of social cohesion and harmony is questioned in the *Wealth of Nations* (and ultimately denounced by the subsequent neoclassical appropriations of Smith's writings), Smith considered both volumes as parts of a

---

[113] Fikret Adaman of Bogaziçi University brought this aspect of the late neoclassical rehabilitation of the theoretical humanism to my attention. An important early instance of this attempt to recover the true Smith from the modernist and impoverished representations of the human subject in post-war neoclassical models (Walrasian or Marshallian) can be found in Amartya Sen's *Ethics and Economics* (1987). A most recent and rather thorough-going effort is Deirdre N. McCloskey's *The Bourgeois Virtues: Ethics for an Age of Commerce* (2006).

broader inquiry into social science (Backhouse 2002: 121). It is, in fact, possible to read the late neoclassical inquiries into the motivational basis of human rationality as "nostalgia for the *true* humanist beginnings of modern economics" (Ruccio and Amariglio, 2003: 109). The point not to be missed here is that both the modernist and impoverished neoclassical agent of the 1950s and 1960s and the nostalgic and enriched late neoclassical agents of the 1980s and 1990s are squarely within the theoretical humanist problematic, for both versions subscribe to a notion of human subject that presume autonomy, unity, self-transparency, and intentionality. In the next section, we will turn to another late neoclassical attempt to "humanize" the concept of the human subject, to the concept of bounded rationality and its uses in the late neoclassical context.

5. 3. Questions of cognitive competence in late neoclassical economics

In contrast to the debates on the motivational basis of human action, debates on the cognitive competence of human agents were centered on a single concept introduced by Herbert Simon (1976; 1978) to economics: bounded rationality. Given the complexity of most "real-life" problem situations, Simon argued, human cognitive capacities are bound to fail in all three levels of optimization: in gathering all the relevant information; in forming consistent and rational beliefs; in choosing the action that would best serve the subject's interests. The enormity of the informational requirements of neoclassical models and the toll that they put on the computational capacities of the agents was too obvious for not to be acknowledged (Radner, 1970). Similarly, a number of "paradoxes" that emerged in an earlier generation of experimental economics (the Allais paradox, the Elsberg paradox, the phenomenon of preference reversal) demonstrated that rational choice under uncertainty is limited by

perceptions, passions, and judgment (for surveys, see Elster, 1990; Tversky and Kahneman, 1990; Sugden, 1991; 2005).

Nevertheless, it is important to appreciate the diversity of the theoretical context within which Simon's concept of bounded rationality was introduced. During the 1960s and 1970s, a number of developing and active research programs were not receptive to the late neoclassical proposition that the human subject has cognitive limitations. These developments were (and in many cases continue to be) so accentuated that it is quite possible to make the case for a strong tendency towards *hyper-rationality*. To begin with, within the tradition of game-theory that focuses on the refinement of the Nash-equilibrium concept (which I will discuss further in Chapter 6), the assumption of *common knowledge rationality* (CKR) is the entry point of the research program and this entry point axiomatically postulates that each player knows all the relevant information regarding the game, that each player knows that each player knows (ad infinitum), and that all players maximize their own expected utility functions (Sugden, 1991). In addition to this assumption, classical game-theorists assume that beliefs are also consistently aligned (the Harsanyi-Aumann doctrine); that is, the agents who are given the same information will draw the same inferences and will arrive at the same conclusions (for a critical discussion, see Hargreaves Heap and Varoufakis, 1995: 25-27). In fact, when game theorists wanted to incorporate "bounded rationality," they did so by trying to fold it into a meta-optimization framework (e.g., Rubenstein, 1998).[114] In the field of macroeconomics, the rational-expectation hypothesis, which has gained significant prominence in the 1970s and

[114] In his critical assessment of such endeavors, Mirowski asks the obvious question: "[W]hy isn't the metaoptimization also bounded in some manner?" (2002: 478).

1980s, assumed that economic agents "efficiently digest all available information, and adopt the predictions of the 'relevant' economic theory as their subjective expectations" (Bausor, 1983: 1). Much less acknowledged is the expansion of the scope of rationality in the efficiency-wage models (discussed in Chapter 4) that were supposed to incorporate information failures (Shapiro and Stiglitz, 1984; Bowles and Gintis, 1993). Given their game-theoretic set up, in these models, the amount of information that the economic agents are supposed to process included the additional private economic data concerning their counterparts (de Vroey, 2003).

In an attempt to differentiate his position from that of the hyper-rationalist tendency outlined above, Herbert Simon uses the distinction between *substantive* and *procedural* rationality. Substantive rationality is the notion of rationality that "is appropriate to the achievement of given goals within the limits imposed by given conditions and constraints" (Simon, 1976: 130). As such, substantive, or *outcomes* rationality, is only concerned with the attainment of given goals (utility or profit maximization) and not with the process of reasoning.[115] To put it differently, for those economic analyses that are based on substantive rationality, the process of achieving the given goals, the process of reasoning, is a black box: once substantial rationality is assumed, "economic analysis (descriptive or normative) could usually be carried out using such standard tools as differential calculus, linear programming, or dynamic programming" (Simon, 1976: 131). Accordingly, substantive rationality implies that

[115] The term "outcomes rationality" is suggested by Uskali Mäki (1993: 16). Others have tried to explain substantive rationality, by referring to Noam Chomksy's differentiation between *theories of competence* and *theories of performance* (Laville, 2000:125-6). While a theory of competence involves the study of the abstract knowledge of language that an idealized speaker is supposed to have, a theory of performance studies how language is deployed in actual practice. Laville suggests that optimization theory (or, substantive rationality) is a theory of decision competence.

there is no need to theorize the particular *decision process* through which a given goal is achieved. In contrast, the concept of procedural rationality focuses on the decision-making process itself.

5. 3. 1. The infinite regress of unbounded (substantive) rationality

Simon's critique of the concept of the substantive rationality and *the optimization framework* that it is premised upon can be summed up in the following manner: The informational assumptions of the Arrow-Debreu model regarding what the individual economic agents need to know is in fact limited compared to the amount of information that the economic agents in imperfect market models are supposed to possess. As noted earlier, an Arrow-Debreu agent faces a *parametric* environment: as long as s/he has perfect knowledge of all the commodities, all the possible states of nature (under uncertainty) into the future, and the complete price vector, s/he does not need to know anything about the others (namely, their private information regarding their preferences, wealth constraints, and technology). In two important theoretical contexts, under *non-parametric strategic* (i.e., game-theoretic) contexts *and* when the optimization procedure turns back onto itself in order to optimize on the costs of the very act of optimization, the situation changes and the problem of the infinite regress of unbounded rationality emerges.

Consider first, for instance, the game theoretic context where the strategy choice of each agent depends on the decisions of the other agent(s). In such *strategic* contexts, the choice-decision of the first agent is contingent upon the choice-decision of his opponent and vice versa. Since "none can choose without making assumptions about how others will choose" (Simon, 1976: 140), it is impossible to arrive at a decision without falling into an infinite regress of assuming that the other player makes a

particular choice that is based on an assumption about your play, which in turn must be based on an assumption about the strategy choice of the other player and so on...[116] Hence, the infinite regress of choice in the Nash theoretic settings.

Let us now consider the curious case of "optimum level of optimization." If optimization was understood as an actual set of procedures, it would be easy to see how optimization/substantive rationality will collapse into an infinite regress: Given the costs of computational resources, trying *to optimize on the act of optimization* may indeed be the most rational course of action (Baumol and Quandt, 1964). But once the agent begins to optimize on optimizing, then s/he should also consider optimizing on optimizing on optimizing. Or, to put it slightly differently, what would be the optimum amount of time and energy spent to find the optimum amount of time and energy to be spent on the act of optimization? When the concept of "bounded rationality" is domesticated and subsumed under the optimization framework in this manner, we find ourselves entangled in such infinite regress situations.[117] Unless, of course, the agent (arbitrarily) decides that the measures taken are sufficient and ceases to optimize abruptly (Simon, 1959: 262-4; see also Laville, 2000). Simon calls this "satisficing behavior."

---

[116] It is usually argued that the Nash equilibrium solution concept (a strategy combination where each strategy is a best reply to the other) was developed in order to circumvent this problem of circularity and infinite regress; but it resolved the problem only by burying the agent under even more demanding informational requirements such as the capability to peek into the opponents' mind ("Common Knowledge Rationality" and "Consistent Alignment of Beliefs"). More on this below.

[117] Without doubt, none of these logical problems "exist" from the perspective of *substantive* rationality, for that framework does not concern itself with the *procedure* of decision-making and assumes that optimization happens instantaneously.

Simon, therefore, intended his concept of "bounded rationality" and the concept of "satisficing" as a critique of the idealized vision of the optimizing agent with unheard of computational skills. But his critique shared something in common with the object of its critique, with what Simon calls "the optimization paradigm." Without doubt, Simon's research program was intended to be critical of the optimization paradigm in/of economics and those who try to subsume the concept of bounded rationality in the optimization paradigm are doing an injustice to him. Yet at the same time, precisely because the foundational premise of Simon's research program was the analogy between the computer and the human mind, epistemologically (and, I would argue, ontologically) speaking, Simon's cognitive economics shares a common ground with the mainstream understanding of human rationality. In the next section, I will address this matter.

5. 3. 2. Theoretical humanist presuppositions of cognitive economics

Simon is very clear about the central importance of the analogy between the man and the computer for his research program of cognitive economics: "Complexity is deep in the nature of things, and discovering tolerable approximation procedures and heuristics that permit huge spaces to be searched very selectively lies at the heart of intelligence, whether human or artificial" (Simon, 1978: 12; emphasis added). Indeed, this analogy informs much of the post-war mainstream *representations* of the human subject. The representation of the economic agent found in the Arrow-Debreu model, in the rational expectations model, or in the various game theoretic models mentioned earlier was essentially a "cyborg" hard-wired with "calculators" or

better yet with "statistical software"![118] The analogy between the man and the computer that underpinned these variants of the optimization paradigm within the neoclassical tradition was based on the assumption of *substantive* rationality. In contrast, Simon's project of simulating "rule driven problem-solving strategies in complex contexts" (Davis, 2003: 97) relied upon a different type of analogy between the man and the computer. Unlike the lightening calculators of the optimization paradigm, Simon's simulations were self-contained problem-solving algorithms which were supposed to capture the *procedural* aspect of rationality.

> The [...] field of cognitive simulation (or "cognitive science" as it is more and more being called) is concerned with programming computers to do the clever things that people do, but to do them by using the same information processes that people use. (Simon, 1978b: 496-7)

Simon's cognitive (behavioural) economics is indeed different from the pseudo-cyborg neoclassical economics. Nevertheless, despite the fact that it concedes that human cognition has its limitations, cognitive economics remains a theoretical humanist project: The very project of simulating algorithms assumes that "there really does exist a well-defined optimization problem out there, and the solution to that problem is ultimately the benchmark of rationality" (Langlois, 1986: 227). In other words, at a very fundamental level, Simon subscribes to an ontology of optimization and proceeds

---

[118] In his *Machine Dreams: Economics Becomes a Cyborg Science* (2002), Philip Mirowski tells a "noir" story of post-war neoclassicism, the collaborations of its proponents with the cyborg sciences, and the attempts of the neoclassical and late neoclassical economists to domesticate the radical implications of the cyborg sciences. A similar narrative can be found in John B. Davis' *The Theory of Individual in Economics* (2003). Both authors argue that the cyborg ontology of agency is only allowed in if its complicated man-machine interface (e.g., man using a statistical software to produce) can be forced into the neoclassical category of the individual. Nevertheless, they rightly claim, this new cyborg ontology of agency is neither simply on the side of the machine nor on the side of the man but in-between, in the moment of articulation of the machine as an enabling prosthetic device with the man.

to study how human societies devise tools and methods to deal with the complexity of the problem.[119]

On the other hand, it really does not matter how Simon intended to use the concept. The concept of bounded rationality soon became a valuable addition to the conceptual artillery of the late neoclassical economics and was subsumed under a (softened) optimization paradigm. For instance, Kenneth Arrow, the founder of new information economics, argues that "the individual's very limited capacity for acquiring and using information is a fixed factor in information processing, and one may expect a sort of diminishing returns to increases in other information resources" (Arrow, 1974: 39).[120] The idea that the "sensory perception abilities of human beings" are limited, therefore, is cited as yet another reason why markets may fail to perform the way the standard model predicts them to perform, yet another functionalist explanation of non-market institutional arrangements as supplements to or substitutes for markets.

In this vein, consider the new institutionalist economic historian Douglass North, who argues that institutions exist to reduce uncertainties, and uncertainties "arise as a consequence of both the complexity of the problems to be solved and the problem-solving software (to use computer analogy) possessed by the individual" (1990: 25).

---

[119] Following the passage quoted, Richard Langlois proceeds to argue that Simon remains within the Cartesian epistemology, "that sees reason as conscious, logical deduction from explicit premises" (1986:226). He argues that under conditions of Shacklean "structural" (as opposed to "parametric") uncertainty, the epistemological conditions of optimization do not exist.

[120] Despite this conceptualization of bounded rationality, the new information economics that Arrow inaugurated proceeds to construct agency-theoretic models where the principal knows agent's "best response functions" (Shapiro and Stiglitz, 1984; Bowles and Gintis, 1990).

Once again, the "limits" of rationality and the "complexity" of environment make it necessary to supplement human interactions with institutions. North argues that institutions "evolve to simplify the process. The consequent institutional framework, by structuring human interaction, limits the choice set of the actors" (1990: 25).

Even though North is quick to add that "[t]here is nothing in the above statement that implies that the institutions are efficient" (1990: 25), this does not change the fact that North (and other late neoclassical economists) implicitly refers to the efficiency paradigm of the standard neoclassical model. For these late neoclassical approaches, "bounded rationality" (just like "transaction costs") is just another factor that frustrates the achievement of the level of efficiency promised by the perfectly competitive model as embodied either in the Marshallian selection framework or in the Walrasian auctioneer framework, depending on the particular affiliation of the late neoclassical economist under consideration. For Arrow, bounded rationality is another reason why, if a society wants to economize on information costs, "incentive compatible" non-market institutions (i.e., authorities) will necessarily be "needed." For Williamson (1984), in a similar fashion, "hierarchies" emerge in order to make up for the fact that human beings are boundedly rational. For North, "the central puzzle is the persistence of inefficient institutions" (Vira, 1997: 767). Without doubt, the relevant question here is the following: Inefficient with respect to what criteria? The hidden standard in all these formulations is a variant of the standard model of perfect competition.

5. 4. Conclusion

Even though a number of assumptions of the architecture of rational choice were opened up for debate and some of the assumptions were significantly relaxed (albeit in a piece-meal fashion) within the late neoclassical context, none of these re-formulations of the concept of rationality broke with the theoretical problematic of neoclassical humanism. When discussing the status of information, even though "information failures" are invoked, the late neoclassical formulations of these failures are always articulated in reference to the assumption of perfect information and continued to presume opportunism on behalf of the economic agents. When discussing the nature of preferences and the motivational basis of human action, even when the idea of motivational diversity is entertained (and the assumption of opportunism is weakened), it is handled as a matter of "choice" among different types—the chooser being either the individual (as it was for the social choice theory) or the anthropomorphized Nature (as it was for the evolutionary game theory)! And finally, when discussing the limitations on the cognitive capabilities of the individual agent, even when late neoclassical economists do not evade the issue by subsuming it deeper under a version of substantive rationality (as in certain game theoretic formulations of the concept), they still presume that the agent is rational, i.e., centered, self-conscious and autonomous, albeit limitedly so.

In conclusion, let us return to the three theses on late neoclassical economics proposed in Chapter 3 (i.e., the conjunction of unity and dispersion, the continuity, and the response theses) and offer an assessment of the late neoclassical debates on rationality. The late neoclassical discussions of the various aspects of the concept of rationality betrays a significant amount of dispersion (with a wide range of positions, frameworks,

and research methodologies) yet continues to be structured around two key debates: Is there a motivational diversity? How does one incorporate a concept of the process of decision-making into models of human rationality? To the extent that these debates are explorations within the broader theoretical problematic of neoclassical humanism, the late neoclassical condition does not constitute a radical departure from the neoclassical tradition. Rather, the late neoclassical condition displays a deepening and widening of a tradition that continues to be structured and centered around the problem of how to reconcile the interests (however defined) of autonomous and self-transparent human subjects at the level of the social in a harmonious, growth-inducing, "efficient" manner. And finally, the late neoclassical turn to a richer and more nuanced concept of human subject that incorporates bounded rationality and motivational self-reflexivity is a response to the impoverished concept of human subject that was expounded by the post-war neoclassical economists.

CHAPTER 6

EQUILIBRIUM, EFFICIENCY, AND INSTITUTIONS IN LATE NEOCLASSICAL ECONOMICS: HUMANISM IN A GAME THEORETIC MODE

6. Introduction

This chapter, as the third and final installment of a three part mapping of the late neoclassical condition outlined in Chapter 3, traces the late neoclassical trajectory of the concept of equilibrium as the harmonious reconciliation of the diverse interests of rational, autonomous, and self-transparent agents. As I argued in Chapter 1, the concept of equilibrium as a social state of harmonious reconciliation is one of the two constitutive presuppositions of neoclassical humanism. Within late neoclassical economics, a particular subfield, the field of game theory, stands out as a particularly relevant context for exploring the trajectory of the concept of equilibrium. In the post-war era, within the field of game theory two new concepts of equilibrium (not to mention their various refinements) began to be circulated: starting in the 1950s, the concept of Nash equilibrium associated with classical game theory and starting in the 1970s, the concept of evolutionary stability associated with the evolutionary game theory. This chapter offers an analysis of the transition from classical to the evolutionary game theory within late neoclassical economics as a result of a search for a more "robust" concept of equilibrium and, in doing so, traces the different roles that the concept of the "institution" has played in this search.

In this chapter, my aim is to offer an assessment of the developments in the field of game theory, once more, in light of the three theses on late neoclassical economics proposed in Chapter 3: the characterization of the late neoclassical condition as one of *dispersion and unity*, the *continuity* of late neoclassical approaches with neoclassical economics, and the status of late neoclassical economics as a *response* to a perceived crisis of Walrasian neoclassicism. Accordingly, the three questions that I answer are as follows: To what extent does the game theoretic concern with specifying and refining the notion of equilibrium conform with *the unity and dispersion thesis*? To what extent do the late neoclassical treatments of the concept of equilibrium represent a *break* from the neoclassical tradition and its concepts of equilibrium (e.g., Edgeworthian, Marshallian, and Walrasian concepts of equilibrium)? And finally, to what extent does the rise to predominance of game theoretic discourses represent a *response* to the purported crisis of Walrasian dominance of the post-war period?

The structure of the chapter is as follows. The next section (6.1) recapitulates the basic history of the concepts of equilibrium that circulated within the neoclassical tradition and situates the game theoretical debates within this historico-genealogical context. The remainder of the chapter is divided into two main sections. Focusing on classical game theory and the concept of Nash equilibrium, section 6.2 elucidates the theoretical humanist presuppositions of the Nash equilibrium concept and offers a critical evaluation of the philosophical implications of the classical game theoretic research program: Even though the type of rationality assumed by the Nash program in game theory is bordering on hyper-rationality, the concept of Nash equilibrium failed to deliver unique and efficient equilibrium outcomes in a large class of games. In those cases, not unlike the new institutional and post-Walrasian economists

discussed in Chapter 4, the game theoretic literature chose to supplement the individual rationality with a structure (i.e., a norm, a social convention, an algorithm, an institution). In discussing the ways in which "institutions" are introduced to facilitate equilibrium solutions, I distinguish between the left liberal and the pro-market positions within the game theoretic literature. Section 6.3 offers a discussion of the theoretical humanist presuppositions of the evolutionary game theory and critically evaluates the concept of spontaneous order. The latter concept, I argue, serves as a response to the left-liberal focus on the non-coincidence of efficiency and equilibrium (as illustrated in the "prisoners' dilemma" game). The concluding section asks whether or not the game theoretic language is necessarily a theoretical humanist construct and re-visits the three questions posed above.

6. 1. Concepts of equilibrium in the neoclassical tradition

Throughout the history of the neoclassical tradition, the concept of equilibrium has been formulated in a number of, and not always complementary, ways. In the nineteenth century, the Jevonsian concept of exchange, in which two centered, rational, autonomous and opportunistically motivated agents enter into a mutually beneficial transaction, articulated a very basic and foundational notion of equilibrium—a state from which neither party has a reason to move away from. This concept of equilibrium, which could be visualized by two merchants shaking hands, is significantly different from the vision of equilibrium that informed the other Walrasian variant of early neoclassicism. According to this contemporaneous version of the concept of equilibrium, the economy is envisioned as a system of markets—as opposed to an exchange between two agents. In contrast to the Jevonsian vision of exchange equilibrium (which will, later on, be canonized in the Edgeworth Box), the

Walrasian concept of equilibrium is an economy-wide equilibrium in which all markets (each with multiple buyers and sellers) simultaneously clear.

In addition to these two concepts of equilibrium, in the subsequent Marshallian consolidation of textbook neoclassicism, it is possible to identify a third concept of equilibrium. In contrast to the general equilibrium concept that informs the Walrasian vision, the Marshallian vision focuses on particular markets and deploys a concept of partial equilibrium. Moreover, in contrast to the Walrasian vision where a fictional Auctioneer adjusts the price vector until the economy-wide equilibrium is reached, the Marshallian vision relies on the biological metaphor of selection mechanism where the process toward equilibrium entails adjustments in the quantities supplied and demanded. In the Walrasian vision of price-adjustment, when the markets close at the end of the day all the buyers and sellers remain in the market; in the Marshallian-inspired vision of market-adjustment, it is quite plausible that some agents may be forced to leave the market (and not simply scale down production) as a consequence of the adjustment process—for instance, those firms whose average variable cost is above the market price.[121] In fact, in the Marshallian vision, the market price fluctuates and arrives to an equilibrium in response to shifts in the demand and supply schedules (i.e., in response to the adjustments in quantity).

In the post-war period, as the émigré mathematical economists began to develop and refine the various aspects of the Arrow-Debreu general competitive analysis, under the institutional support of the Cowles Commission and the RAND Corporation, the

---

[121] This, of course, will lead to a change in the market supply and demand functions themselves. For somewhat divergent discussions of the difference between the Walrasian and Marshallian adjustment rules, see (Novshek and Sonnenschein, 1987) and (Katzner, 2006: 333-338).

Walrasian vision of general equilibrium swiftly gained disciplinary currency and attained dominance within the neoclassical tradition, perhaps overshadowing other concepts of equilibrium. Nevertheless, as discussed in Chapter 2, by the end of the 1960s and throughout the 1970s, ironically as a result of the meticulous efforts of the adherents of the A-D model, the neoclassical tradition was confronted with an unpleasant predicament: if it wished to develop the idea of general equilibrium (i.e., harmonious and contradiction-free economic order) as a spontaneous and unintended outcome of the rational actions of individual economic agents, it seemed like it had to give up the idea that each individual is unique, distinct, and autonomous. The Sonnenschein-Mantel-Debreu results demonstrated that, unless further restrictions are imposed on the types of preference that the consumers can have in an A-D economy, it was impossible to establish the conditions necessary for the *uniqueness* and *global stability* of general equilibrium. This predicament meant for many neoclassical economists (but not all) the loss of the intended generality of a thoroughly individualist general equilibrium model. Accompanying the matters that pertain to the uniqueness and global stability of the general equilibrium, there was the problem of how to conceptualize the process of *price adjustment* (price determination). The auctioneer metaphor, invoked in order to motivate the *tâtonnement* process through which the suppliers and the buyers modify their plans (in relation to everyone else's plans) outside of real time until equilibrium is finally reached, was far from convincing. Moreover, historically the auctioneer metaphor was used by the left-leaning Walrasian economists (e.g., Abba Lerner, Oskar Lange) and (correctly) interpreted by neoclassical economists with pro-market leanings (e.g., George Stigler, Milton Friedman) as a euphemism for a central planning agency that the former camp would like to see guide the economy. As the post-war left Keynesianism came to a close with

the oil shocks of the early 1970s and with the rise of neoliberalism in the 1980s, the Walrasian skein of neoclassical economics, with its now politically anachronistic vision of general equilibrium that required government intervention to undertake the most basic function of markets, namely the determination of the equilibrium price vector, was no longer an attractive proposition.[122]

Nevertheless, even though the Walrasian concept of general equilibrium had lost its magic, the characteristically neoclassical search for a *unique*, *stable,* and *Pareto optimal* equilibrium has not lost its hold over late neoclassical economics. In Chapter 2, I have already mentioned the Marshallian-inspired Chicago alternative to the Walrasian auctioneer metaphor: For the proponents of the pro-market Chicago School, the metaphor of selection mechanism (as opposed to the auctioneer metaphor) proved to be a convincing enough model of the process of market adjustment. The proponents of the ascendant Coasean new institutional economics also embraced the metaphor of a selection mechanism as the engine of institutional change and economic growth. Even though the left-liberal post-Walrasian economists (e.g., Akerlof, Stiglitz, Bowles) tried to soften the social Darwinian overtones of the new institutional literature through concepts such as "path dependency," the evolutionary metaphors quickly became a part of the late neoclassical discourse. Nevertheless, the full-on entry of the mathematical models of evolutionary change and stability into late neoclassical economics happened within the adjacent field of game theory and in the form of the evolutionary game theory. In

---

[122] For recent Marxian accounts of neoliberalism that takes history of economic thought into account, see David Harvey's *The New Imperialism* (2003) and Meghnad Desai's *Marx's Revenge* (2003).

order to make its entrance, however, the evolutionary game theory had to wait for the classical game-theoretic path to be exhausted.

Indeed, the transition in the field of game theory from *classical* game theory to the *evolutionary* game theory is parallel to the aforementioned transition from the disciplinary hegemony of the Walrasian auctioneer-led general equilibrium concept to that of the Marshallian selection-led partial equilibrium concept. The former transition is particularly important for the discussion of the persistence of theoretical humanism in late neoclassical economics because it is also a transition from one concept of equilibrium (Nash) to another (evolutionary stability).

Let us recall, if only in broad brush strokes, the basic contours of the history of game theory. Even though Cournot's model of imperfect competition is usually referred to as the earliest formulation of game theory in economics, the first systematic treatment of the game-theoretic methodology is found in John von Neumann and Oskar Morgenstern's *Theory of Games and Economic Behavior* (1953), the first edition of which published in 1944. The equilibrium concept that underpins the subsequent research in classical game theory, however, is formulated by John Nash (1950; 1951). The Nash program in game theory (i.e., classical game theory) is the study of equilibrium solutions for non-cooperative games, where perfectly rational individual agents do not communicate or cooperate and pursue all the necessary means to achieve their welfare maximizing goals (Myerson, 1999). The evolutionary game theory, on the other hand, "studies the population dynamics of a repeated game" in which "the number and types of players are allowed to change over time" (Sandler, 1997: 173). The evolutionary game theory developed in the 1980s and 1990s as the enthusiasm

with the Nash program in game theory began to wane (Samuelson, 2002).[123] As a result of this undoubtedly incomplete transition the late neoclassical tradition incorporated into its conceptual artillery the concept of "spontaneous order" (Sugden, 1989)—a concept that is critically evaluated from a Marxian surplus perspective below, in section 6.3.

The temptation is to map this transition in the field of game theory on to the difference between the Walrasian understanding of the auctioneer-led iterative process of price adjustment which corresponds to the ontology of rational agent choice that underpins classical game theory and the Marshallian understanding of selection-led process of market adjustment which corresponds to the social Darwinian ontology of survival-of-the-fittest (or, in more careful formulations, "fitter") that underpins the evolutionary game theory. For instance, Larry Samuelson welcomes the evolutionary game theory for "it brings game theory closer to economics by viewing equilibrium as the outcome of an adjustment process rather than something that simply springs into being" (2002: 48). This analogy is indeed accurate to a certain extent. Nevertheless, accounting for the philosophical underpinnings of this transition in the field of game theory will require us to explore the concept of

[123] Many commentators trace the origins of the entry of evolutionary metaphors into economics to Marshall's declaration that "the Mecca of economists lies in 'economic biology'" (Vromen 1995: 1). In this lineage, it is also customary to reference a subset of the Marshallian structuralists (Alchian, 1950; Friedman, 1953; Becker, 1962). But this lineage is shared by both evolutionary economics of the likes of Richard Nelson, Sidney Winter, and Geoffrey Hodgson and the evolutionary game theory of the likes of Theodor Bergström, Larry Samuelson, and Robert Sugden. The latter tradition breaks off from evolutionary economics as it directly adopts the biological models of the evolutionary game theory. An early text in this regard is none other than Gary Becker's analysis of altruism (Becker, 1976)—the methodology deployed in this analysis of altruism is borrowed from mathematical biology and different from the Marshallian structuralism of the 1962 article (see Chapter 2). But the canonical reference is John Maynard Smith's *Evolution and the Theory of Games* (1982).

"spontaneous order" as it was formulated by the proponents of the Austrian tradition (Hayek, 1988). With the evolutionary game theoretic formalization of the concept of "spontaneous order," a game theoretic school of thought inspired by the insight of the Austrian school became an interlocutor in the late neoclassical conversation. This is a particularly important point that needs to be appreciated for it means that there are three different formulations of the neoclassical problematic: the post-Walrasian "prisoners' dilemma" position, the selectionist Chicago "invisible hand" position, and the Austrian "spontaneous order" position.

In this theoretical context, it is perhaps appropriate to ask whether or not the evolutionary game theory, to the extent that it veers towards the Austrian school, breaks from the neoclassical tradition? Or, to ask the same question from the other side, does the evolutionary game theory serve to pull the Austrian perspective into the gravitational center of the neoclassical tradition, to be deployed by the latter as yet another reformulation of the theoretical humanist problematic of how to socially reconcile the interests of autonomous, self-conscious, and self-transparent human subjects?[124]

Interestingly enough, at the core of this transition, I locate, once again, the theoretical humanist problematic of neoclassical humanism, namely the commitment to theorize the reconciliation of individual and collective rationality and the desire to establish the conditions of existence of a harmonious reconciliation (i.e., a Pareto efficient equilibrium) of individual interests. The evolutionary game theory contributed to the

---

[124] This is a question posed to me by both Fikret Adaman of Bogaziçi University Istanbul and Irene van Staveren of Radboud University Nijmegen during the "Whither Orthodoxy?" roundtable discussion at the Rethinking Marxism 2006 Conference, October 26-28, University of Massachusetts Amherst.

rehabilitation of the theoretical humanist presuppositions of this theoretical problematic on two accounts. First, as I discussed in some length in Chapter 5, the evolutionary game theory provided a theoretical framework for understanding the origins and causes of human motivations and economic behavior (see, for instance, Robson, 2002). Second, as I will discuss in this chapter, its core concept of *evolutionary stability*[125] gained currency within economics mainly because it has successfully narrowed down the set of plausible Nash equilibria. In other words, the evolutionary game theory gained currency within the late neoclassical context because it contributed to the theoretical humanist project of neoclassical economics by reinforcing its behavioural foundations and by providing a new concept of equilibrium—one that addresses the problem of non-coincidence of Pareto efficiency and equilibrium.

In what follows, I will begin by focusing on the developments within the subfield of classical game theory and, in this context, I will discuss the central role that the Nash equilibrium concept has played for late neoclassical economics and its various theories of institutions. Then, I will proceed to show how the concept of evolutionary stability ("spontaneous order") is offered as an alternative to the concept of Nash equilibrium by the evolutionary game theorists. In this context, I will explore the implications of this new concept of equilibrium to the late neoclassical discussions of the origins and evolution of economic institutions and their (comparative) efficiency. It is important to note that I will not study the transition from classical game theory to the evolutionary game theory in terms of a transition from one set of mathematical

---

[125] For Richard Dawkins, an evolutionary theorist, the concept of evolutionary stability is "one of the most important advances in evolutionary theory since Darwin" (1989: 84).

apparatus to another one. The types of games chosen in each program, as well as the interpretation of these games and their solutions, have philosophical underpinnings and political implications. I will concentrate my attention on the philosophical and political dimensions of these late neoclassical research programs and not on the details and niceties of the mathematical innovations therein.

6. 2. From general equilibrium to the Nash equilibrium

It is now well established that the early mathematical formalizations of the A-D general equilibrium model were, in part, inspired by the generalization of *n*-person equilibrium idea of Nash (Weintraub, 1985: 90). Also, as I noted in the previous chapter, the notion of Nash equilibrium, even though it burdened the concept of rationality with further assumptions, was welcomed by the profession as a solution to the problems of circularity (and infinite regress) introduced by the interdependence of choices (Myerson, 1999). Recall that in two person non-cooperative games, when each agent has a *dominant strategy* that could be chosen regardless of the other agent's choice, there is no need to know anything about the other's choice and hence there is no interdependence of choices (only an interdependence of outcomes).

Table 1. The Invisible Hand Game

		Agent 2	
		Follow self-interest	Be altruistic
Agent 1	Follow self-interest	4, 4	2, 0
	Be altruistic	0, 2	0, 0

Consider, for instance, the game of invisible hand where the dominant strategy for both agents is to follow self-interest (Table 6.1). While *the outcome* of the game is dependent of what each agent chooses, the strategy choice of each agent is not interdependent: each agent, in making his/her choices, doesn't need to take into account the other's choice.

Unfortunately, games such as these (the A-D general equilibrium being an *n*-person version) constitute only a subset of the universe of games. For instance, when there is no dominant strategy but only a number of "rationalizable strategies"[126] (where the reasoning goes "since the Agent 1 is not going to play this way…") without any "justifiable reason" to choose among them, the Nash equilibrium solution saves the day—by enabling the game theorists (and the gamers, for that matter) narrow down the set of "plausible" strategies!

6. 2. 1. The underlying assumptions of the Nash equilibrium concept

In this section, I will introduce the concept of Nash equilibrium by gradually building up its assumptions: the common knowledge rationality and the consistent alignment of beliefs. Within the classical game theoretic literature, in the absence of dominant strategies, when not only *the outcome* but also *the choice of strategy* becomes a matter of interdependence, it becomes necessary to impose the assumption of *common knowledge rationality* (CKR): If a proposition is "common knowledge," then "each player knows it to be true, each knows that the other knows it to be true, and so on" (Sugden, 1991:

---

[126] Following Bernheim (1984), Hargreaves Heap and Varoufakis define *rationalizable strategies* as "those strategies that are left in a two-person game after the process of successive elimination of *dominated* strategies is completed" (1995: 48; emphasis added).

764). According to CKR, each gaming agent is assumed to make choices like a rational-expected-utility-maximizing-game-theorist who knows not only the

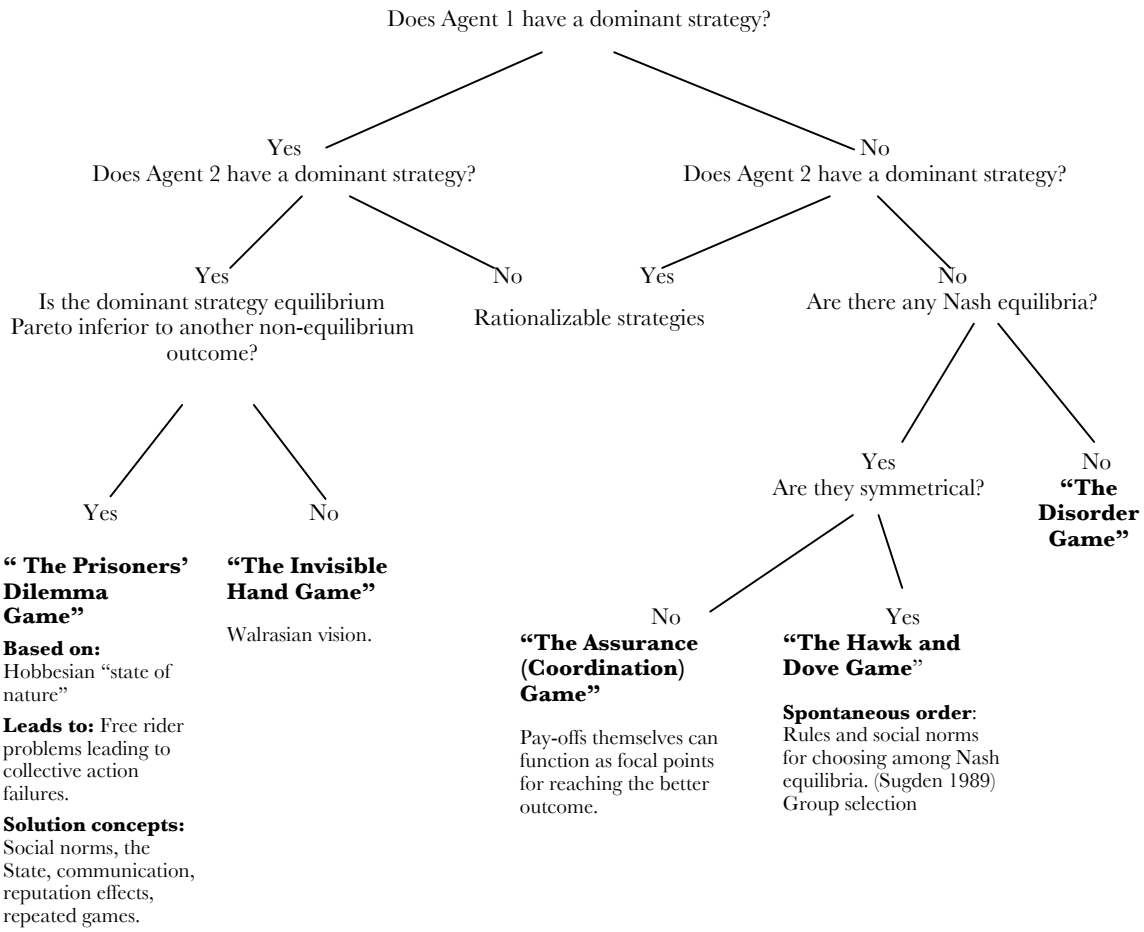

Figure 1. A Taxonomic Outline of Chapter 6.

This chart enables to elucidate the conceptual structure of the chapter. We begin with looking for *dominant strategies*. If both agent has a dominant strategy we ask whether or not the *dominant strategy outcome* is Pareto optimal. If one has a dominant strategy and the other does not, we are in the realm of *rationalizable strategies*. (In these cases, CKR has to be assumed.) And if there are no dominant strategies, we ask if there are any Nash equilibria? (In these cases, both CKR and CAB has to be assumed.)

mathematical structure of the game and all the possible theorems to find a solution, but also that all the other gamers are like himself. The assumption of CKR enables a rational agent to attribute an identical rationality to her opponent. As a result, it becomes possible for an agent to rule out the dominated strategies of her opponent and reduce her own "rationalizable" set of strategies, preferably to a unique one. For instance, if an agent does not have a dominant strategy, the first thing he does is to assume the CKR and ask if his opponent has a dominant strategy. If the opponent has one, the agent "rationalizes" and narrows than his own set of strategies (see the first two questions on the right hand of Figure 6.1).

Nevertheless, when there are "multiple" rationalizable strategies, the CKR is not enough to find an equilibrium. It is at this stage that the Nash equilibrium solution comes to rescue and makes one more assumption by requiring that everybody's belief should be consistently aligned. The notion of *consistent alignment of beliefs* (CAB) is based on the assumption that "when two individuals have the same information, they must draw the same inferences and come, independently, to the same conclusion" (Hargreaves Heap and Varoufakis, 1995: 25). Accordingly, when an individual's and his opponents' views are consistently aligned, neither would need to change his or her plans when they learn about each other's plans.

> A set of rationalisable strategies (one for each player) are [sic] in a Nash equilibrium if their implementation confirms the expectations of each player about the other's choice. Put differently, Nash strategies are the only rationalisable ones which, if implemented, confirm the expectations on which they were based. This is why they are often referred to as self-confirming strategies or why it can be said that this equilibrium concept requires that player's beliefs are consistently aligned. (Hargreaves Heap and Varoufakis, 1995: 53)

Even this "hyper-rationality" may fail to deliver a unique equilibrium. There may be cases where there is no Nash equilibrium in pure strategies (the disorder game).[127] Or, there may be cases when there are "multiple" Nash equilibria with no clear reason to choose one of them (i.e., where none of them is Pareto superior to the rest) (the hawk and dove game"). Or, even though there is a unique Nash equilibrium, it may be Pareto dominated by another non-equilibrium outcome (the prisoners' dilemma Game"). In such cases of multiple Nash equilibria or unique but Pareto-dominated Nash equilibrium, the game theoretic literature is forced to supplement the individual rationality with a structure (a norm, a social convention, an algorithm, or an institution). In the next section, I will investigate the role that this concept of institutions (qua supplementary "solution" devices) plays in the context of classical game theory.

6. 2. 2. The humanism of the Nash equilibrium concept and the role of institutions

In this section, I explore how the institutions figure in the context of the game theoretic formulations of equilibrium and efficiency. I will consider two cases: the case when there are multiple Nash equilibria with no "justifiable reason" to choose between them (pure coordination games) and the case when there is a unique Nash equilibrium but it is Pareto-dominated by another outcome (prisoners' dilemma games). I will address the interesting case of the non-existence of a Nash equilibrium in pure games in the conclusion of section 6. 3. 2 (Table 6.5).

---

[127] In mixed strategies, there is always a Nash equilibrium. How to interpret mixed strategy equilibrium remains, however, a central point of contention in game theory (Elster, 1990: 25; Hargreaves Heap and Varoufakis 1995: 64-79). More on this below.

Table 2. The Assurance Game

		Worker B	
		Not Strike	Strike
Worker A	Not Strike	2, 2	2, 0
	Strike	0, 2	4, 4

When there are multiple equilibria, we further ask whether the Nash equilibria are identical or not. If the multiple Nash equilibria are not identical, as it is in the case of Table 6.2, it may be possible to settle to the Pareto superior of the outcomes. In the following scenario, the agents are workers in an open shop workplace, where there is no obligation to go on to strike. This is a "coordination" problem where the agents benefit from coordinating their actions, for if one agent strikes and the other does not, the one who struck loses her job, and vice versa. In this game of "assurance," there are no dominant strategies, but two Nash equilibria: either no one should strike or all should strike simultaneously.

However, given its pay-off structure where the Strike-Strike outcome Pareto-dominates the Not-Strike-Not-Strike outcome, this game does not pose a serious problem.[128] In fact, *the pure coordination games* where the outcomes are identical provide

[128] At least this seems to be the consensus among the game theorists (Harsanyi and Selten, 1988; Sugden, 1995). But Andrew Colman convincingly argues that "the pay-off dominance principle, though intuitively compelling, is without a rational justification" (1997: 70). By "rational justification," Colman means that it is impossible to justify the Strike-Strike outcome without taking "radical departures from the standard rationality/information assumptions of game theory or the rules of the game [namely the standard CKR assumptions of game theory]" (1997: 73), such as repeated plays of the game (Taylor, 1987), such as costless pre-play communication (Farrell, 1988), or team rationality (Sugden, 1995).

a more fundamental challenge. In such cases, the problem is the simple task of coordinating the choices of the agents. Yet the standard CKR assumptions fail to provide a reason to choose between either strategies. In order to generate a unique and stable equilibrium, the game theorists introduce the concept of social institutions as an equilibrium selection device: The concept of "salience" (or "focal points") is developed to describe the role played by those institutions that coordinate the agents' decisions in unrepeated games without communication (Schelling, 1960). The concept of "focal points" is extended to include conventions, social norms, and institutional arrangements that serve agents as prosthetic devices, to coordinate their actions to settle on one of the equally attractive or identical Nash equilibria. In other words, in a world with rational agents, institutions exist in order to coordinate equilibrium outcomes. In this sense, the game of assurance (pure coordination) stages a version of the constitutive theoretical problematic of neoclassical humanism: How to establish the conditions of existence of equilibrium (i.e., harmonious reconciliation) in a world populated with centered, autonomous, and rational beings?

Let us now consider the ubiquitous prisoners' dilemma game (Table 6.3). In this game, the dominant strategy Nash equilibrium (Defect, Defect) happens to be Pareto inferior to the outcome that would result if both agents were to cooperate. The problem in this case is that without the presence of communication, trust, or credible threat between the agents, the standard CKR assumptions of rationality are not enough for "justifying" the Pareto superior outcome of cooperation. The prisoners' dilemma game has all the elements for staging the liberal version of the neoclassical problematic: the possibility of harmonious reconciliation of interests (i.e., Cooperate, Cooperate), the impediment (the absence of trust, the presence of narrowly self-

interested behaviour, etc.), and the policy conclusion (since the decentralized markets fail to deliver the sought out social harmony, other institutional arrangements will be necessary to make this possible).

Table 3. The Prisoners' Dilemma Game

		Agent 2	
		Defect	Cooperate
Agent 1	Defect	1, 1	3, 0
	Cooperate	0, 3	2, 2

This game formalizes "the state of nature scenario" of the liberal late neoclassical position (and retroactively, the liberal neoclassical position) that argues that "markets are not enough." According to this scenario, the existence of institutions is usually explained through the trope of "social devices"[129] that enable the agents to reach the Pareto superior outcome.

Within the history of economic thought, there are number of theoretical orientations that embrace this position, the Keynesian tradition being a prominent one. A very influential demonstration of the non-coincidence of equilibrium and efficiency is found in Keynes' demonstration of how capitalist macroeconomic equilibrium can be and usually is non-coincident with full employment. Keynesian tradition posits that a full employment economy is more efficient than an economy with less than full

[129] The following can be mentioned as examples of such social devices: institutions that impose the repeated game structure (e.g., the firms as long-term contracts); institutions that facilitate communication (e.g., clubs, unions, associations); institutions that impose credible threats (e.g., the government); institutions that facilitate trust (e.g., religious institutions).

employment. In the context of post-war North American academia, these Keynesian ideas, in the form of macro-economic general equilibrium models, found a home at the Cowles Commission. In other words, Keynesian insights (to Joan Robinson's chagrin) were quickly subsumed ("bastardized") under the general equilibrium framework of Walrasian neoclassicism. Within the late neoclassical context, post-Walrasian and new Keynesian economists, with their analysis of information imperfections in the factor markets (labor and capital markets), also correspond to this position (see Chapter 4). When read from the perspective of this left liberal genealogy, the "prisoners' dilemma" game gains an emblematic status as the privileged "state of the nature" game of the liberal wing of the neoclassical tradition. Since it is impossible to arrive to a Pareto optimal state of equilibrium as a result of the decentralized choices of rational actors, it is necessary to supplement the individual rationality with a coordinating institution (e.g., the government, the firm, social norms).

The treatment of non-market institutions in the "prisoners' dilemma" game is quite different from their treatment in the "invisible hand" game (where the dominant strategy equilibrium is the Pareto-optimal outcome). The "invisible hand" games (see Table 6.1) formalize the "state of nature" scenario embraced by the conservative wing of the neoclassical tradition, according to which "there aren't enough markets." The paradigmatic case of this research agenda (D. McCloskey calls it the "Nouvelle" Chicago approach) is exemplified in the work of Gary Becker—even though he is not a game theorists her/himself. In his work, all social phenomena (including institutions) are explained through the lenses of shadow prices and implicit markets:

> The economic approach is clearly not restricted to material goods and wants, nor even the market sector. Prices, be they the money prices of the market sector or the "shadow" imputed prices of the nonmarket sector, measure the opportunity cost of using scarce resources, and the economic approach predicts the same kind of response to shadow prices as to market prices. (Becker, 1976: 7)
>
> When an apparently profitable opportunity to a firm, worker, or household is not exploited, the economic approach does not take refuge in assertions about irrationality, contentment with wealth already acquired, or convenient ad hoc shifts in values (i.e., preferences). Rather it postulates the existence of costs, monetary of psychic, of taking advantage of these opportunities that eliminate their profitability—costs that may not be easily "seen" by outside observers. (Becker, 1976: 7)

Accordingly, in contrast to the liberal "prisoners' dilemma" late neoclassicism that understands the institutions as supplements that fill in the holes within the commodity space (or as that which makes up for the market failures), the conservative "invisible hand" late neoclassicism understands the institutions as the outcomes of the optimizing choices of individual agents (or equivalently, the survivors of the selection mechanism that optimizes). In short, even though the particular ways in which they explain the institutions are different, they are two different versions of the same theoretical humanist problematic. And, of course, this is not necessarily a weakness of late neoclassical economics; on the contrary, the neoclassical tradition develops and unfolds around this internal conflict, this intrinsic antagonism which is constitutive of its central theoretical problematic. In other words, as much as this internal struggle causes problems for the neoclassical tradition, it also gives its vitality and energy and imparts an image of the neoclassical idiom as the mother-tongue of the discipline of economics—even though it is only one language among many that inhabit the terrain.

6. 3. From the Nash equilibrium to the evolutionary stability

Developments in non-cooperative game theory and the abovementioned limitations of the Nash equilibrium solution in zeroing onto a unique outcome has led the game theorists either to introduce institutions, social norms, or conventions as solution concepts that will narrow down the multiple "rationalizable" equilibria to a unique one (Schotter, 1981; Elster, 1989; for a critical assessment Mirowski, 1988) or to turn toward the evolutionary game theory (Maynard Smith, 1982; Sugden, 1989; Samuelson, 2002; Bowles, 2004).

In this section, I will discuss the equilibrium concept of the evolutionary game theory, namely the concept *evolutionary stability*. I shall argue that the concept gained currency within the late neoclassical context, contributing to the theoretical humanist project of neoclassical economics by narrowing the set of plausible Nash equilibria. As always, this is not simply a matter of arriving to a mathematical solution to a given game—the games themselves as well as the interpretation of their solutions have philosophical underpinnings and political implications. In this case, the introduction of the evolutionary game theory meant the introduction of a new formulation of the theoretical problematic of the neoclassical humanism which is rival to the previous formulations (i.e., to the "invisible hand" and the "prisoners' dilemma" versions).

6. 3. 1. Evolutionary game theory and the concept of "spontaneous order"

In his later works, Friedrich von Hayek (1967; 1973; 1988) began to conceive of the markets as institutions that evolved spontaneously (neither deliberately nor naturally, but culturally). Hayek argued that certain *rules of conduct* have evolved because those

groups that have adopted them were more successful. More importantly, he argued that the "*transmission* of rules of conduct takes place *from individual to individual*, the natural *selection* of rules will operate on the basis of the greater or less efficiency of the resulting *order of the group*" (Hayek 1967: 67).

It is Robert Sugden (1989), perhaps, who has given one of the most sophisticated late neoclassical elaborations of the Hayekian underpinnings of the evolutionary game theory. Rather than using the prisoners' dilemma, the invisible hand, or the assurance game, Sugden uses the hawk and dove game, borrowed from mathematical biology, in which the agents have to make a choice between playing the Hawk or the Dove. If both choose to be Hawks, they spoil the proverbial pie; if both choose to be Doves, they share the pie. Again there are no dominant strategies, but in pure-strategies there are two Nash equilibria (and, of course, there is the mixed strategy equilibrium), located in the other two cells where the agents play differently. In these cases, the one who plays Hawk gets the lion's share (three quarters of the pie) and the one who plays Dove gets the small portion.

Table 4. The Hawk and Dove Game

		Agent 2	
		Hawk	Dove
Agent 1	Hawk	0, 0	3, 1
	Dove	1, 3	2, 2

How will, then, the choices of the agents will be co-ordinated? Put differently, which of the two Nash equilibria will be the outcome of the game? Sugden argues that the only way to arrive to an equilibrium outcome is through "conventions" (a concept

which resembles to but richer than Schelling's concept of "salience"). The examples that he provides include the norm of "first come first serve" and the institutions of market economy such as the institution of property rights.

There are two important implications of this game. First, it foregrounds the impossibility of reaching the equilibrium outcome by relying only on the standard CKR assumption. Nevertheless, in this role, this game is no different than the other games discussed earlier. It is, however, different from the assurance game in the sense that the two pure strategy Nash equilibria presents a *conflictual* set up. And, it is different from the prisoners' dilemma game in the sense that there is no *unique* Pareto superior outcome. For Sugden, these two games demonstrate that the program of classical game theory, which was inaugurated in 1944 by von Neumann and Morgenstern (1953) and consolidated by Nash (1950; 1951), is a "blind alley" (1989: 89).[130] Instead of trying to theorize equilibrium as an outcome of the hyper-rational choices of the individual agents in an unrepeated non-cooperative game, Sugden pushes for a view that concedes that the equilibrium requires something other than human rationality and that something other is the concept of "conventions." And, conventions, Sugden further argues, are "products of evolutionary processes" (1989: 91). Once again, the evolutionary models come to the rescue of the neoclassical tradition to deliver the much sought after equilibrium. [131]

---

[130] Mirowski (2002) disagrees with this narrative. According to his interpretation, while the Nash program of non-cooperative games is indeed a blind alley, Von Neumann's project of an economics of finite automata is still waiting to be picked up.

[131] Sugden is not alone in interpreting the evolutionary turn in game theory as a response to the "blind alley" of classical game theory. Samuelson, in an essay that surveys the recent developments in the field, narrates the emergence of the field in a

The evolutionary game theory, as a burgeoning new field, refers to a wide variety of models with the common theme of "a dynamic process describing how players adapt their behavior over the course of repeated plays of a game" (Samuelson, 2002: 48). In translating the biological metaphors into economics, Sugden proposes to "substitute *utility* for fitness and *learning* for natural selection" (1989: 91; emphasis added). Conventions let the agents arrive at an equilibrium, the agents learn to obey conventions and once the conventions are established, they self-enforce themselves. The theoretical underpinning for this self-enforcing (stable) equilibrium is provided by the concept of *evolutionary stability*.

> An *evolutionary stable strategy* (or ESS) is a pattern of behavior such that, if it is generally followed in the population, any small number of people who deviate from it will do less well than the others. (Sugden, 1989: 91)

Accordingly, once either of the two possible conventions that would co-ordinate the choices of agents (enabling them to play differently) is established, it becomes an ESS.[132] To put it in more concrete terms, the evolutionary model provides a

---

very similar way: "In the 1990s, however, emphasis has shifted away from rationality-based to evolutionary models. One reason for this shift was frustration with the limitations of rationality-based models. These models readily motivated one of the requirements of Nash equilibrium, that players choose best responses to their beliefs about others' behavior, but less readily provided the second requirement, that these beliefs be correct. Simultaneously, rationality-based criteria for choosing among Nash equilibria produced alternative "equilibrium refinements"—strengthenings [sic] of the Nash equilibrium concept designed to exclude implausible Nash equilibria—with sufficient abandon as to prompt despair at the thought of choosing one as the "right" concept" (2002: 47).

[132] This interpretation of the "dynamic" Hawk and Dove Game is slightly different than its conventional deployment. In the conventional model, the mixed strategy equilibrium, interpreted as a "population distribution," is the only solution. The value of the expected pay-off of Agent 1 when playing Hawk is

$$EV(H)=p(0) + (1-p)3,$$

where p is the probability of Agent 2 playing Hawk. Similarly, the value of the expected pay-off Agent when playing Dove is

mathematical formalization of the Hayekian thesis that the institutions of the market economy evolved spontaneously.

> Order in human affairs, I have argued, can arise spontaneously, in the form of conventions. These patterns of behavior that are self-perpetuating—that can replicate themselves. In particular, rules of property—the essential preconditions for markets to work—can evolve in this way. These rules are not the result of any process of collective choice. Nor do they result from the kind of abstract rational analysis employed in classical game theory, in which individuals are modeled as having unlimited powers of deductive reasoning but no imagination and no common human experience. In this sense, at least, conventions are not the product of our reason. (Sugden, 1989: 97)

It is important to note that Sugden concedes not only that conventions may not necessarily be efficient (hence the absence of unique Pareto superior outcome), but also that they may not be beneficial for everyone (hence the element of conflict in the pay-off structures of the two Nash equilibria). In other words, it is possible that (Pareto) inefficient conventions or conventions "that favor some people at the expense of others" (96) can prevail simply because they have been "more successful at replicating themselves than other patterns" (97). Sugden goes as far as to argue that "conventions,"

> …if they can be said to have any purpose or function, it is simply replication. They do not serve any overarching social purpose; they cannot, in general, be

---

$$EV(D)=p(1)+(1-p)2.$$

In mixed strategy solutions, expected pay-offs should be equal. Therefore, solving EV(H)=EV(D) for p,

$$p=1/2.$$

Since the agents are identical, given the pay-off structure, each agent will play Hawk half the time. When translated into the population interpretation, this means that half of the population will play Hawk. In Sugden's model, with the introduction of the concept of convention, the mixed-strategy equilibrium fails to be an ESS. Playing the pure strategy according to convention fares better than playing the mixed strategy. In this sense, the evolutionarily stable strategy is the convention sanctioned pure strategy (e.g., ladies first, elders first, first come first serve).

> justified in terms of any system of morality that sees society as having an overall objective or welfare function. (Sugden 1989: 97)

The notion of spontaneous order, the idea that the rules of property, the institutions of market are not the result of any process of rational or collective choice, betrays the Hayekian underpinnings of this evolutionary game theoretic model—thought not necessarily the entire evolutionary game theory. In Sugden's account of spontaneous order, at the end of the day, the only thing that remains is the idea of equilibrium (defined, now, as evolutionary stability): even though the notion of efficiency is surgically removed from the notion of spontaneous order, the study of the conditions of existence of equilibrium remains to be a central concern.

6. 3. 2. Theoretical humanist presuppositions of the evolutionary game theory

The notion of spontaneous order and its framing of the relation between the individual and the social is yet another formulation of the theoretical problematic of neoclassical humanism. The conventions become the lynchpin that delivers the much sought-after equilibrium among rational, centered, utility maximizing subjects. Nevertheless, even though no efficiency claims underpin Sugden's concept of spontaneous order, this does not mean that the concept is a neutral one. On the contrary, the very theoretical humanist presuppositions of the concept of spontaneous order betray its partisanship.

Let us take a closer look at this. Sugden distinguishes between conventions and norms. The former is "nothing more than an established pattern of behavior" (1989: 95) that coordinates the choices of the rational agents in the chicken game. Conventions achieve the status of norms when people "come to believe that they *ought*

to act in ways that maintain these patterns" (1989: 95). But how do conventions transform into norms?

> The mechanism that can transform conventions into norms is the human desire for the approval of others. Although this desire is rarely considered by modern economists, introspection surely tells us that it is at least as fundamental as the desire for most consumption goods. That we desire approval should not be surprising: we are, after all, social animals, biologically fitted to live in groups. For most of us, being the focus of another person's ill-will, resentment or anger is a source of unease—something we prefer to avoid. This is a psychological externality: one person's *state of mind*, as interpreted by another person, can affect that other person's happiness or utility. (Sugden, 1989: 95)

Therefore, underlying the social norms such as "the rules of property" is a "human desire" to evade the "psychological externality" caused by the disapproval of other human beings. People do not breach conventions and even attribute them moral value, because they do not want to be "the focus of another person's ill-will, resentment or anger" (1989: 95). If the theoretical humanist problematic of the neoclassical tradition is to establish the conditions of existence of the reconciliation of the demands of the individual agents at the level of the social, the story of spontaneous order does precisely that: "Conventions" solve the equilibrium selection problem of human societies without needing to revert to a "conflict" (Hawk and Hawk) and thereby spoiling the proverbial "pie". Humans follow conventions and even turn them to norms because of their psychological "desire for the approval of others." To put it differently, the spontaneous order emerges because it accommodates the human desire for equilibrium and it self-perpetuates into a regime of norms because it accommodates the innate human aversion to "being the focus of another person's ill-will, resentment or anger" (1989: 95).

There is something missing in this explanation of the emergence and reproduction of social institutions. What does it mean to argue that institutions emerge to solve games

with multiple equilibria and once they emerge, perpetuate because there are psychological costs for breaking rules? Where is force, where is consent, where is revolution in this analysis of institutions? In motivating the "spontaneous" nature of "the institutions of a market economy," Sugden, in a paragraph that reveals his presuppositions, refers to informal and illegal markets as a proof of the spontaneous order argument:

> Although markets may work more smoothly when property rights are defined by formal laws and enforced by the state, they can come into existence and persist without any such external support. Think of how markets in foreign currency, gambling, prostitution, alcohol and narcotics can continue despite the attempts of governments to suppress them. Such markets can continue only because the participants recognize *de facto* property rights that the state does not. This raises the possibility that the institution of property itself may ultimately be a form of spontaneous order. (Sugden, 1989: 86)

The first question that comes to mind when reading these sentences is why Sugden does not entertain the idea that participants in these criminal markets recognize *de facto* property rights because they are *also* enforced, granted not by the state, but by other, criminal, agencies? In this particular sense, Sugden's analysis is blind to role that "brute" force plays in the constitutions of institutions.

In order to show the political implications of this blindness, I will interpret Sugden's "hawk and dove" game, given his explicit reference to "the rules of property," as a representation of the problem of sharing the social surplus. On the one hand, Sugden argues that conventions "cannot, in general, be justified in term of any system of morality that sees society as having an overall objective or welfare function" (Sugden, 1989: 97). This is similar to the way anti-essentialist Marxian economics sees particular class structures qua concrete institutions that regulate the division of social surplus: no set of particular institutions can be justified according to universal criteria

of efficiency simply because such universal criteria do not exist. Nonetheless, despite this interesting twist, I believe that Sugden's formulation is a conservative version of the neoclassical problematic.[133]

Because the eternal quest of neoclassical economics for equilibrium remains unquestioned, because the equilibrium and its stability is grounded in a particular psychological propensity of human agents, and finally, because the problem of the social division of surplus (i.e., the division of the pie) is formulated as a problem that needs to be solved through a stable equilibrium, the evolutionary game theory of Sugden offers a conservative version of the neoclassical problematic. Since all forms of struggles and negotiations over the division and the distribution of surplus are coded as "social costs" (e.g., the spoiled pie when both actors play Hawk), even without the efficiency and welfare claims, equilibrium is still seen as an intrinsic "good," a virtue in itself. In this sense, the hawk and dove game and the concept of evolutionary stability is essentially a conservative state of nature scenario that sets up the problem of social division of surplus as something that needs to be regulated, ordered, and coordinated, where order (regardless of its distributional and welfare attributes) is privileged over disorder. To put it differently, the hawk and dove game conceives the struggle over surplus as an intrinsic "bad"—even if it took the form of a vigorous and participatory democratic debate and negotiation over how to deal with the social surplus each time anew. In this sense, it is necessary to not to lose sight of the partisan nature of the concepts such as "conventions" or "equilibrium"; they

---

[133] It is important to differentiate Sugden's position from that of Hayek. Even though Hayek does not claim that the spontaneous order is necessarily Pareto optimum, he explicitly argues that it is dangerous to try to deliberately change the existing order (Nadeau 1998: 481-3). Sugden, in contrast, refrains from making this last point.

reproduce a partisan and essentialist knowledge about the social that insists on privileging the reconciliation of individual and collective rationality, regardless of the justice or, even the efficiency, of this reconciliation.

The concept of "spontaneous order" and its circulation within the late neoclassical context is particularly relevant for an appreciation of a secular and anti-essentialist Marxian critique of the theoretical humanist problematic and its numerous versions within the neoclassical tradition. Underlying the left liberal and conservative versions of the neoclassical problematic (in their various versions from the early to the late neoclassical period) is an unquestioned belief in the existence of an absolute criterion of efficiency with which they compare and rank order the states of equilibrium. Common to all neoclassical concepts of equilibrium is the purported grounding of the efficiency of an equilibrium state in the rational and autonomous choices of self-transparent and self-conscious human subjects. In the late neoclassical period, the research, rather than questioning this foundational presupposition, moved onto investigate the conditions under which such reconciliation may be frustrated: transaction costs and information asymmetries (Chapter 4), non-selfish behavior and bounded rationality (Chapter 5), multiplicity of equally plausible equilibria and coordination failures (this chapter). In all these theoretical developments, an overriding theme has been the desire to explain the non-coincidence of efficiency and equilibrium. Therefore, it is necessary to interpret the introduction of the concept of "spontaneous order" into the neoclassical corpus in this late neoclassical context, as a *response* to the purported crises of the Walrasian research program and, its corollary in the field of game theory, the Nash program.

With the help of the concept of "spontaneous order," late neoclassical economics gain capability to account for the non-coincidence of efficiency and equilibrium without giving up the normative force of the concept of equilibrium—even if it is not an Pareto optimal state, since it addresses the so-called inherent human desire for equilibrium. By grounding equilibrium and order in the so-called universal needs of human subjects, the concept of "spontaneous order" revitalizes the theoretical humanist project of the neoclassical tradition: establishing a social order that best accommodates the given interests of rational and autonomous human subjects. And in this precise sense, far from breaking with the neoclassical tradition, the evolutionary game theory introduces the Austrian idea of "spontaneous order" to the conceptual artillery of the tradition.

In order to appreciate the normative import of the concept of equilibrium for the late neoclassical game theoretic literature (both in its classical and evolutionary variants), let's consider one more game. The disorder game depicted in Table 6.5 has no equilibrium in pure strategies. (A typical example of such games is the Rock, Scissors, and Paper game.) Just like the Rock, Scissors, and Paper game, the disorder game of can perpetually continue precisely because there is no equilibrium. In other words, because it lacks a pre-destined end point, it is the only "game" that deserves the name. Such games are relevant for our discussion of equilibrium precisely because they reveal the normative importance of the notion of equilibrium for economic theory. In this game there is no rational reconciliation, there is no equilibrium, no telos.[134]

---

[134] In other words, if there is a postmodern moment in game theory, one should begin looking for such a moment in the games like Rock, Scissors, and Paper.

Table 5. The Disorder Game

		Agent 2	
		Left	Right
Agent 1	Up	1, 0	0, 1
	Down	0, 1	1, 0

Without doubt, it has an equilibrium in mixed strategies. Nonetheless, even in this sense, it is an equilibrium contingent upon a randomized probability. In other words, the game of disorder permits no room for the guarantee of "necessity." And precisely for that reason, it does not have a place within the late neoclassical debate that continues to uphold the quest for unique and stable "equilibrium" as its central economic problem.

6. 4. Conclusion: Neoclassical problematic in the game theoretic mode

In the late neoclassical context, the use of game theory within mainstream economics has spread rather significantly. Today, almost all skeins of late neoclassical economics make use of game theory. In fact, I shall argue that the game-theoretic representation of the strategic interdependency among autonomous and rational individual agent has become the dominant discourse of late neoclassical economics. Here, it is possible to identify a shift from the earlier, graphical representation of economic ideas (e.g., indifference map and budget constraint, supply and demand model, the IS-LM model) to the game-theoretic representation of economic ideas (e.g., the oligopolistic competition game, the price-cutting game, the assurance game, the bank-run game, the battle of sexes game).

Nevertheless, it will be wrong to conclude that game theory is a box of tools and that there are various late neoclassical approaches that make use of these tools for their own partisan and ideological purposes. There is always an ideology inherent to the tools. The (non-cooperative) game-theoretic representations of economic scenarios, problems, or situations of strategic interdependence frame the insertion of the individual into the social as a matter of making *choices* according to the pre-determined pay-off functions in the absence of communication. When communication is introduced, it is not in order to change the underlying pay-off structures but to be able to coordinate the strategies played by the parties or to harmonize their "beliefs." Furthermore, the game-theoretic discourse has come to privilege "equilibrium" (with or without an associated absolute "efficiency" claim). In classical game theory, the "economic problem" in each game is to reach a unique Nash equilibrium and to assess the Pareto property of the equilibrium. In the evolutionary game theory, the economic problem is to reach evolutionary stability. In this manner, the game-theoretic discourse reproduces the two key ideas of theoretical humanism: that the subjects have pre-determined interests and that the interests of the subjects can be reconciled.

In this chapter, I discussed four different games (i.e., the invisible hand game, the assurance game, the prisoners' dilemma game, and the hawk and dove game) and show that each game provides us with a version of the foundational theoretical problematic of neoclassical humanism. Initially, all the games discussed make the standard CKR assumptions of rationality about the human subject. They differ in the way each formulates and offers solutions to the problem of reconciliation of the individual and collective rationality. For the invisible hand game, there is no

interdependence of choices (only the interdependence of outcomes). In this sense, given the pay-off structure (with a unique dominant strategy equilibrium) and the assumptions about human rationality, there is not much of a problem here. The problems begin when the strategy choice of an agent is contingent upon the choice of other agent(s). But even in these cases, there are different ways to formulate the problem. For instance, the game of assurance abstracts from the aspect of conflict and reduces the problem of reconciliation into one of pure coordination. The prisoners' dilemma game, on the other hand, provides a scenario where the (Nash) equilibrium is a Pareto dominated outcome. This non-coincidence of efficiency and equilibrium is the central problem of the left/liberal wing of late neoclassical economics: Institutions that facilitate conversation, trust, or third party enforcement are theorized as solutions to this version of the problem of reconciliation. In contrast, the hawk and dove game (the privileged game of the evolutionary game theory) formulates a situation where there is no universally efficient outcome and theorizes the conventions such as "the rules of property" as solution concepts. Even though, the concept of "spontaneous order" is stripped from absolute claims of efficiency, it continues to be grounded in human nature. In this sense, it constitutes a pro-market response to the left-liberal concern with the non-coincidence of efficiency and equilibrium due to coordination failures of the decentralized market economies (as illustrated, for many, in the prisoners' dilemma type of games).

The important point is to recognize that all these games are different ways of formulating the same problem of reconciliation. In doing so, we should also recognize that there is no general theory of games, but a multiplicity of games with each late neoclassical skein striving to redefine the problem of reconciliation in a

manner that highlights its particular privileged and partisan concerns. Accordingly, the late neoclassical game theoretical literature, despite the fact it displays a significant amount of *heterogeneity* with respect to methodology, equilibrium concepts, privileged games, and political orientations, continues to be *unified* around the theoretical humanist problem of reconciliation. Again, despite the fact that the game theoretic turn within the mainstream economics, like other late neoclassical efforts, should be read as a *response* to the purported crisis of Walrasian neoclassicism, it fails to break from the constitutive theoretical problematic of neoclassical humanism. On the contrary, the late neoclassical developments within the field of game theory attest to the fact that the neoclassical research program and its theoretical humanist problematic is still alive and well.

CHAPTER 7

CONCLUSION: TOWARD A MARXIST CRITIQUE OF LATE NEOCLASSICAL HUMANISM

This dissertation argued that there is *no* clear *break* between neoclassical economics (up to the 1970s) and the contemporary mainstream economic approaches, including, inter alia, the new institutional economics, new information economics, the social choice theory, behavioural economics, the evolutionary game theory, and experimental economics. The dissertation maintains that, despite a significant degree of *heterogeneity* that characterizes the contemporary mainstream, the theoretical approaches and tendencies surveyed in this dissertation constitute a *unified* discursive formation articulated around the theoretical problematic of neoclassical humanism: the study of the conditions of existence of the reconciliation of the individual and collective rationality. Moreover, I maintain that this late neoclassical condition and its particular character can be explained, in part, as an outcome of a dialectical unfolding internal to the neoclassical tradition, as a *response* to its own mid-century drift towards structuralism (both in its Walrasian "the auctioneer" and Marshallian "selectionist" versions).

Since the 1950s, neoclassical economics evolved into a complex and diverse discursive social formation. In a sense, the tradition has matured and became more and more sophisticated. Given the amount of time, intellectual energy, financial and institutional support that were and continue to be devoted for its development, this increasing sophistication should not come as a surprise. Yet, it would be wrong to interpret this growth, this branching out into applied fields, this diversification of the

themes explored and the research methodologies deployed, this multiplication of the debates and controversies, as a break from the neoclassical tradition, from its constitutive theoretical problematic, and from the theoretical presuppositions that inform this constitutive theoretical problematic. On the contrary, this "flowering" of the mainstream economics is the contemporary shape of neoclassical economics as a mature tradition. The "late" in the term "late neoclassical economics" should be read precisely in this sense.

The history of neoclassical tradition is not only a gradual accumulation of problems, contradictions, controversies, and disagreements pertaining to its foundational presuppositions but also a series of elaborations on these foundational presuppositions and reformulations of the neoclassical problematic. Is it possible to reconcile the conflict between the individual and collective rationality? Is it possible to achieve an equilibrium that would reconcile the rational (consistent, self-transparent) and autonomous (freely chosen) demands of the individual economic agents? Is it possible to arrive to a unique equilibrium in non-cooperative games? What are the roles that the non-market institutions play? Are the non-market institutions outcomes of "shadow" prices? Or, are they solution devices that solve coordination and accountability problems? Or, are they social devices (i.e. conventions) that establish order? Are human beings hyper-rational or boundedly rational? Do economic agents need to second-guess their opponents? Which equilibrium concept is more appropriate to economic analysis: the Walrasian general equilibrium, the Marshallian market equilibrium, the Nash equilibrium, or the evolutionary stability? Or, is there any need for the government involvement in the functioning of the markets? Why do markets fail? Do they fail because there are missing markets? Or, do they fail

because there are endemic problems? If markets fail to function "properly," should they be remedied through the introduction of new markets or through the design and implementation of "incentive compatible" institutions? The list can be extended infinitely—albeit within a conceptual horizon delimited by the boundaries of the theoretical problematic of neoclassical humanism.

Indeed, the central contribution of this dissertation has been the identification of the constitutive theoretical problematic of the neoclassical tradition and its two foundational presuppositions (i.e., the human subject qua self-transparent self-consciousness and the teleological notion of harmonious reconciliation qua equilibrium). Reading the tradition through the lenses of this theoretical problematic, I was able to accomplish three tasks. First, I demonstrated that the neoclassical tradition was never unified around an object of analysis (e.g., the market) or a core model (e.g., the Arrow-Debreu model) or even a research methodology (e.g., mathematical modeling) but rather around a theoretical problematic. This point also helped me explain the heterogeneity of the tradition: to the extent that there is no unifying object of analysis, no core model, or even common research methodology, the neoclassical tradition can accommodate a significant amount of internal diversity. Secondly, I demonstrated that the contemporary mainstream (i.e., late neoclassical economics), contrary to the claims otherwise, remains within the neoclassical tradition and continues to operate within the neoclassical problematic. Finally, I illustrated that late neoclassical economics is a collection of *responses* (from within the neoclassical problematic) to the perceived failure of the general equilibrium theory to convincingly accommodate the neoclassical problematic.

This analysis of late neoclassical economics should also be considered as a groundwork toward a Marxian critique of late neoclassical humanism. While the post-Althusserian anti-humanist tendencies within the Marxian tradition has produced rather acute critiques of neoclassical, Keynesian, and radical variants of humanism that circulate within the field of economics (Wolff and Resnick, 1987; Amariglio, Callari, and Cullenberg, 1989; Amariglio, Resnick, and Wolff, 1992; Ruccio and Amariglio, 2003; Wolff, 2006), today, given the attempts discussed in Chapter 1 to reconfigure the heterodox/orthodox division within the discipline and given the prominence of the "break" thesis (documented in Chapter 3), it is necessary to revitalize the anti-essentialist Marxian critique of theoretical humanism in the face of the continuing persistence and restoration of humanism in late neoclassical economics.

As I argued in Chapter 1, the aim of my critique is not to question the empirical veridicality or logical consistency of the theoretical humanist positions articulated in the neoclassical tradition. In this sense, the dissertation does not criticize (late) neoclassical economics for its failure to represent the truth of the human subject. Rather, the dissertation is written from a perspective that maintains the necessity of a two-pronged critique of (i) the essentialist concept of human subject as a centered, rational, and autonomous chooser and (ii) the teleological construct of the ultimate and harmonious reconciliation of the interests of these self-transparent chooser-subjects at the level of the society. In other words, the dissertation is written from a perspective that affirms the notion that neither the subject nor the society can ever be self-transparent and fully reconciled.

The name of this perspective that distinguishes itself from both left- and right-wing theoretical humanisms is the anti-essentialist Marxian surplus perspective (Resnick and Wolff, 1987; 2006; Gibson-Graham, 1996; 2006). What distinguishes this perspective from others (both traditional Marxian and non-Marxian) is its commitment to produce a knowledge of the social from a perspective that analyzes the different forms of performance, appropriation and distribution of surplus labor in their irreducibly contradictory and overdetermined relations with each other and with the rest of the social totality. Theoretical humanism, whether it is neoclassical or late neoclassical (or for that matter non-neoclassical), is radically opposed to this anti-essentialist Marxian surplus perspective. In this dissertation, I was able to lay the groundwork for a critique of late neoclassical theoretical humanism from this anti-essentialist Marxian surplus perspective.

In Chapter 4, for instance, I offered an analysis of the late neoclassical treatments of the firm and argued that, despite the fact that late neoclassical economists represent themselves as capable of taking the sphere of production into account, they do so only from an exchange perspective that elevates the centered, rational, and autonomous subject presupposed in the contractual fiction to the level of a universal ontological truth about all human beings. Ironically, those radical political economists who criticized neoclassical economics for failing to offer an analysis of "the internal social organization of the firm" (Bowles, 1985: 16) ended up joining the ranks of (late) neoclassical economists in theorizing the firm as a "governance structure" or, more generally, a social device that supplements or supplants markets when the latter fail to function (due to transaction costs or information imperfections) the way the standard neoclassical models predict them to function.

Consider, for instance, the idea of "contested exchange" proposed by radical political economists Bowles and Gintis (1990) as a "radicalized" version of the efficiency-wage model articulated by the left-liberal late neoclassical economics. This radical political economy perspective, while explicitly taking the sphere of production into account, could not be farther away from a Marxist surplus perspective. Let us take a closer look at this. The radical political economy perspective articulates a theory of the sphere of production from the exchange perspective that presupposes "opportunistic behavior" on the side of the human agents and "harmonious reconciliation" on the side of the social outcome. The fact that the exchange is "contested" does not indicate that the notion of "harmonious reconciliation" is abandoned. On the contrary, the very notion of "contestedness" is defined vis-à-vis (in the "absent presence" of) the idealized benchmark case of clearing markets. Moreover, the injustice of the contested exchange is an injustice defined from within the bourgeois framework of commutative justice which sanctifies the exchange of equivalents.[135]

The aim of the anti-essentialist Marxian surplus perspective, in contrast, is not to simply take production into account—much less to do so from the teleological perspective of exchange! Rather, the Marxian surplus perspective aims to produce a knowledge of the social by tracing the overdetermined trajectories of the socially necessary abstract labor time, the conditions under which the latter is performed, the forms of its appropriation, the destinations toward which it is distributed, and so on. In contrast to the teleological construct that undergirds the exchange perspective of neoclassical humanism, the Marxian surplus perspective does not presuppose a social

[135] For anti-essentialist Marxian surplus critiques of the interpretation of the injustice of class exploitation from within the bourgeois framework of commutative justice, see (Özselçuk and Madra, 2005; Madra, 2006).

order under which the abstract labor time performed by direct laborers will be harmoniously distributed towards pre-destined ends (Özselçuk and Madra, 2005). The Marxian surplus perspective, given its theoretical commitment to the concepts of contradiction and overdetermination, abandons the idea of harmonious reconciliation.

The abandonment of this Enlightenment-based belief in the possibility of a harmonious reconciliation entails the abandonment of the project of discovering the true essence of human nature that would serve as the normative "microfoundations" of that harmonious social order. In Chapter 5 (but also in Chapters 4 and 6, to a lesser degree), I discussed the various late neoclassical debates on the nature of the human motivations. All of these efforts, while pushing the boundaries of the standard neoclassical research program, continue to remain within a philosophical horizon bounded by the theoretical problematic of neoclassical humanism. The Marxian surplus perspective, while acknowledging the constitutive role of the political processes of subjection and the cultural process of subjectivation in the making and unmaking of the different forms of the social organization of surplus labor (Madra, 2006), neither posits a particular form of subjectivity as the universal essence of human nature (as the various proponents of experimental economics aim to do) nor seeks to microfound a particular social organization of surplus labor in the inherent attributes of human essence (as late neoclassical economists of different stripes strive to do).

This dissertation is, in part, motivated by a desire to counter an emerging narrative of a "pluralist turn" within contemporary mainstream economics. I believe that it is necessary for the heterodox economists to develop a clear, rigorous, and consistent position with respect to the proliferating mainstream narratives of "break from

neoclassical economics," because these narratives and declarations perpetuate an insidious impression that there is no real difference between the mainstream and the heterodoxy. As late neoclassical economists reconfigure what constitutes a legitimate criticism of neoclassical economics, the heterodox approaches and their critiques of the mainstream end up being marginalized and pushed aside. In this spirit, the dissertation offered a "heterodox" *demonstration* of how the seemingly disparate research agendas and approaches, not despite but precisely because of their undeniable diversity, continue to remain committed to the theoretical humanist presupposition and the constitutive theoretical problematic of the neoclassical tradition.

Let me conclude this dissertation with a cautionary remark. To assume that the blurring of the frontier that separates the mainstream from the heterodoxy is only due to a rhetorical reconfiguration of the coordinates of the imaginary topography of the discipline by late neoclassical economists would be extremely naïve, to say the least. The blurring may as well be due to the fact that many heterodox approaches (e.g., radical political economy approach discussed in Chapter 4 and above) share the same theoretical humanist presuppositions with the various skeins of late neoclassical economics. To the extent that a heterodox economic approach takes the question of the reconciliation of the individual and the collective as its central problematic, it will also be implicated in the Marxian critique of theoretical humanism that motivates the analysis of late neoclassical economics offered in this dissertation.

BIBLIOGRAPHY

Adaman, Fikret, and Pat Devine. "The Economic Calculation Debate: Lessons for Socialists." *Cambridge Journal of Economics* 20, No. 5 (September 1996): 523-537.

Adaman, Fikret, and Pat Devine. "On the Economic Theory of Socialism." *New Left Review* I, No. 221 (January-February 1997): 54-80.

Adaman, Fikret, and Yahya M. Madra. "Theorizing the 'Third Sphere': A Critique of the Persistence of the 'Economistic Fallacy.'" *Journal of Economic Issues* 36, No. 4 (December 2002): 1045-1078.

Akerlof, George A. "Labor Contracts as Partial Gift Exchange." *Quarterly Journal of Economics* 97, No. 4 (November 1982): 543-569.

Akerlof, George A. "Gift Exchange and Efficiency-Wage Theory: Four Views." *American Economic Review* 74, No. 2 (May 1984): 79-83.

Alchian, Armen A. "Uncertainty, Evolution, and Economic Theory." *Journal of Political Economy* 58, No. 3 (June 1950): 211-221.

Alchian, Armen A. and Harold Demsetz. "Production, Information Costs, and Economic Organization." *American Economic Review* 62, No. 5 (December 1972): 77-795.

Althusser, Louis. *For Marx*. London: Verso, 1969.

Althusser, Louis. *Lenin and Philosophy and Other Essays*. Translated by Ben Brewster. New York, Monthly Review Press, 1971.

Althusser, Louis. *Writings on Psychoanalysis: Freud and Lacan*. New York: Columbia University Press, 1996.

Althusser, Louis. *The Humanist Controversy and Other Writings (1966-67)*. Edited by François Matheron. Translated by G. M. Goshgarian. London and New York: Verso, 2003.

Amariglio, Jack, and Antonio Callari. "Marxian Value Theory and the Problem of the Subject: The Role of Commodity Fetishism." In *Fetishism as Cultural Discourse*, edited by E. Apter and W. Pietz. Ithaca: Cornell University Press, 1993: 186-216.

Amariglio, Jack, Antonio Callari, and Stephen Cullenberg. "Analytical Marxism: A Critical Overview." *Review of Social Economy* 47, No. 4 (Winter 1989): 415-432.

Amariglio, Jack, Stephen Resnick, and Richard Wolff. "Division and Difference in the 'Discipline' of Economics." *Critical Inquiry* 17 (1990): 108-137. Reprinted in *Knowledges: Historical and Critical Studies in Disciplinarity*, edited by Ellen Messer-Davidow, David R. Shumway and David J. Slyvan. Charlottesville: University Press of Virginia, 1993.

Andreoni, James. "Privately Provided Public Goods in a Large Economy: The Limits of Altruism." *Journal of Public Economics* 35, No. 1 (February 1988): 57-73.

Andreoni, James. "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence." *Journal of Political Economy* 97, No. 6 (December 1989): 1447-1458.

Arrow, Kenneth J. "Economic Welfare and the Allocation of Resources for Invention." In *The Rate and Direction of Inventive Activity*, edited by Richard R. Nelson. Princeton: Princeton University Press, 1962: 609-625.

Arrow, Kenneth J. *Social Choice and Individual Values*, Second Edition. New Haven and London: Yale University Press, 1963.

Arrow, Kenneth J. *The Limits of Organization*. New York: W. W. Norton, 1974.

Arrow, Kenneth J. "Gifts and Exchange." *Philosophy and Public Affairs* 1 (1972): 343-362. Reprinted in *Altruism, Morality, and Economic Theory*, edited by E.S. Phelps. New York: Russell Sage Foundation, 1975: 13-28.

Arrow, Kenneth J. "Rationality of Self and Others in an Economic System." In *Rational Choice*, edited by Robin Hogarth and Melvin Reder. Chicago: Chicago University Press, 1987: 201-16.

Arrow, Kenneth J. "Cowles in the History of Economic Thought." In *Cowles' Fiftieth Anniversary*. New Haven: Cowles Foundation: 1991.

Arrow, Kenneth J., and Gérard Debreu. "Existence of an Equilibrium for a Competitive Economy." *Econometrica* 22, No. 3 (July 1954): 265-290.

Arrow, Kenneth J., and Frank Hahn. *General Competitive Analysis*. San Francisco: Holden Day, 1971.

Backhouse, Roger E. The Ordinary Business of Life: A History of Economics from the Ancient World to the Twentieth-First Century. Princeton and Oxford: Princeton University Press, 2002.

Balibar, Etienne. "Subjection and Subjectivation." In *Supposing the Subject*, edited by Joan Copjec. New York and London: Verso, 1994: 1-15.

Balibar, Etienne. "Structural Causality, Overdetermination, and Antagonism." In *Postmodern Materialism and the Future of Marxist Theory*, edited by A. Callari and D.F. Ruccio. Wesleyan University Press, Hanover and London, 1996: 109-19.

Balibar, Etienne. "Structuralism: A Destitution of the Subject?" *differences: A Journal of Feminist Cultural Studies* 14, No.1 (2003): 1-21.

Baumol, William J., and Richard E. Quandt. "Rules of Thumb and Optimally Imperfect Decisions." *American Economic Review* 54, No. 2, Part 1 (March 1964): 23-46.

Bausor, Randall. "The rational-expectations hypothesis and the epsitemics of time." *Cambridge Journal of Economics* 7 (1983):1-10.

Becker, Gary S. "Irrational Behavior and Economic Theory." *Journal of Political Economy* 70, No. 1 (February 1962): 1-13.

Becker, Gary S. *The Economic Approach to Human Behavior*. Chicago and London: University of Chicago Press, 1976.

Becker, Gary S. "Altruism in the Family and Selfishness in the Market Place." *Economica* 48, No. 189 (February 1981): 1-15.

Ben-Ner, Avner, and Louis Putterman. "Values and Institutions in Economic Analysis." In *Economics, Values, and Organization*, edited by A. Ben-Ner and L. Putterman. Cambridge: Cambridge University Press, 1998: 3-69.

Bernheim, B. Douglas. "Rationalizable Strategic Behavior." *Econometrica* 52, No. 4 (July 1984): 1007-1028.

Bernheim, B. Douglas, and Oded Stark. "Altruism within the Household Reconsidered: Do Nice Guys Finish Last?" *American Economic Review* 78, No. 5 (December1988): 1034-1045.

Bergström, Theodore. "Evolution of Social Behavior: Individual and Group Selection." *Journal of Economic Perspectives* 16, No. 2 (Spring 2002): 67-88.

Blaug, Mark. *The Methodology of Economics: Or, How Economists Explain*. Cambridge: Cambridge University Press, 1980.

Blaug, Mark. *Economic Theory in Retrospect.* The fifth edition. Cambridge: Cambridge University Press, 1997.

Blumenberg, Hans. *The Legitimacy of the Modern Age*. Translated by Robert M. Wallace. Cambridge, MA: MIT Press, 1983.

Bowles, Samuel. "The Production Process in a Competitive Economy: Walrasian, Neo-Hobbesian, and Marxian Models." 75, No. 1 (March 1985): 16-36.

Bowles, Samuel. "Endogenous Preferences: The Cultural Consequences of Markets and Other Economic Institutions." *Journal of Economic Literature* 36, No. 1 (March 1998): 75-111.

Bowles, Samuel. *Microeconomics: Behavior, Institutions, and Evolution*. Princeton: Princeton University Press, 2004.

Bowles, Samuel, and Herbert Gintis. "Contested Exchange: New Microfoundations for the Political Economy of Capitalism." *Politics and Society* 18, No. 2 (1990): 165-222.

Bowles, Samuel, and Herbert Gintis. "The Revenge of Homo Economicus: Contested Exchange and the Revival of Political Economy." *Journal of Economic Perspectives* 7, No. 1 (Winter 1993): 83-102.

Bowles, Samuel, and Herbert Gintis. "How Communities Govern: The Structural Basis of Prosocial Norms." In *Economics, Values, and Organization*, edited by A. Ben-Ner and L. Putterman. Cambridge: Cambridge University Press, 1998: 206-230.

Bowles, Samuel, and Herbert Gintis. "Walrasian Economics in Retrospect." *Quarterly Journal of Economics* 115, No. 4 (November 2000): 1411-39.

Breit, William and Roger W. Spencer, eds. *Lives of the Laureates: Thirteen Nobel Economists*. (Third Edition.) Cambridge, MA and London: The MIT Press, 1995.

Brown, Vivienne. Adam Smith's Discourse: Canonicity, Commerce and Conscience. London and New York: Routledge, 1994.

Burawoy, Michael. Manufacturing Consent: Changes in the Labor Process under Monopoly Capitalism. Chicago: University of Chicago Press, 1982.

Burawoy, Michael. The Politics of Production: Factory Regimes Under Capitalism and Socialism. New York and London: Verso, 1985.

Burczak, Theodore A. "The Postmodern Moments of F. A. Hayek's Economics." *Economics and Philosophy* 10, No. 1 (1994): 31-58.

Burczak, Theodore A. *Socialism After Hayek*. Ann Arbor: University of Michigan Press, 2006.

Butler, Judith. "Conscience Doth Make Subjects of Us All." *Yale French Studies* No. 88 (1995): 6-26.

Caldwell, Bruce. "Hayek's Transformation." *History of Political Economy* 20, No. 4 (Winter 1988): 513-541.

Caldwell, Bruce. *Hayek's Challenge: An Intellectual Biography of F. A. Hayek*. Chicago: University of Chicago Press, 2004.

Callari, Antonio. *The Classical's Analysis of Capitalism*. PhD diss. University of Massachusetts at Amherst, 1981.

Callari, Antonio, and David F. Ruccio. "Postmodern Materialism and the Future of Marxist Theory." In *Postmodern Materialism and the Future of Marxist Theory*, edited by A. Callari and D.F. Ruccio. Wesleyan University Press, Hanover and London, 1996: 1-48.

Callon, Michel (ed.) *The Laws of the Markets*, Oxford: Blackwell, 1998.

Cassel, Gustav. *The Theory of Social Economy*. New York: Harcourt, 1924[1918].

Camerer, Colin. "Progress in Behavioral Game Theory." *Journal of Economic Perspectives* 11, No. 4 (Fall 1997): 167-188.

Charness, Gary, and Matthew Rabin. "Understanding Social Preferences with Simple Tests." *Quarterly Journal of Economics* 117, No. 3 (August 2002): 817-869.

Charusheela, S. Structuralism and Individualism in Economic Analysis: The 'Contractionary Devaluation Debate' in Development Economics. PhD diss. University of Massachusetts at Amherst, 1997.

Cheung, Steven N. S. Will China Go "Capitalist"? An Economic Analysis of Property Rights and Institutional Change. London: Institute of Economic Affairs, 1982.

Cheung, Steven N. S. "On the New Institutional Economics" In *Contract Economics*, edited by Lars Werin and Hans Wijkander. Oxford, UK and Cambridge, USA: Blackwell,1992: 48-65.

Coase, Ronald H. "The Nature of the Firm." *Economica* 4 (1937): 386-405.

Coase, Ronald H. "The Problem of Social Cost." *Journal of Law and Economics* 3, No. 4 (1960): 1-44.

Coase, Ronald H. "The New Institutional Economics" In *Institutions, Contracts, and Organizations: Perspectives from New Institutional Economics*, edited by Claude Ménard. Cheltenham, UK and Northampton, MA: Edward Elgar, 2000: 3-6.

Coate, Stephen, and Martin Ravallion. "Reciprocity without Commitment: Characterization and Performance of Informal Insurance Arrangements." *Journal of Development Economics* 40, No. 1 (February 1993): 1-24.

Coats, A. W. " Sociological Aspects of British Economic Thought (ca. 1880-1930)." *Journal of Political Economy* 75, No. 5 (October 1967): 706-729.

Cohen, D., and I. Eshel. "On the Founder Effect and the Evolution of Altruistic Traits." *Theoretical Population Biology* 10, No. 3 (December 1976): 276-302.

Cohen, G. A. *Karl Marx's Theory of History: A Defence.* Oxford: Oxford University Press, 1978.

Colander, David. "The Death of Neoclassical Economics." *Journal of the History of Economic Thought* 22, No. 2 (June 2000): 127-43.

Colander, David, Richard P. F. Holt, and J. Barkley, Jr. Rosser. "The Changing Face of Mainstream Economics" *Review of Political Economy* 16, No. 4 (October 2004): 485-99.

Collard, David. *Altruism and Economy: A Study in Non-Selfish Economics*. New York: Oxford University Press, 1978.

Colman, Andrew. M. "Salience and focusing in pure coordination games." *Journal of Economic Methodology* 4, No.1 (1997): 61-81.

Connolly, William. *Politics and Ambiguity*. Madison: University of Wisconsin Press, 1987.

Copjec, Joan. *Read My Desire: Lacan Against the Historicists*. Cambridge, MA: MIT Press, 1994.

Coward, Rosalind, and John Ellis. *Language and Materialism: Developments in Semiology and the Theory of Subject*. London: Routledge and Paul, 1977.

Cullenberg, Stephen, and Indraneel Dasgupta. "From myth to metaphor: A semiological analysis of the Cambridge capital controversy." In *Postmodernism, Economics, and Knowledge*, edited by S. Cullenberg, J. Amariglio, and D. F. Ruccio. London and New York: Routledge, 2001: 337-353.

David, Paul. "Clio and the Econometrics of QWERTY." *American Economic Review* 75, No. 2 (May 1985): 332-337.

Davidson, Paul. "Is probability theory relevant for uncertainty? A Post Keynesian Perspective." *Journal of Economic Perspectives* 5, No. 1 (Winter 1991): 129-143.

Davis, John B. The Theory of the Individual in Economics: Identity and value. London and New York: Routledge, 2003.

Davis, John B. "The Turn in Economics: Neoclassical Dominance to Mainstream Pluralism." *Journal of Institutional Economics.* 2, No. 1, 2006: 1-20.

Davis, John B. "Heterodox Economics, the Fragmentation of the Mainstream, and Embedded Individual Analysis." In *Future Directions for Heterodox Economics*, edited by R. F. Garnett and J. T. Harvey. Ann Arbor: University of Michigan Press, forthcoming.

Dawkins, Richard. *The Selfish Gene*. Oxford: Oxford University Press, 1989.

De Vroey, Michel. "The Marshallian market and the Walrasian market economy: Two incompatible bedfellows." *Scottish Journal of Political Economy* 46, No. 3 (August 1999): 319-338.

De Vroey, Michel. "Perfect Information a la Walras versus Perfect Information a la Marshall." *Journal of Economic Methodology* 10, No. 4 (December 2003): 465-92.

De Vroey, Michel. "On the Right Side for the Wrong Reason: Friedman on the Marshall-Walras Divide." IRES Discussion Paper No. 2004015, Université catholique de Louvain, 2004.

Debreu, Gérard. *Theory of Value: An Axiomatic Analysis of Economic Equilibrium.* New Haven: Yale University Press, 1959.

Debreu, Gérard. "Excess Demand Functions." *Journal of Mathematical Economics* 1, No. 1 (March 1974): 15-21.

Demsetz, Harold. "Towards a Theory of Property Rights." *American Economic Review* 57, No. 2 (May 1967): 347-359.

Desai, Meghnad. *Marx's Revenge: The Resurgence of Capitalism and the Death of Statist Socialism*. London and New York: Verso, 2002.

Diamond, Peter A. "A model of price adjustment." *Journal of Economic Theory* 3, No. 2 (June 1971): 156-168.

Diskin, Jonathan. *Classical Marxian economic theory and the concept of socialism*. PhD diss. University of Massachusetts at Amherst, 1990.

Diskin, Jonathan. "Rethinking Socialism: What's in a name?" In *Postmodern Materialism and the Future of Marxist Theory*, edited by A. Callari and D.F. Ruccio. Wesleyan University Press, Hanover and London, 1996: 278-99.

Dobb, Maurice. *Political Economy and Capitalism: Some Essays in Economic Tradition*. New York: International Publishers, 1945.

Edgeworth, Ysidiro. *Mathematical Physics: An Essay on the Application of Mathematics to the Moral Sciences*. London: London School of Economics, 1932[1881].

Edwards, Richard. *Contested Terrain: The Transformation of the Workplace in the Twentieth Century*. New York: Basic Books, 1979.

Elster, Jon. *The Cement of Society*. Cambridge: Cambridge University Press, 1989.

Elster, Jon. "When Rationality Fails." In *The Limits of Rationality*, edited by Karen Schweers Cook and Margaret Levi. Chicago: Chicago University Press, 1990: 19-51.

Elster, Jon. "Emotions and Economic Theory." *Journal of Economic Literature* 36, No. 1 (March 1998): 47-74.

Emmett, Ross B. "'What is Truth in Capital Theory? Five Stories Relevant to the Evaluation of Frank H. Knight's Contributions to the Capital Controversy." In *New Economics and Its History*, edited by John B. Davis. Durham and London: Duke University Press, 1997: 231-250.

Evensky, Jerry. "'Chicago Smith' versus 'Kirkaldy Smith.'" *History of Political Economy* 37, No. 2 (2005): 197-203.

Farrant, Andrew. "Frank Knight, Worst-Case Theorizing, and Economic Planning: Socialism as Monopoly Politics." *History of Political Economy* 36, No. 3 (2004): 497-504.

Farrell, Joseph. "Cheap talk, coordination, and entry." *Rand Journal of Economics* 18 (1987): 34-9.

Fehr, Ernst, and Simon Gächter. "Reciprocity and Economics: The Economic Implications of Homo Reciprocans." *European Economic Review* 42 No. 3-5 (May 1998a): 845-859.

Fehr, Ernst, and Simon Gächter. "How Effective are Trust- and Reciprocity-based Incentives?" In *Economics, Values, and Organization*, edited by A. Ben-Ner and L. Putterman. Cambridge: Cambridge University Press, 1998b: 337-363.

Fehr, Ernst, and Simon Gächter. "Fairness and Retaliation: The Economics of Reciprocity." *Journal of Economic Perspectives* 14, No. 3 (Summer 2000): 159-181.

Ferber, Marianne A., and Julie A. Nelson, eds. *Beyond Economic Man: Feminist Economic Theory and Economics*. Chicago: University of Chicago Press, 1993.

Fischer, Irving. *Mathematical Investigations in the Theory of Value and Price*. New Haven: Yale University Press, 1925[1892].

Foucault, Michel. "The subject and power." Afterword to *Michel Foucault: Beyond Structuralism and Hermeneutics*, by Hubert L. Dreyfus and Paul Rabinow. Chicago: University of Chicago Press, 1983: 208-226.

Freud, Sigmund. *The Interpretation of Dreams*. Translated from the German and edited by James Stachey. New York: Avon Books, 1965 [1900].

Friedman, Milton. "The Methodology of Positive Economics." In *Essays in Positive Economics*. Chicago and London: The University of Chicago Press, 1953: 3-43.

Fullbrook, E. "Real Science is Pluralist." *post-autistic economics newsletter* 5 (March 2001): article 5.

Garnett Jr., Robert F. "Whither Heterodoxy?" *post-autistic economics review* 34 (October 2005): 2-21.

Geanakoplos, John. "Arrow-Debreu model of general equilibrium." In *The New Palgrave: General Equilibrium*, edited by John Eatwell, Murray Milgate, and Peter Newman. London and Basingstoke: Macmillan, 1989: 43-61.

Gibson-Graham, J. K. *The End of Capitalism (as we knew it): A Feminist Critique of Political Economy*. London: Blackwell, 1996.

Gibson-Graham, J. K. *A Post-Capitalist Politics*. Minneapolis: University of Minnesota Press, 2006.

Gintis, Herbert, Samuel Bowles, Robert T. Boyd and Ernst Fehr, eds. *Moral Sentiments and Material Interests: The Foundations of Cooperation in Economic Life.* Cambridge MA: The MIT Press, 2005.

Gode, Dhananjay K., and Shyam Sunder. "Allocative Efficiency of Markets with Zero-Intelligence Traders: Markets as a Partial Substitute for Individual Rationality." *Journal of Political Economy* 101, No. 1 (February 1993): 119-137.

Gode, Dhananjay K., and Shyam Sunder. "What Makes Markets Allocationally Efficient?" *Quarterly Journal of Economics* 112, No. 2 (May 1997): 603-630.

Granovetter, Mark. "The Nature of Economic Relations." In *Understanding Economic Process*, edited by S. Ortiz and S. Lees. Lanham and London: University Press of America (for Society for Economic Anthropology), 1992: 21-37.

Greif, Avner. "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition." *American Economic Review* 83, No. 3 (June 1993): 525-548.

Güth, Werner, Rolf Schmittberger, and Bernd Schwarze. "An Experimental Analysis of Ultimatum Bargaining." *Journal of Economic Behavior and Organization* 3, No. 4 (December 1982): 367-388.

Hahn, Frank. "Stability." In *Handbook of Mathematical Economics,* Vol. II, edited by Kenneth J. Arrow and Michael D. Intriligator. Amsterdam, New York, Oxford: North-Holland, 1982: 745-794.

Hahn, Frank. *Equilibrium and Macroeconomics*. Cambridge, MA: The MIT Press, 1984.

Hahn, Frank. "In Praise of Economic Theory." *The 1984 Jevons Memorial Fund Lecture*. London: University College, 1985.

Hahn, Frank. "Auctioneer." In *The New Palgrave: General Equilibrium*, edited by John Eatwell, Murray Milgate, and Peter Newman. London and Basingstoke: Macmillan, 1989: 62-7.

Hall, R. L. and C. J. Hitch. "Price Theory and Business Behaviour." *Oxford Economic Papers* No. 2 (May 1939): 12-45.

Hands, Wade, and Philip Mirowski. "Harold Hotelling and the Neoclassical Dream." In *Economics and Methodology: Crossing Boundaries*, edited by R. Backhouse, D. Hausman, U. Mäki, and A. Salanti. London: Macmillan, 1998: 322-397.

Harcourt, Geoffrey C. *Some Cambridge Controversies in the Theory of Capital*. Cambridge: Cambridge University Press, 1972.

Hargreaves-Heap, Shaun. *Rationality in Economics*. Oxford: Basil Blackwell, 1989.

Hargreaves-Heap, Shaun. "Rationality." In *The Theory of Choice*, edited by S. Hargreaves-Heap, M. Hollis, B. Lyons, R. Sugden, and A. Weale. Oxford: Blackwell, 1992.

Hargreaves-Heap, Shaun, and Yanis Varoufakis. *Game Theory: A Critical Introduction*. London and New York: Routledge, 1995.

Harsanyi, John C. "Advances in Understanding Rational Behavior." In *Rational Choice*, edited by Jon Elster. New York: NYU Press, 1986: 82-107.

Harsanyi, John C., and Richard Selten. *A General Theory of Equilibrium Selection in Games*. Cambridge, MA: MIT Press, 1988.

Harvey, David. *The New Imperialism*. Oxford: Oxford University Press, 2003.

Hausman, Daniel M. *The Inexact and Separate Science of Economics*. Cambridge: Cambridge University Press, 1992.

Hausman, Daniel M. "Revealed Preference, Belief, and Game Theory." *Economics and Philosophy* 16 (2000): 99-115.

Hayek, Friedrich A. "The Use of Knowledge in Society." *American Economic Review* 35, No. 4 (September 1945): 519-530. Reprinted in *Individualism and Economic Order*. Chicago: University of Chicago Press, 1948: 77-91.

Hayek, Friedrich A. *Studies in Philosophy, Politics and Economics*. Chicago: University of Chicago Press, 1967.

Hayek, Friedrich A. *Rules and Order.* Vol. I of *Law, Legislation, and Liberty*. Chicago: University of Chicago Press, 1973.

Hayek, Friedrich A. *The Fatal Conceit: The Errors of Socialism*. Edited by W. W. Bartley III. Chicago: University of Chicago Press, 1988.

Hayek, Friedrich A. *Hayek on Hayek*. Edited by S. Kresge and L. Wenar. Chicago: University of Chicago Press, 1994.

Heinrich, Joseph, Robert Boyd, Samuel Bowles, Colin Camerer, Ernst Fehr and Herbert Gintis, eds. *Foundations of Human Sociality: Economic Experiments and Ethnographic Evidence from Fifteen Small-Scale Societies.* Oxford: Oxford University Press, 2004.

Hicks, John R. "The Foundations of Welfare Economics." *Economic Journal* 49, No. 196 (December 1939): 696-712.

Hicks, John R., and R. G. D. Allen. "A Reconsideration of the Theory of Value." *Economica* (Part 1) N.S. 1, No. 1 (February 1934): 52-76 and (Part 2) N.S. 1, No. 2 (May 1934): 196-219.

Hindess, Barry. *Philosophy and Methodology in the Social Sciences*. Sussex: The Harvester Press, 1977.

Hirst, Paul Q. *Marxism and Historical Writing*. London, Routledge & Kegan Paul, 1985.

Hodgson, Geoffrey M. "Behind Methodological Individualism." *Cambridge Economic Journal* 10, No. 3 (September 1986): 211-224.

Hogdson, Geoffrey M. *Economics and Evolution: Bringing Life Back into Economics*. Ann Arbor: University of Michigan Press, 1993.

Hodgson, Geoffrey M. "The Approach of Institutional Economics." *Journal of Economic Literature* 36, No. 1 (March 1998a): 166-192.

Hodgson, Geoffrey M. "Institutional Economic Theory: The Old versus the New." In *Why Economists Disagree: An Introduction to Alternative Schools of Thought*, edited by D. Prychitko. Albany: State University of New York Press, 1998b: 155-177.

Hume, David, *A Treatise of Human Nature*. Edited by Selby-Bigge. Oxford: Oxford University Press, 1960 [1739].

Hunt, E. K. *History of Economic Thought: A Critical Perspective*. The Second Edition. Armonk, NY: M.E. Sharpe, 2002.

Ingrao, Bruna, and Giorgio Israel. *The invisible hand: Economic equilibrium in the history of science*. Translated by Ian McGilvray. Cambridge, MA and London: The MIT Press, 1990.

Janssen, Maarten C. W. *Microfoundations: A Critical Inquiry*. London: Routledge, 1993.

Jevons, W. Stanley. *The Theory of Political Economy*. Edited by R. D. C. Black. Harmondsworth: Penguin Books, 1970 [1871].

Johansen, Leif. "Interaction in economic theory." *Economie Appliquée* 3 (1981): 229-267.

Kara, Ahmet. *The Economic Self as a Multidimensional Complexity: Towards a Critique and Reconstruction of Economic Theory*. PhD diss. University of Massachusetts at Amherst, 1996.

Katzner, Donald. "Methodological Individualism and the Walrasian Tâtonnement," *Journal of Economic and Social Research* 1 (1999): 5-33.

Katzner, Donald. "The Current Non-Status of General Equilibrium Theory." Department of Economics, Working Paper 2004-10, University of Massachusetts Amherst, 2004.

Katzner, Donald. *An Introduction to the Economic Theory of Market Behavior*. Northampton, MA: Edward Elgar, 2006.

Kirman, Alan P. "Whom or What does the Representative Individual Represent?" *Journal of Economic Perspectives* 6, No. 2 (Spring 1992): 117-136.

Kirzner, Israel M. "Rational Action and Economic Theory." *Journal of Political Economy* 70, No. 4 (August 1962): 380-385.

Knight, Frank H. "Some Fallacies in the Interpretation of Social Costs." *Quarterly Journal of Economics* 38, No. 7 (1924): 582-606.

Knudsen, Christian. "Equilibrium, Perfect Rationality and the Problem of Self-Reference in Economics." In *Rationality, Institutions and Economic Methodology*, edited by Uskali Mäki, Bo Gustafsson and Christian Knudsen. London: Routledge, 1993a: 133-170.

Knudsen, Christian. "Modelling Rationality, Institutions and Processes in Economic Theory." In *Rationality, Institutions and Economic Methodology*, edited by Uskali Mäki, Bo Gustafsson and Christian Knudsen. London: Routledge, 1993b: 265-299.

Koopmans, Tjalling C. *Three Essays on the State of Economic Science*. New York: McGrawHill, 1957.

Kozel, Philip M. *Market Sense: Towards a New Economics of Markets*. New York: Routledge, 2005.

Kristjanson-Gural, David. "Demand and the (Re)distribution of Value: A New Marxian Approach." *Rethinking Marxism* 15, No. 1(January 2003): 117-140.

Krueger, Anne. "The Political Economy of Rent-Seeking Society." *American Economic Review* 64, No. 3 (June 1974): 291-303.

Laclau, Ernesto and Chantal Mouffe. *Hegemony and Socialist Strategy*. London: Verso, 1985.

Laclau, Ernesto. *New Reflections on the Revolution of Our Time*. London: Verso, 1990.

Langlois, Richard. "Rationality, Institutions, and Explanation." In *Economics as a Process: Essays in the New Institutional Economics*, edited by Richard N. Langlois. Cambridge: Cambridge University Press, 1986: 225-255.

Ledyard, John O. "Public Goods: A Survey of Experimental Research." In *A Handbook of Experimental Economics*, edited by A. Roth and J. Kagel. Princeton: Princeton University Press, 1995: 111-194.

Laville, Frederic. "Foundations of Procedural Rationality: Cognitive Limits and Decision Processes." *Economics and Philosophy* 16 (2000):117-138.

Lavoie, Don. "Hermeneutics, Subjectivity, and the Lester/Machlup Debate: Toward a More Anthropological Approach to Empirical Economics." In *Economics As Discourse*, edited by Warren Samuels. Boston, Dordrecht, London: Kluwer Academic Press, 1990: 167-184.

Lawson, Tony. *Economics and Reality*. London: Routledge, 1997.

Lester, Richard A. "Shortcomings of Marginal Analysis for Wage-Employment Problems." *American Economic Review* 36, No. 1 (March 1946): 63-82.

Lewin, Shira B. "Economics and Psychology: Lessons for Our Own Day From the Early Twentieth Century." *Journal of Economic Literature* 34 (September 1996): 1293-1323.

Loasby, Brian J. *Knowledge, Institutions and Evolution in Economics*. London and New York: Routledge, 1999.

Lyons, Bruce, and Judith Mehta. "Contracts, Opportunism and Trust: Self-interest and Social Orientation." *Cambridge Journal of Economics* 21, No. 2 (March 1997): 239-257.

Macherey, Pierre. *A Theory of Literary Production*. New York and London: Routledge, 1978.

Machlup, Fritz. "Marginal Analysis and Empirical Research." *American Economic Review* 36 (September 1946): 519-554.

Madra, Yahya M. "Questions of Communism: Ethics, Ontology, Subjectivity." *Rethinking Marxism* 18, No. 2 (April 2006): 205-224.

Mäki, Uskali. "Economics with Institutions: Agenda for Methodological Enquiry." In *Rationality, Institutions and Economic Methodology*, edited by Uskali Mäki, Bo Gustafsson and Christian Knudsen. London: Routledge, 1993: 3-44.

Mandler, Michael. Dilemmas in Economic Theory: Persisting Foundational Problems of Microeconomics. Oxford: Oxford University Press, 1999.

Marglin, Stephen. "What Do Bosses Do? Part 1" *Review of Radical Political Economy* 6, No. 2 (Summer 1974): 60-112.

Marglin, Stephen. "What Do Bosses Do? Part 2" *Review of Radical Political Economy* 7, No. 1 (Spring 1975): 20-37.

Marshall, Alfred. *Principles of Economics*. Eighth Edition. London: Macmillan, 1920 [1890].

Margolis, Howard. Selfishness, Altruism, and Rationality: A Theory of Social Choice. Cambridge: Cambridge University Press, 1982.

Maynard Smith, John. *Evolution and the Theory of Games*. Cambridge: Cambridge University Press, 1982.

McCloskey, D. N. "The Consequences of Rhetoric." In *The Consequences of Economic Rhetoric*, edited by Arjo Klamer, D. N. McCloskey, and Robert M. Solow. Cambridge: Cambridge University Press, 1988: 280-294.

McCloskey, D. N. *Knowledge and Persuasion in Economics*. Cambridge: Cambridge University Press, 1994.

McCloskey, D. N. "The Good Old Coase Theorem and the Good Old Chicago School: A Comment on Zerbe and Medema." In *Coasean Economics: Law and Economics and the New Institutional Economics*, edited by Steven G. Medema. Boston, Dordrecht, London: Kluwer Academic Press, 1998: 239-248.

McCloskey, D. N. *The Bourgeois Virtues: Ethics for an Age of Commerce*. Chicago: University of Chicago Press, 2006.

Medema, Steven. *Ronald H. Coase*. London: Macmillan, 1994.

Ménard, Claude, ed. Institutions, Contracts and Organizations: Perspectives from New Institutional Economics. Cheltenham, UK and Northampton, MA, USA: Edward Elgar, 2000.

Mirowski, Philip. "Physics and the 'Marginalist Revolution.'" *Cambridge Journal of Economics* 8 (1984): 361-379.

Mirowski, Philip. *Against Mechanism*. Totawa, NJ: Rowman and Littlefield, 1988.

Mirowski, Philip. *More Heat Than Light: Economics as Social Physics, Physics as Nature's Economics*. Cambridge: Cambridge University Press, 1989.

Mirowski, Philip. *Machine Dreams: Economics Becomes a Cyborg Science*. Cambridge: Cambridge University Press, 2002.

Mirowski, Philip, and D. Wade Hands. "A Paradox of Budgets: The Postwar Stabilization of American Neoclassical Demand Theory." In *From Interwar Pluralism to Postwar Neoclassicism*, edited by Morgan, Mary S. and Malcolm Rutherford. Durham and London: Duke University Press, 1998: 260-292.

Mongin, Philippe. "The Marginalist Controversy." In *The Handbook of Economic Methodology*, edited by John B. Davis, D. Wade Hands, and Uskali Mäki. Cheltenham, UK and Northampton, MA: Edward Elgar, 1998: 558-562.

Mouffe, Chantal. *The Return of the Political*. London: Verso, 1992.

Mueller, Denis. *Public Choice II*. Cambridge: Cambridge University Press, 1989.

Myerson, Roger B. "Nash Equilibrium and the History of Economic Theory." *Journal of Economic Literature* 37, No. 3 (September 1999): 1067-1082.

Nadeau, Robert. "The Spontaneous Order." In *The Handbook of Economic Methodology*, edited by John B. Davis, D. Wade Hands, and Uskali Mäki. Cheltenham, UK and Northampton, MA: Edward Elgar, 1998: 477-483.

Nancy, Jean-Luc. "Introduction." In *Who Comes After the Subject?*, edited by Eduardo Cadava, Peter Connor, and Jean-Luc Nancy. London: Routledge, 1991: 1-8.

Nash Jr., John F. "Equilibrium Points in N-Person Games." *Proceedings of the National Academy of the Sciences of the United States of America* 36, No. 1 (January 1950): 48-49.

Nash Jr., John F. "Non-Cooperative Games." *The Annals of Mathematics* 2nd Series, 54, No. 2 (September 1951): 286-295.

Nelson, Richard R., and Winter, Sidney. *An Evolutionary Theory of Economic Change*. Cambridge: Cambridge University Press, 1982.

Nelson, Richard R. "Recent Evolutionary Theorizing About Economic Change." *Journal of Economic Literature* 33, No. 1 (March 1995): 48-90.

North, Douglass C. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press, 1990.

North, Douglass C. "Institutions." *Journal of Economic Perspectives* 5, No.1 (Winter 1991): 97-11.

North, Douglass C. "Understanding Institutions." In *Institutions, Contracts, and Organizations: Perspectives from New Institutional Economics*, edited by Claude Ménard. Cheltenham, UK and Northampton, MA: Edward Elgar, 2000: 7-10.

North, Douglass C. *Understanding the Process of Economic Change*. Princeton: Princeton University Press, 2005.

Novshek, William, and Hugo Sonnenschein. "General Equilibrium with Free Entry: A Synthetic Approach to the Theory of Perfect Competition." *Journal of Economic Literature* 25, No. 3 (September 1987): 1281-1306.

Özselçuk, Ceren, and Yahya M. Madra. "Psychoanalysis and Marxism: From Capitalist-all to Communist Non-all." *Psychoanalysis, Culture and Society*. 10, No. 1 (April 2005): 79-97.

Pareto, Vilfredo. *Manual of Political Economy*. Translated by A. S. Schwier. New York: A. M. Kelley, 1971 [1906].

Perelman, Michael. *The Invention of Capitalism: Classical Political Economy and the Secret History of Primitive Accumulation.* Durham & London: Duke University Press, 2000.

Piaget, Jean. *Structuralism*. Translated and edited by Chaninah Maschler. New York: Harper Torchbooks, 1970.

Plott, Charles R. "Rational Choice in Experimental Markets." In *The Limits of Rationality*, edited by Karen Schweers Cook and Margaret Levi. Chicago: Chicago University Press, 1990: 146-175.

Rabin, Matthew. "Incorporating Fairness into Game Theory and Economics." *American Economic Review* 83, No. 5 (December 1993): 1281-1302.

Radner, Roy. "Problems in the Theory of Markets under Uncertainty." *American Economic Review* 60, No. 2 (May 1970): 454-60.

Reder, M. W. "Chicago School." In *The New Palgrave: A Dictionary of Economics*, Vol. 1, edited by John Eatwell, Murray Milgate, and Peter Newman. London and Basingstoke: Macmillan, 1987: 413-418.

Resnick, Stephen A., and Richard D. Wolff. *Knowledge and Class: A Marxian Critique of Political Economy*. Chicago: University of Chicago Press, 1987.

Resnick, Stephen A., and Richard D. Wolff. "Radical Economics: A Tradition of Theoretical Differences." In *Radical Economics*, edited by Bruce Roberts and Susan Feiner. Norwell, Mass. and Dordrecht: Kluwer Academic, 1992: 15-43.

Resnick, Stephen A., and Richard D. Wolff. "Althusser's Liberation of Marxian Theory." In *The Althusserian Legacy*, edited by E. Ann Kaplan and Michael Sprinker. London and New York: Verso, 1993: 59-72.

Resnick, Stephen A., and Richard D. Wolff, eds. *New Departures in Marxian Theory*. New York and London: Routledge, 2006.

Rizvi, S. Abu Turab. "The Microfoundations Project in General Equilibrium theory." *Cambridge Journal of Economics* 18 (1994): 357-77.

Rizvi, S. Abu Turab. "Responses to Arbitrariness in Contemporary Economics." In *New Economics and Its History*, edited by John B. Davis. Durham and London: Duke University Press, 1997: 273-288.

Robbins, Lionel. *The Nature and Significance of Economic Science*. London: Macmillan, 1932.

Roberts, Bruce. "The Visible and the Measurable: Althusser and the Marxian Theory of Value." In *Postmodern Materialism and the Future of Marxist Theory*, edited by A. Callari and D.F. Ruccio. Wesleyan University Press, Hanover and London, 1996: 193-211.

Robson, Arthur. "Evolution and Human Nature." *Journal of Economic Perspectives* 16, No. 2 (April 2002): 89-106.

Roemer, John E. "An Anti-Hayekian Manifesto." *New Left Review* I, No. 211 (May/June 1995): 112-129.

Rotheim, Roy J., ed. *New Keynesian Economics/Post Keynesian Alternatives.* London and New York: Routledge, 1998.

Rothschild, Michael. "Models of Market Organization with Imperfect Information: A Survey." *Journal of Political Economy* 81, No. 6 (1973): 1283-1308.

Rubenstein, Ariel. *Models of Bounded Rationality*. Cambridge: The MIT Press, 1998.

Ruccio, David F. and Jack L. Amariglio. *Postmodern Moments in Modern Economics*. Princeton: Princeton University Press, 2003.

Rutherford, Malcolm. *Institutions in economics: The old and the new institutionalism*. Cambridge: Cambridge University Press, 1994.

Samuelson, Paul. "A note on the pure theory of consumer's behaviour." *Economica* 5 (1938): 61-72.

Samuelson, Larry. "Evolution and Game Theory." *Journal of Economic Perspectives*, 16, No. 2 (Spring 2002): 47-66.

Sandler, Todd. *Global Challenges: An Approach to Environmental, Political, and Economic Problems*. Cambridge: Cambridge University Press, 1997.

Schelling, Thomas C. *The Strategy of Conflict.* Cambridge: Cambridge University Press, 1960.

Schotter, Andrew. *Economic Theory of Social Institutions*. Cambridge: Cambridge University Press, 1981

Screpanti, Ernesto. "The Postmodern Crisis in Economics and the Revival of Institutionalist Thought." *Rethinking Marxism* 12, No. 1 (Spring 2000): 87-111.

Screpanti, Ernesto, and Stefano Zamagni. *An Outline of the History of Economic Thought.* Oxford: Oxford University Press, 1993.

Sen, Amartya K. *Collective Choice and Social Welfare*. San Francisco: Holden Day, 1970.

Sen, Amartya K. "Behaviour and the Concept of Preference." *Economica* 40 (1973): 241-259. Reprinted in *Rational Choice*, edited by Jon Elster. New York: New York University Press, 1986: 60-81.

Sen, Amartya K. "Rational Fools: A Critique of the Behavioral Foundations of Economic Theory." *Philosophy and Public Affairs* 6 (1977): 317-344.

Sen, Amartya. *On Ethics and Economics*. Oxford and Cambridge, MA: Basil Blackwell, 1987.

Sen, Amartya K. "Internal Consistencey of Choice." *Econometrica* 61, No. 3 (May 1993): 495-521.

Sen, Amartya K. *Rationality and Freedom*. Cambridge, MA and London: The Belknap Press of Harvard University Press, 2002.

Sent, Esther-Mirjam. "Engineering Dynamic Economics." In *New Economics and Its History*, edited by John B. Davis. Durham and London: Duke University Press, 1997: 41-62.

Sent, Esther-Mirjam. "Pleas for Pluralism." *post-autistic economics review* 18 (February 2003): article 1.

Sent, Esther-Mirjam. "Behavioral Economics: How Psychology Made Its (Limited) Way Back Into Economics." *History of Political Economy* 36, No. 4 (2004): 735-760.

Sent, Esther-Mirjam. "Simplifying Herbert Simon." *History of Political Economy* 37, No. 2 (2005): 227-232.

Shapiro, Carl and Joseph E. Stiglitz. "Equilibrium Unemployment as a Worker Discipline Device." *American Economic Review* 74 (June 1984): 433-44.

Simon, Herbert A. "Theories of Decision-Making in Economics and Behavioral Sciences." *American Economic Review* 49, No.1 (1959): 253-83.

Simon, Herbert A. *Administrative Behavior*. The Second Edition. New York: Macmillan, 1961.

Simon, Herbert A. "From Substantive to Procedural Rationality." In *Method and Appraisal in Economics*, edited by S. J. Latsis. Cambridge: Cambridge University Press, 1976: 129-148.

Simon, Herbert A. "Rationality as Process and Product of Thought." *American Economic Review* 68, No. 2 (May 1978):1-16.

Smith, Adam. *The Wealth of Nations*. New York: Random House, 1965 [1776].

Smith, Adam. *The Theory of Moral Sentiments*. Edited by D.D. Raphael and A.L. Macfie. Oxford: Clarendon Press, 1976 [1759-90].

Smith, Vernon L. "Rational Choice: The Contrast between Economics and Psychology." *Journal of Political Economy* 99, No. 4 (August 1991): 877-897.

Smith, Vernon L. "Economics in the Laboratory." *Journal of Economic Perspectives* 8, No. 1 (Winter 1994): 113-131.

Stark, Oded. "Altruism and the Quality of Life." *American Economic Review*, *Papers and Proceedings* 79, No. 2 (May 1989): 86-90.

Stark, Oded. *Altruism and Beyond: An Economic Analysis of Transfers and Exchanges within Families and Groups.* Cambridge: Cambridge University Press, 1995.

Stavrakakis, Yannis. *Lacan and the Political*. New York: Routledge, 1999.

Stigler, George. "The Economics of Information." *Journal of Political Economy* 69 (June 1961): 213-25.

Stigler, George. *Essays in the History of Economics*. Chicago: Chicago University Press, 1965.

Stiglitz, Joseph E. "Post Walrasian and Post Marxian Economics." *Journal of Economic Perspectives* 7, No. 1 (Winter 1993): 109-114.

Stiglitz, Joseph E. *Whither Socialism?* Cambridge, MA and London: The MIT Press, 1994.

Stiglitz, Joseph E., and Carl Walsh. *Principles of Microeconomics*. The Third Edition. New York and London: W.W. Norton & Co., 2002.

Sugden, Robert. "Reciprocity: The Supply of Public Goods through Voluntary Contributions." *Economic Journal* 94, No. 376 (December 1984): 772-787.

Sugden, Robert. "Spontaneous Order." *Journal of Economic Perspectives* 3, No. 4 (Autumn 1989): 85-97.

Sugden, Robert. "Rational Choice: A Survey." *Economy Journal* 101 (July 1991): 751-85.

Sugden, Robert. "A Theory of Focal Points." *Economic Journal* 105 (May 1995): 533-550

Sugden, Robert. "Experiments as exhibits and experiments as tests." *Journal of Economic Methodology* 12, No. 2 (June 2005): 291-302.

Taylor, Michael. *The Possibility of Cooperation*. Cambridge: Cambridge University Press, 1987.

Thompson, Grahame. "Where goes economics and the economies?" *Economy and Society* 26, No. 4 (1997): 599-610.

Titmuss, Richard. *The Gift Relationship: From Human Blood to Social Policy.* London: George Allyn and Unwin, 1971.

Tversky, Amos and Daniel Kahneman. "Rational Choice and Framing of Decisions." In *The Limits of Rationality*, edited by Karen Schweers Cook and Margaret Levi. Chicago: Chicago University Press, 1990: 60-89.

Ullmann-Margalit, Edna. "Invisible-Hand Explanations." *Synthese* 39 (1978): 263-291.

Vira, Bhaskar. "The Political Coase Theorem: Identifying Differences between Neoclassical and Critical Institutionalism." *Journal of Economic Issues* 31, No. 3 (September 1997): 761-779.

von Neumann, John. "Zur Theorie der Gesellshaftsspiele." *Mathematische Annalen*, 100 (1928): 295-320. Translated as "On the Theory of Games of Strategy" by Sonya Bargmann in *Contributions to the Theory of Games* 4, edited by A. Tucker and R. Luce. Princeton: Princeton University Press, 1959: 13-42.

von Neumann, John. "Uber ein Okonomischen Gleichungssystem." In *Ergebnisse eines Mathematischen Kolloquiums*, edited by Karl Menger, 8 (1937).

von Neumann, John, and Oskar Morgenstern. *Theory of Games and Economic Behavior*. The Third Edition. Princeton: Princeton University Press, 1953.

Vromen, Jack J. *Economic Evolution: An Enquiry into the Foundation of New Institutional Economics*. London: Routledge, 1995.

Walker, Donald A. "Competitive Theories of Tatonnement." *Kyklos* 25 (1972): 345-363.

Walras, Leon. *Elements of Pure Economics*. Edited by W. Jaffé. London: Allen & Unwin, 1954.

Weale, Albert. "Social Choice." In *The Theory of Choice*, edited by S. Hargreaves-Heap, M. Hollis, B. Lyons, R. Sugden, and A. Weale. Oxford: Blackwell, 1992.

Weiss, Yoram. "The Formation and Dissolution of Families: Why Marry? Who Marries Whom? And What Happens Upon Divorce?" In *Handbook of Population and Family Economics*, edited by M.R. Rosenzweig and O. Stark. Amsterdam: Elsevier, 1997: 81-123.

Weintraub, E. Roy. *General Equilibrium Analysis: Studies in Appraisal*. Cambridge, UK: Cambridge University Press, 1985.

Weintraub, E. Roy. *How Economics Became a Mathematical Science*. Durham and London, Duke University Press, 2002.

Williamson, Oliver E. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press, 1975.

Williamson, Oliver E. 'The Economics of Governance: Framework and Implications." *Journal of Institutional and Theoretical Economics* 140 (1984): 195-223. Reprinted in *Economics as a Process: Essays in the New Institutional Economics*, edited by Richard N. Langlois. Cambridge: Cambridge University Press, 1986: 171-202.

Williamson, Oliver E. *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. New York: Free Press, 1985.

Williamson, Oliver E. "Contested Exhange Versus the Governance of Contractual Relations." *Journal of Economic Perspectives* 7, No. 1 (Winter 1993): 103-108.

Wolff, Richard D., Bruce Roberts, and Antonio Callari. "Marx's-Not Ricardo's-'Transformation Problem': a Radical Reconceptualization." *History of Political Economy* 14, No. 4 (Winter 1982): 564-582.

Wolff, Richard D., Bruce Roberts, and Antonio Callari. "A Marxian Alternative to the Transformation Problem." *Review of Radical Political Economics* 16, No. 2 (Summer/Fall 1984): 115-135.

Wolff, Richard D. "Ideological State Apparatuses, Consumerism, and U.S. Capitalism: Lessons for the Left." *Rethinking Marxism* 17, No. 2 (April 2005): 223-235.

Wolff, Richard D. "'Efficiency': Whose Efficiency?" In *New Departures in Marxian Theory*, edited by, Stephen A. Resnick and Richard D. Wolff. New York and London: Routledge, 2006: 303-305.

Wong, S. The Foundations of Paul Samuelson's Revealed Preference Theory. Boston: Routledge and Kegan Paul, 1978.

Zizek, Slavoj. "The Parallax View." *New Left Review* II, No. 25 (January/February 2004): 121-134.