

CHAPTER 1

INTRODUCTION

This monograph is solely concerned with neoclassical microeconomic theory, that is, with economic science or the pure science of economics from a neoclassical perspective. It is, in contrast, not concerned with policy analysis or any aspect of neoclassical economic research that neoclassical economists claim are imbued with value judgments (Colander 2009b). With this point established, the aim of the monograph can now be broached. Heterodox economists have longed raised many complaints about neoclassical economic theory, as evident by the numerous books and articles detailing the theory's shortcomings and incoherence, starting with its methodology, proceeding on to its supply and demand theory of markets, and ending with game theory and general equilibrium. The critiques have, in turn, raised the question: "Is there anything worth keeping in neoclassical microeconomics?" If the question is directed at what aspects of neoclassical theory may be of relevance to the development of heterodox microeconomic theory, the answer is no. However, the question may be interpreted as raising the possibility of not teaching neoclassical microeconomic theory because of its incoherence. Yet, because a theory may be 'wrong' or incoherent does not legitimize the non-teaching of it.¹ Intellectual diversity, free inquiry, and the principle that there is no humanly accessible truth that is not in principle open to challenge are indispensable to achieving the central purposes of a university. Hence, adherents to a particular economic theory that claims a monopoly on truths and wisdom and rejects a diversity of approaches to unsettled questions is not compatible with the idea and nature of a university. In this

¹ This argument is used by neoclassical economists to legitimize their decision not to

light, students should be exposed to different and ‘wrong’ theories so that they can make up their own minds about which among them is the best for understanding and explaining the provisioning process of the capitalist economy in which they live and to avoid being duped by economists.

To have this opportunity, it is necessary that their professors have at least a good working knowledge of both neoclassical and heterodox economic theories; so to be a good economist, it is necessary to have a good understanding of various different theoretical positions, even if they are ‘wrong’. Therefore all graduate economic programs should at least meet this minimal knowledge requirement even though its particular orientation and strength is in neoclassical or heterodox theory. As open and pluralistic as this position is, neoclassical and many heterodox economists alike agree that neoclassical theory, and especially neoclassical microeconomic theory, should be nearly exclusively taught to undergraduate and graduate students. The justification for this stance is that neoclassical microeconomics is the dominant theory and all graduate students must know it if they wish to be taken seriously as an economist.² Thus what transpires is that graduate students in both neoclassical and heterodox graduate programs spend nearly all of their time learning neoclassical material. They are so overwhelmed with this task that they end up only knowing neoclassical microeconomic theory and never getting beyond it.

The unintended (or not) consequence of the near exclusive emphasis on the teaching of neoclassical microeconomics to graduate students in heterodox programs is that they end up believing it is the only theory they really need to know and that

have various heterodox approaches taught to their students.

heterodox microeconomic theory is more or less unimportant in one's training as a heterodox economist. The consequence of the training and acquired valuation of heterodox theory is that it leaves heterodox graduate students with an undeveloped critical understanding of neoclassical microeconomics and with no capabilities of teaching heterodox microeconomics.

In this monograph I advocate a different way to teach neoclassical microeconomic theory to graduate students in pluralistic-heterodox programs that accomplishes the goals of providing them with a critical and 'technical' understanding of neoclassical theory as well as a critical awareness of how heterodox microeconomic theory is organized, structured, and different.³ In this way, it is possible to calm the fears of many heterodox economists that the complete dismissal of neoclassical microeconomic theory is not a nihilistic endeavor, but a connected prelude to delineating a heterodox microeconomic theory. It is done by teaching microeconomic theory as a critical historical discourse, or more precisely a historical story, that deals with its evolution and its theoretical and empirical shortcomings that place the theory in the incoherent state that it is in today. In particular, the story provides an understanding of the key concepts in microeconomic theory through showing their historical origins and role in developing the theory. Hence the teaching of the theory is not a set of theoretical stories outside of history—such as utility functions one week, the Slutsky equation the next week and then on to the production function the following week; but rather, for example, linking the evolution of the utility function to the 'emergence' of the Slutsky equation. Like all stories, this one

² For example, see Colander (2009a, 2010).

³ This approach also provides the student with an understanding of how neoclassical economists arrange and teach the material that constitutes neoclassical microeconomics.

also has an ending and one that provides a substantive answer to the above question: “Is There Anything Worth Keeping in Neoclassical Microeconomics?” And the answer is no. [Guerrien 2002a, 2002b; Benicourt and Guerrien 2008]

Teaching Neoclassical Microeconomic Theory

To claim that microeconomic theory can be taught as a story presupposes that there is a significant degree of historical-theoretical continuity. This is established via Table 1.1 below. The tools, models, and discourse that comprise and concretely define neoclassical microeconomic theory can be identified from the textbooks assigned in introductory, intermediate, and graduate economic courses. Table 1.1 lists the twenty-nine core tools and models included in American neoclassical microeconomic theory textbooks in the last one hundred years. They are divided into four time periods, the first being the base period, while the next two represent the supposed period of pre-1940 pluralism and the post-war ascendancy of neoclassical economics, and the last period represents neoclassical economics at the end of the 20th Century. The first entry in each column represents the number of textbooks that included the tool or model and the second entry in parentheses gives the percentage of textbooks that included the tool or model. What Table 1.1 establishes is that the core theoretical tools of neoclassical microeconomics circa 1900-1910, such as scarcity, maximization, utility and marginal utility, marginal products and the law of diminishing returns, supply and demand curves, and marginal productivity principle of distribution, and the core model of competition have been retained throughout the century. Moreover, it shows that the number of core theory components have increased over time, such as utility functions and income and substitution effects, production functions, monopolistic competition, oligopoly, game

theory, and general equilibrium. These two points imply that there has been no break in the past hundred years within neoclassical economics in that the historical frontiers of neoclassical research did not create at any time a disjuncture with the main body of neoclassical theory.⁴ Rather neoclassical economics as defined in terms of the tools, models, and discourse of its microeconomic theory has always been and is still with us: contrary to reports (Colander 2000), neoclassical economic theory is not dead.

Table 1.1

Neoclassical Microeconomics in the 20th Century as
Represented in American Textbooks⁵

Tools and Models	Time Periods			
	1899-1910	1911-40	1941-70	1971-2002
Economics defined as the allocation of scarce resources		5 (19)	25 (81)	37 (86)
Scarcity, scarce factor inputs	9 (75)	23 (88)	24 (77)	31 (72)
Production possibility frontier			7 (33)	36 (84)
Opportunity costs	5 (42)	12 (46)	18 (58)	33 (77)
<i>Demand Side</i>				
Utility/diminishing marginal utility	12 (100)	22 (85)	26 (84)	43(100)
Maximize utility	8 (67)	18 (69)	28 (90)	43(100)
Utility functions, indifference curves, marginal rate of substitution			21 (68)	43(100)
Income/substitution effects			20 (65)	43(100)
Individual consumer/market demand curves	11 (92)	26 (100)	31 (100)	43(100)
Price elasticity of demand	7 (58)	22 (85)	31 (100)	43(100)
<i>Production and Costs</i>				
Production function			15 (48)	39 (91)
Single input variation, marginal products	12 (100)	25 (96)	29 (94)	43(100)

⁴ This means the current argument that there is a fundamental difference between the contemporary cutting-edge research and the main body of neoclassical theory is arguably without foundation.

⁵ The list of textbooks examined is found in the Appendix to the Bibliography.

Law of diminishing returns	12 (100)	26 (100)	30 (97)	39 (91)
Proportional input variation, returns to scale	1 (8)	2 (8)	14 (45)	34 (79)
Isoquants, marginal rate of technical substitution			11 (35)	36 (84)
Marginal costs: $MC = P_x/MP_x$	3 (25)	12 (46)	31 (100)	42 (98)
Firm/market supply curve	11 (92)	25 (96)	30 (97)	42 (98)

Markets

Perfect, pure, or free competition	10 (83)	24 (92)	31 (100)	43(100)
Profit maximization	6 (50)	22 (85)	31 (100)	43(100)
Marginal cost = price	1 (8)	10 (38)	31 (100)	43(100)
Imperfect/monopolistic competition		7 (27)	31 (100)	40 (93)
Firm demand curve		6 (23)	29 (94)	42 (98)
Marginal revenue = marginal costs (or equivalent)		7 (27)	31 (100)	42 (98)
Oligopoly with firm demand curve			19 (61)	34 (79)
Kinked demand curve			17 (55)	27 (63)
Game theory			6 (25)	32 (74)

Distribution and General Equilibrium

Marginal productivity principle	6 (50)	14 (54)	26 (84)	30 (70)
Wage rate = $MP_L \times \text{Price}$, Profit = $MP_K \times \text{Price}$	10 (83)	18 (69)	27 (87)	42 (98)
General Equilibrium			17 (55)	30 (70)
Pareto-efficiency/optimality			8 (26)	31 (72)
Total Number of Textbooks	12	26	31	43

In addition to establishing the existence of theoretical continuity, Table 1.1 also identifies the tools and concepts that constitute the theory, that is, the dramatis personae of the story, and the date of their origin and/or acceptance into the theory. Moreover, the dramatis personae are related to each other in a hierarchical fashion. That is, at the top is the theoretical core that consists of the primary theoretical concepts and propositions that are accepted unconditionally. From them, synthetic propositions are deduced. For example, the core concepts of relative scarcity, rationality, self-interest, optimization, and preference structure and the core propositions of convexity, equilibrium, exchange, and technology combine to produce the synthetic propositions of demand curves, supply

curves, and market equilibrium. The synthetic propositions in turn are the basis for deriving ‘lower’ level propositions that directly engage issues derived from the economy. In addition, the tool qua concept of competitive market is the comparative benchmark by which all imperfectly competitive markets are defined, identified, and evaluated. More generally, imperfections in exchange, competition, information, and the like only have derived-comparative meaning. For example, if a core concept or theoretical proposition is ambiguous or incoherent, so are the synthetic propositions: if perfect information is incoherent then imperfect or asymmetrical information and bounded rationality have no theoretical substance; or if rationality has no meaning or substance, then neither does sub-rationality or irrationality. Thus, within the hierarchically-structure neoclassical microeconomic theory, knowledge about imperfections constitutes knowledge of second-order importance and significance. This has the implication that it is not necessary to examine all the possible imperfections in order to come to a good understanding of neoclassical microeconomic theory.

With the *dramatis personae* related in such a manner, the structure of the story is established: demand, production and costs, markets, factor inputs and distribution, general equilibrium and welfare; and in this context, the role of the core and synthetic concepts and propositions in the historical development of neoclassical microeconomics is told. But the outcome of the historical-theoretic story is not one of a march of progress to greater logical consistency and higher levels of understanding economic reality. That is, as will be argued in this monograph, neoclassical microeconomic theory is incoherent because so many of the core and synthetic concepts and propositions are problematical at best. Instead of focusing on progress, the story focuses on the theoretical concepts and

propositions that make up neoclassical micro and tell their historical-theoretical story, one by one and then all together. In this way, a coherent story of a clearly incoherent theory is possible and explanatory as to why it is not possible to retain any components of it for any economic theorizing. [Halevi 2002]

Teaching microeconomics as a historical-theoretic story does not mean minimizing the teaching of its mathematical component; nor does it mean near exclusive emphasize on it. In fact, the position taken in this monograph is that the core theoretical content of neoclassical microeconomics can be fully articulated with calculus and linear algebra. After all, if the theory is incoherent, higher-level mathematics will not save it. On the other hand, teaching microeconomics as a historical-theoretic story does mean that knowledge of the history of economics and other related disciplines, such as mathematics and philosophy, is important (see Weintraub 2002, 2005). A student entering any pluralistic-heterodox graduate economics program will have introductory and intermediate courses in neoclassical microeconomics. But this is not sufficient for taking the graduate course advocated in this monograph. Before taking it, the student needs to acquire a sufficient mathematical background. Thus she/he should have a minimum of two courses in calculus and at least one course in linear algebra; but an additional course in calculus would be desirable. The student should also have an undergraduate or graduate course in mathematical economics.⁶ This background will enable the student to easily comprehend the calculus-based approached utilized in the

⁶ The basic text in the course should be at the level of Wade Hand's *Introductory Mathematical Economics* (2004), Peter Hess's *Using Mathematics in Economic Analysis* (2001), Michael Klein's *Mathematical Methods for Economics* (2001), or Alpha Chiang's *Fundamental Methods of Mathematical Economics* (1984).

following pages to delineate the theory.⁷ Clearly, the use of more mathematical sophisticate texts, such as Mas-Colell, Whinston, and Green *Microeconomic Theory* (1995) may provide a more thorough description of the mathematical structure of neoclassical microeconomic theory but they do not increase the theoretic content or provide a better understanding of the material. While the clear tendency over the past century is to make neoclassical microeconomic theory ‘isomorphic’ with mathematics, this transformation has little altered most of the core concepts-propositions and core synthetic propositions, with equilibrium perhaps being the most obvious exception. Thus, the representation of the mathematical structure of the theory needs to be appropriate for the task.

In addition to preparation in mathematics, the student should have one course in the history of economic thought, another in a specific heterodox approach, such as Marxism, Institutionalism, or Post Keynesian economics, and a third in the history of the social sciences. The first two courses provide the student with a theoretic contrast to neoclassical economics as well as introductions to critiques of the theory, while the third gives her/him an overview of how economics is differentiated from the other social sciences. The final set of courses the student should have include in the history and philosophy of mathematics, 19th and 20th century philosophy, and the philosophy of science. The rationale for the philosophical courses is that they introduce the student to ways of thinking that have had a profound impact on how neoclassical theory is

⁷ Varian’s *Microeconomic Analysis* (1992), Binger and Hoffman, *Microeconomics with Calculus* (1998), Silberberg and Suen, *The Structure of Economics* (2001), Jehle and Reny, *Advanced Microeconomic Theory* (2001), and many others provide an excellent, conventional, *uncritical*, and not overly difficult calculus-based summary of neoclassical microeconomics and hence can be used as supplemental companions to this book.

articulated while the history of mathematics course provides the student with the tools to understand the evolution of particular concepts used by economists, such as equilibrium.

Organization and Content

To be a critical historical-theoretic story of neoclassical microeconomic theory, the monograph is organized so that the theoretical and technical delineation of the contemporary theory does not overwhelm the historical and critical components. This is achieved in three ways: first the historical material leads to the theoretical and technical material on methodology, demand, production and costs, perfect competition, factor input market, and general equilibrium; secondly, the theoretical and technical material on imperfectly competitive markets is presented as a historical sub-story, starting with monopolistic competition and ending with game theory; and thirdly, the critical material is partially included with the historical discussion when it accounts for particular directions taken in the theoretical and technical material as well as being a separate analysis after the theoretical and technical discussion. The story could also be obscured if all the various special theoretical topics in consumer, production, and costs, for example, are covered. To prevent this, the monograph is restricted to the presentation of neoclassical theory that pertains directly to markets, equilibrium, the coordination of economic activity and social provisioning process; and special topics will be avoided unless that pertain directly to the theme at hand.

Since the monograph is on neoclassical microeconomic theory, its organization follows the general format found in many texts, with Parts I through VII on defining economics and methodology, demand, production and costs, perfect competition, monopoly and imperfect competition, factor input markets and distribution, and general

equilibrium and welfare economics respectfully. However, it is necessary to place this core material within a historical context. Alfred Marshall's *Principles of Economics* (first published in 1890 and the 8th and last edition in 1920) is taken as the comparative historical starting point. For most English-speaking economists from 1890 to 1930, *Principles* represented neoclassical economic theory, although it did not deal with general equilibrium theory. Moreover, its organization of the theory is still followed by neoclassical economists today. Finally, most of the theoretical developments in microeconomic theory over the past eighty years started out as deviation from what was stated in the *Principles*. So Marshall's book provides the historical starting point, hence comparative context. Thus, each of the subsequent Parts I-VI of the book starts with a historical introduction drawn primarily from Marshall's *Principles*. This contrast will provide the reader with a picture of how neoclassical microeconomics has changed over time. In addition, because Marshall and his generation of neoclassical economists had to argue for their supply and demand theory of markets, they had to differentiate and defend it from the remnants of classical political economy, from Marxian political economy, and from the historical school approach. Thus, critical issues to the formation of microeconomic theory that are forgotten into today's textbooks can be highlighted and explored, such as 'why should there be a relationship between costs and quantity produced?'.⁸

⁸ One outcome of using an historical approach in the delineation and teaching of neoclassical microeconomic theory is that the history of economic thought has a direct role in the education of an economist. Thus, instead of having to justify its relevance to economists, those who reject its relevance have to justify their position. That is, the implication of the approach advocated in this monograph is that an individual who does not have a historical-theoretical understanding of neoclassical economic theory is an ill-trained economist.

Defining Economics, Methodology, and Models

Students have, in their undergraduate economic courses, been told rather uncritically what economics is and what is the method of doing scientific research; so by the time they get to graduate school, it is generally assumed that they have been completely indoctrinated so that no further discussion is needed. However, the neoclassical definition of economics and its methods of doing scientific research can be and are contested. Thus, in Part I of the monograph a historical and critical approach is utilized to draw out the many differentiated issues embedded in the topics. Therefore one aim is to trace out the historical transformation of the definition of economics from Marshall's 'economics is a study of mankind in the ordinary business of life' to Lionel Robbin's 'economics is the study of the allocation of scarce resources among competing ends' and its widespread adoption in textbooks. A second aim is the delineation and critical examination of the methodology underpinning the theorizing of neoclassical microeconomics. The use of deductive methods (as opposed to empirical evidence) qua models to create theory and role of positivism in defending and testing theory is examined and their place in the training of economists discussed. Particular attention is also paid to the changing understanding of equilibrium and the role of mathematics in theorizing. Finally, it is argued that the methodology that has evolved over time in microeconomics has generated a theory articulated via models in which knowledge is generated internally to the model by working out its mathematical qua theoretical properties and outcomes. Therefore the models qua theories are conceptually and logically (not empirically) grounded and best articulated with mathematics that is grounded in the logic of the model. Thus students are presented with the methodological

question of whether models and their mathematics that are not empirically grounded constitute any knowledge at all; and if the answer is negative, then is it possible for neoclassical microeconomics to constitute knowledge about the real world?⁹

Demand, Production and Costs

Parts II and III of the monograph, which are on the theory of consumer behavior and demand and on the theory of production and costs, have the same format of presentation. First Marshall's theories are presented and the criticisms of them discussed. Then the contemporary theories are presented in their conventional theoretical-mathematical form and contrasted with Marshall's theories and some special topics covered that are germane to understanding them, such as homothetic utility and production functions, revealed preference, and fixed proportions production and cost theory. Finally, criticisms of the theories are presented especially regarding conception of the utility and production function, social wants, aggregate demand curves, scarcity, cost curves, and partial equilibrium for production and cost theory.

Perfect Competition and Imperfect Competition

In Part IV, perfect competition is presented as a historically evolved concept, first starting with Marshall's representative firm and free competition followed by the years of turmoil for the period of 1920 to 1933. The aim is to make students aware that perfect competition with the equilibrium firm as an analytical concept did not always exist but

⁹ What this suggests is that, given the methodological foundations of neoclassical microeconomics, it is not possible to use real data to illuminate the models qua theories. While heterodox economists complain about this (and the complaint is accurate), they miss the methodological point since it is not methodologically possible to utilize real data to illustrate the theory being presented. This is a different point from using empirical evidence, such as provided by econometrics, to test the theory. [Guerrien 2002a, 2004; Benicourt, 2004; Benicourt and Guerrien 2008]

was pieced together in response to various theoretical problems with Marshall's supply and demand theory of prices. Thus Marshall's free competition is not the same as perfect competition. Perfect competition is delineated but with special attention directed towards its problematical areas, such as the formation of the aggregate market demand curve, the incoherent relationship between the market demand curve and the horizontal firm demand, the problematical nature of an upward sloping long period market supply curve, and the lack of a long period supply and demand explanation of prices and quantities similar to that for the short period.

Contrasting the presentation of Marshall's free competition and perfect competition, Part V presents imperfect competition as a historical story, starting with Marshall's analysis of monopoly. It then proceeds to models of competition among interdependent firms, starting with Augustin Cournot in 1838 and then going forward to monopolistic/imperfect competition, oligopoly, behavioral and managerial theories of the firm, and ending with game theory. There are five issues being address via this story, the first being the importance of interdependent behavior among firms which has destructive consequences for the existence of a firm demand curve. The second is the non-existence of the firm supply curve and hence the undermining of the supply price and the market price as being indexes of scarcity; while the third is the social construction of firm behavior and objectives which undermines the assumed naturalness of profit maximization or maximization of any sort. The fourth is that game theory is more of old wine in a new bottle and hence has all the problems concerning interdependent behavior that the older theories of oligopoly did. The final issue is that the empirical and

theoretical critique of marginalism that flourished in the period 1946 to 1955 is still applicable today.

Factor Input Markets, Distribution, General Equilibrium, and Welfare

Parts VI and VII of the monograph are arranged much like the book on imperfect competition. [NEED DISCUSSION OF FACTOR INPUT MARKETS, DISTRIBUTION, WELFARE] Part VII starts with a short review of the concept of equilibrium and its associated mathematics, followed with an examination of Walras's and the contemporary presentation of the pure exchange model. The general equilibrium model is then extended to include produced inputs and circular production, starting with Bohm-Barwek and Wicksell, proceeding to Clark, and ending with a general discussion in the context of the capital controversy of the problem with produced inputs and retaining the concept of scarcity and prices as indexes of scarcity. Since general equilibrium and the neoclassical vision of the market cannot be sustained when there are produced inputs, the possibility they can be saved if production occurs with non-produced hence relatively scarce inputs is explored. The end result of this historical-theoretic story is that general equilibrium is not only highly problematical but also a dead end in that it cannot accomplish what it set out to do. There are two sub-plots to the story, one of which is the changing notion of equilibrium that is told. The second sub-plot to show how problematical the concept of scarcity is once produced inputs are introduced, and to situate this problem within the capital controversies which played an important part in the rise of heterodox economics since 1970.

Part VIII summarizes the theoretical story and discusses the overall implications for neoclassical microeconomic theory, its claim as a science, and what it means to be an

economic science. It will deal with such issues as the allocation of resources via the price mechanism, scarcity, marginal products and distribution, and the issue of whether there remains a core sense of mainstream/neoclassical economics in terms of substance and understanding the economy. [more]

Benefits of the Book

What are the benefits for students in heterodox graduate programs from having their course in microeconomic theory based on this monograph? First they are provided with significant training in the theory qua mathematics and therefore know neoclassical microeconomics sufficiently well to teach it in most graduate programs. But they have also been given the capabilities to engage with the theory critically so that they can make their own decisions whether it is coherent or not, that is whether the course's narrative is sensible or not. This has benefits for their students in that they will not be taught neoclassical microeconomics as the truth that is not open to question. Secondly, if the theory is acknowledged as incoherent, the graduate students will realize that such incoherence pervades it in its entirety instead of being isolated to one small part of it. Moreover, because the monograph is concerned with the way the theory qua model is constructed without empirical grounding, it is also possible to conclude that the incoherent theory also contains no knowledge. In this manner, they will not be taken in without reflection by the claim that neoclassical microeconomics lends itself to practical or common-sense analysis of economic problems.

The monograph also makes clear to graduate students that heterodox microeconomics will be quite different. For example, if the role of scarcity and demand-determined prices are problematical concepts that perhaps should not be used, this can be

extended to other concepts such as demand and supply curves and their derivative concepts and problems such as starting theorizing with the asocial individual and the aggregation from the individual upward to a macro entity. Thus, the graduate student will understand why a theory of prices, the existence and theorizing about the business enterprise in interdependent contexts, the role of the surplus and circular production, and the connection between investment, profit mark up, and aggregate economic activity (that is the connection between the micro and the macro-business cycle) are important components of heterodox microeconomic theory; and therefore why heterodox microeconomics is quite incompatible with the entire corpus of theory of its neoclassical brethren.