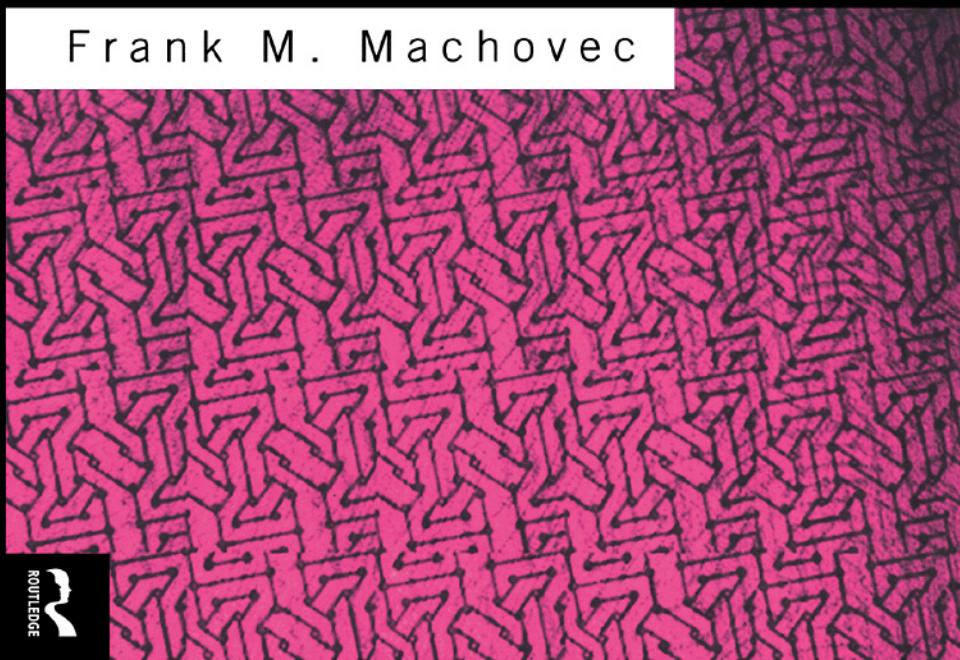


Perfect Competition
and the Transformation
of Economics

Frank M. Machovec



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OF ECONOMICS

Frank M. Machovec



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*In loving memory of my brother, Paul, whose wit,
wisdom, and compassion enriched my entire family*

PREFACE

The central ideas in this book were cultivated when I wrote my doctoral dissertation in 1985, but this essay has gone far beyond the scope of my original research. I owe a special debt to two of my committee members, Israel M. Kirzner of New York University and Paul J. McNulty of Columbia University (now deceased). Their writings inspired my interest in the profession's approach to competition and entrepreneurship. Kirzner's gentle prodding kept the project alive during languid periods. Likewise, I owe thanks to Mario Rizzo of New York University, who served on my dissertation committee and who brought my proposal to the attention of the economics editor at Routledge.

Several other parties deserve to be recognized. First and foremost is the Earhart Foundation. Without Earhart's generous, sustained financial assistance over an eighteen-month period, my manuscript would not have attained fruition as a published work. Nearly equal in importance was the unwavering support of Daniel Maultsby, Dean of Faculty at Wofford College, a uniquely collegial community of scholars in Spartanburg, South Carolina. Maultsby funded my attendance at a Mont Pélérin Society conference in Prague (in November 1991), where I gathered informal reactions to my positions. In addition, his award of an in-house faculty grant during the summer of 1993 partially underwrote a final round of editing and research prompted by valuable recommendations from anonymous referees. Also instrumental was the International Joseph Schumpeter Society, which, along with the Institute for Humane Studies (at George Mason University), provided travel assistance for formal presentations of my research findings at the Schumpeter Society's 1992 conference in Kyoto, Japan, and its 1994 conference in Münster, Germany, where I received

PREFACE

constructive criticisms from attendees and the discussants. Of course, all remaining errors of fact or logic are mine alone.

Finally, I must thank Jeanne Cheatham, Joanne Medlock, and Joyce Blackwell, the talented faculty secretaries who converted my quasi-legible, hand-written pages into a typed manuscript, which underwent numerous revisions at COMPU-TYPE of Spartanburg. I owe a debt of gratitude as well to the diversely talented, unusually responsive staff of the Sandor Teszler Library (at Wofford College), who laboured many hours on my behalf. Of course, my patient, devoted wife Patricia Ann and my daughter Karlene Marie paid the highest price: the neglect that ensues when a writer is secluded, in hermit-like fashion, lucubrating night after night until the words are right. Their good-natured forbearance provided me the countless 'off-duty' hours required to convert my ideas into this treatise.

Frank M. Machovec
Spartanburg, South Carolina
November 1994

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INTRODUCTION AND OVERVIEW

The single most important concept in the history of economic analysis is perfect competition.

(Cochrane: 3)

The mainstream's historical perspective on competition and entrepreneurship has been based on its belief that the perfectly competitive model was the product of incremental intellectual maturation of a long-standing equilibrium vision of the market. My thesis is that the concept of perfect competition *and the analytical habits of thought attendant to it* were generally alien to the classical network of ideas on market activity. My contention—that the classical sense of the market was distinctly different from the neoclassical—is not new; however, none of the past writers who have raised the issue has provided sufficient supporting material to ignite a serious challenge to the dominant interpretation, an interpretation which assumes that the term 'the market' evoked essentially the same ideas in the classical era as in the neoclassical era.

In Kuhnian terms, the classical economists shared a vision that was substantially different from the vision promoted by the neoclassical equilibrium paradigm. In particular, evidence suggesting a classical lineage for the concept of perfect competition is tenuous, at best; the perfectly competitive model should more aptly be characterized as a mutation, for its genes bear little resemblance to those of its presumed parents. Adam Smith's 'state of natural liberty' was the free-entry nexus of *advantage-seeking* forces that cease to exist under the Walrasian vision. The now-familiar neoclassical idea of competition—the state of affairs

prevailing *after* the entire process of rivalry has run its course—emerged, like a phoenix, from Cournot's long-ignored 1838 treatise on mathematical economics. It was resurrected by Walras to accommodate his mathematical model of general equilibrium. Modern comparative-statics reasoning—based on the idea of firms who react helplessly to given prices—was not the reflexive centrepiece of the classical tradition.

Until the 1920s, the criterion employed by economists to evaluate whether or not a market was competitive (i.e., serving consumers) was freedom of entry. Classical competitive analysis emphasized the incessant creation of profit via entrepreneurial action and reaction, not the hypothetical conditions that would exist if all profit opportunities were eradicated by the emergence of perfect knowledge. To the classical economist, competition was *the means* by which information was gradually revealed to all participants, thereby altering expectations and behaviour, and driving the long-run market price toward average cost (natural value). The notion of equilibrium, therefore, was indeed of high interest to the classicals. Their main interest, however, was insuring that the new political-economic framework of post-mercantilist society enabled the *process* of competition to continue churning, for they understood that it was through the knowledge-discovery process itself, not through the zero-profit endpoint of equilibrium, that the wealth of a nation was created and its welfare enhanced. As one writer has adroitly explained, 'equilibrating forces' in classical treatments were the 'limiting...elements' that paralleled the endogenous forces that promoted change and growth. In short, the 'motor mechanism' of classical economics has been overlooked because the equilibrium paradigm of the modern era has caused us '[to] mistake the shadow for the substance' (Beach: 17). Appropriately, Mark Blaug has cautioned us *not* to infer—from the uniformity outcome of capital returns and homogeneous product prices—that the classical model is 'a species of general equilibrium theory except in the innocuous sense of an awareness that "everything depends on everything else"' (Blaug 1987:443).

My research offers the first real challenge to the neoclassical claim that the classical theory of the market was entrepreneurless. By 'first real challenge' I do not mean that I am the first person to highlight widely held misperceptions about the classical view of the market. Numerous others have pointed to this problem, and their contributions will be acknowledged at various points in subsequent

chapters; however, none of these writers has attempted to unearth the substantial bibliographic ammunition required to stimulate a reevaluation amongst equilibrium scholars. It is my hope that this essay will prompt a fruitful examination of this issue and, for the first time, cast serious doubt on the long-accepted impression within the mainstream that equilibrium thinking in general, and the model of perfect competition in particular, are conceptually rooted in the classicals' portrayal of market behaviour.

This would be a significant milestone, for it would undermine the continuity assumption by which leading neoclassical economists have argued that the present-day static models of market analysis represent a mathematically formalized rendering of the classical vision. If the introduction of the equilibrium paradigm altered the economic way of thinking in a way that misrepresents the market process, then the prevailing conception of the market is flawed and part of the policy focus flowing therefrom has been maledirected.

ROADMAP OF UPCOMING ISSUES

The *International Encyclopedia of the Social Sciences* (1968) 'included no essay on the market, the most fundamental institution of modern Western economies...' (North 1981:33). Likewise, The *New Palgrave: A Dictionary of Economics* (1987) included no essay on the market. The early work of Hayek, and the more recent writings in the field of constitutional economics, have done much to stir a reevaluation of the precise meaning and function of the bundle of institutions known collectively as 'the market'. However, the entrepreneurless mode of thinking associated with equilibrium analysis still dominates the vast majority of doctoral training programmes, and thus modern economics portrays the market in a way radically different from treatments written in the nineteenth and early twentieth centuries. Hence, in his Nobel Memorial lecture in Stockholm in 1991, Ronald Coase pointed to 'the neglect of the market or more specifically the institutional arrangements which govern the process of exchange'. In neoclassical economics, '[t]he firm and the market appear by name but they lack any substance' (Coase 1992:3, 4).

At the November 1991 regional meeting of the Mont Pélérin Society in Prague, Gary Becker, in his opening remarks, noted that the profession was intrigued with Oskar Lange's model of a

collectivized society in much the same way scientists are fascinated by the prospect of a new, improved species. Becker found this reaction perplexing: 'Why', he asked, 'were most Western economists so willing to doubt the superiority of the vision bequeathed by Adam Smith?' The answer to his question lies in understanding how the perfectly competitive model revolutionized and disarmed the field of economics. First, it deflected attention from the front-line importance attached by the classicals to the behavioural impact of sociopolitical institutions. Second, it removed the entrepreneur's indispensable catalysis, and thereby drew us toward the appeal of a designed vision that could not only carry out the functions of the market, but *improve* upon its overall operation. My objective is to stimulate a civil yet spirited debate over how and why we came to think this way. As a stalwart of the profession has advised, 'the temperate, restrained, utterly fair-minded treatment of one's own theories does a disservice to these theories as well as to one's professional status and salary' (Stigler 1982:111). Accordingly, five areas of thought that were transformed by the equilibrium paradigm (whose primary tool is the perfectly competitive model) will be explored in subsequent chapters. The following capsulized listing of these five areas describes the flavour of the research programme from which this book evolved.

- **How prices change:** Before 1920, relative price changes were attributed to endogenous entrepreneurial initiative, such as the promotion of new products and methods, the discovery and eradication of imperfect markets via arbitrage, and the detection (and adjustment) of future supply shortfalls via intertemporal trade. After 1920, relative prices could change within our general equilibrium model only from exogenous shocks, because, as Stigler has noted, the perfect-information postulate ensures that endogenous supply changes are always proportionately forthcoming to match any endogenous changes in demand. So in the classical era, prices were not seen as data; i.e., some agents did not respond to current prices as if they were immutably given. Whereas, after 1920, all prevailing prices were assumed to be at equilibrium, and every agent was assumed to act accordingly, a step which facilitated the mathematical determination of production levels.
- **Modelling and predictability:** Perfect knowledge is the precondition for the realization of the neoclassical vector of

equilibrium prices and quantities. What is unsatisfying here is that the quantities calculated in Walras' *Elements* were premised on the *foreknowledge* of the equilibrium price vector. For the classical case, in which information is revealed incrementally, the equilibrium price vector is solely an *ex post* phenomenon and hence cannot be determined (calculated) *ex ante*. This, in turn, inspires entrepreneurial judgment on the appropriate level of production. Moreover, the temporary existence of above-equilibrium prices (due to *imperfect* information on the part of sellers and buyers) causes irreversible decisions to buy substitutes, and the culmination of such a process is a set of equilibrium prices and quantities *different* from those yielded mathematically by Walras' system of simultaneous equations—yet Walras erroneously believed that his model's prices were identical to the market's equilibrium prices.

- **Redefinition of monopoly:** The entrepreneurial introduction of new products and differentiations of existing products—initiatives considered beneficial to consumers under classical economics—were redefined as harmful under the static models of neoclassical economics and were portrayed as such in the influential texts of the 1950s and 1960s. For example, consider the pre-1980 treatments of monopoly profit, as well as the ‘waste theorem’ from ‘excess capacity’, etc. Also, antitrust policy was certainly affected, so an entire chapter will be dedicated to the impact of the perfectly competitive ideal on the Supreme Court’s treatment of competition and monopoly. Recently, a mainstream rethinking on the value of variety and the role of knowledge dissemination (via advertising) has begun to reshape the profession’s approach to industrial organization and social welfare.

- **Attitude toward central planning:** Adam Smith, in his *Theory of Moral Sentiments*, castigated the ‘conceited men of system’ who believed that a more rational order (designed in the mind of man) could function better than the spontaneous order promoted by the invisible hand (Smith 1976:231–4). However, due to the triumph of Walras’ model of general equilibrium, many leading-edge economists became fascinated with the technical beauty of the proposal of the new Marxian men of system of the 1930s—a proposal that was fashioned using a Walrasian infrastructure. ‘Oskar Lange’s [reply to Mises].... was significant ...because it reconciled many pre-war economists to a sentimental belief in socialism’ (Blaug 1994:1570). Even Joseph Schumpeter, who had laboured to explain that dynamic concepts could not be understood

via static models, readily accepted the efficacy of Lange's proposal, for he could not divorce himself from his profound admiration of the Walrasian formulation, which was the most influential factor in his professional life (Schumpeter 1991:165). An attempted resolution of this paradox can be found in Goodwin: 39–42.

The Lange model was welcomed on ideological grounds as well; that is, most intellectuals, including some economists, had always been uncomfortable with the Smithian self-interest axiom and with the unchecked inequality promoted by the private ownership of property. The profession's endorsement reached its zenith with the award of the 1975 Nobel Prize to Tjalling Koopmans and Leonid Kantorovich, whose work had affirmed economists' longstanding support of the theoretical feasibility of Lange's model—a perfect-information model that employed a Central Planning Board to obviate the entrepreneur's role in facilitating the classical division-of-knowledge problem.

The impact of the parametric-pricing assumption on the profession's new conception of the market has not been adequately addressed outside the Austrian literature. The entrepreneurless vacuum created by the model of perfect competition pronouncedly coloured the discipline's sympathetic reaction to Lange's claim that a collectivized system could achieve static efficiency by algorithmically applying the Lerner conditions within a new system called market socialism. Specifically, the vast majority of Western economists were misled (by the appealing logic of their equilibrium vision) into accepting the plausibility of a collectivized society that could function as smoothly as a free-enterprise economy. They reasoned that: *If* all information were available to the managers of socialized firms (as in the case of private firms in the perfectly competitive model), *then* the economy's efficiency would not be reduced by the nationalization of resources. This seductive mindset haunted model-building economists from the 1920s to the 1980s. For them, mathematical models revealed a new, higher social outcome; reality came to be seen as a second-best approximation of what presumably could be accomplished with proper direction from a fully-informed centre. The effect of this thinking was especially pernicious in the field of development economics, where the monopoly of the top-down mindset led to a body of theory that is akin to recommending that a tree should be watered by spraying its leaves and bark instead of soaking its roots. Neoclassical economics—moulded by the presumption of off-the-shelf,

entrepreneurless production functions—implanted and has continued to reinforce a pro-planning intellectual climate that has impeded Third-World progress.

- **Analysis of international trade:** The constant-returns assumption of the model of perfect competition precluded the consideration of currently-existent economies of scale as a basis for profitable exchange. Hence for many decades the profession ignored this important source of trade between developed countries. That is, convex production-possibility frontiers (for two variants of the same basic good in two nations with identical factor proportions and tastes) serve as a source of unusually large trade gains without the trade-inhibiting, politically-problematic income redistributions (between factors) that ineluctably follow trade extensions with concave P-P frontiers, as noted in the Stolper-Samuelson Theorem. (The Stolper-Samuelson Theorem is described clearly in Lindert: 72–3; also, see the English translation of Eli Heckscher’s 1919 essay on the impact of trade on relative factor returns, in Heckscher: 43–69.)

The forthcoming chapters will not only explore the five areas enumerated above, but will also explain how the neoclassical model of perfect competition was created and how the classical notion of the market was abandoned. I will examine when the transformation of economic theory occurred, why it occurred, and most importantly, how it altered the discipline’s perspectives. Hopefully my research will convince the reader that the equilibrium paradigm, while greatly sharpening our technical skills in predictive analysis, submerged the classical view of the market, which, in turn, led to some seriously wrong-headed conclusions on theory and public policy.

My future references to the desire of economists to make their discipline more scientific are based on the Popperian notion of positive science, namely, that a paradigm can label itself as scientific only if it generates falsifiable propositions. I have no objection to this criterion for defining hard science. Moreover, I have no hidden agenda to support those deconstructionists who contend that the neoclassical paradigm’s intellectual genesis is to be found in the now-discarded principles of nineteenth-century physics, such as the conservation of energy and reversibility of outcomes. (See Mirowski: 361–79; Ingrao and Israel: 31–60, 161–6; and Koppl: 23–5.) I remain neutral yet open on this issue, but I do not want to join this debate. My purpose is to demonstrate that

the rejection of key classical perspectives engendered a pro-planning bias in several branches of economics, though I readily acknowledge that the basic Robbinsian prescription (Robbins 1969:12–20) has led to an exhaustive list of valuable insights in spheres where static-allocation techniques are entirely appropriate. The exact source of Walras' inspiration, whether rooted in nineteenth-century physics or in his possible desire to promote public ownership, does not undermine the usefulness of modern equilibrium analysis in a broad number of areas. Why/how Walras came to think as he did is, at best, tangentially relevant to my research; the ultimate impact of his thinking, especially the casualties and future disabilities imposed, are of primary importance.

Finally, this writer is well aware of the admonishment by Samuelson and Machlup to he who would ‘damn another man’s theory by terming it static, and advertise his own by calling it dynamic’ (see Machlup 1975:24, including fn. 50). Although several important shortcomings linked to the virtually exclusive reliance on static modelling will be highlighted, these discussions should not be interpreted as part of an invidious attack on the use of equilibrium analysis, *per se*, nor as a back-door assault on the calculus of optimization. Rather, the purpose of the upcoming coverage (particularly in Chapters 2 and 3) is to acquaint readers with the full flavour of a sidestream position which remains unfamiliar to many conventionally-trained economists. This is particularly true of the Hayekian view of knowledge; consequently, this concept is presented in different formats at several appropriate points throughout the book. Only in this way can one begin to sense that our habits of thought were indeed changed by the notion of perfect competition. Of course, mainstream apologists will no doubt be quick to reply that my criticisms are misplaced because static models are not the last word in neoclassical economics. Yet, as Hahn has pointed out, ‘it is the models that lead people to view the economic system as they do’ (Hahn 1970:1). The equilibrium lenses through which we study the market have seriously misled us at certain critical junctures; the purpose of this essay is to examine those junctures to see how several branches of the discipline were affected.

One of my subgoals is to demonstrate that the competitive system in the minds of the classicists was not the perfectly competitive ideal that captivated the attention of neoclassical

economists; however, I must reiterate that my interpretation of the classical approach to competition and monopoly should not be misread as ‘an obscurantist effort to undermine all the standard techniques of economic analysis’ (see Bishop’s remarks in Auerbach: 26). As one who holds undergraduate degrees in mathematics and meteorology, I am an equivocal supporter of the value of formalism in economics. I fully concur with Jevons’ observation that, in a discipline devoted to the study of small marginal effects, the widespread employment of calculus is inescapable (Jevons: 5, 13–14). However, I also concur with his warning: ‘It does not follow, of course, that to be explicitly mathematical is to ensure the attainment of truth’ (Jevons: xxiii).

On balance, I strongly endorse the following viewpoint: ‘Neoclassical theory has made economics the preeminent social science by providing it [with] a disciplined, logical analytical framework’ (North 1978:974). Nevertheless, I have serious reservations about the costs that have been imposed by the neoclassical fixation on *the results* of optimizing behaviour, as opposed to the cultivation of an understanding of the optimizing behaviours themselves and their implication for the notion of a calculable general equilibrium. Hence I believe that some methodological change is warranted. My purpose, however, is not to criticize the abstract nature of perfect competition nor the model’s frequent employment as an analytical tool. I readily concede that equilibrium models play a cardinal, irreplaceable role in the study of the process of competition. My primary objective is to demonstrate that the adoption of perfect competition as the benchmark—and the employment of static models as the *only* acceptable engines of market analysis—combined to transform the way later economists thought and taught about economics generally and the activities of firms in particular. This, I believe, was a major event and should be recognized as such.

There were several important, concurrent intellectual strains in classical economics, such as the limit of competition (price equals cost) and the flow of national income amongst various groups. These two topics have received the overwhelming attention of latter-day analysts of the classical tradition. But a third, equally important characteristic of the works of our forefathers was their abiding interest in the *process* of competition via their forthright concern with fostering the sociopolitical forces that spark and sustain it. The historian of economic thought builds upon the

insights of predecessors and contemporaries in search of an answer to the following critical question: How did *we* come to think as we do? Hopefully, my research will contribute to this goal by stirring debate over my contention that the emergence and impact of the perfectly competitive model were more revolutionary than evolutionary.

BRIEF RECAP OF RESEARCH RESULTS

The new technical economists of the 1920s and 1930s ardently believed that their work was either a mathematically sophisticated restatement of, or reaction to, the so called ‘classical model of perfect competition’. However, the conceptional framework implanted by the model of perfect competition represented a sharp break in continuity from the vision of the market in classical and early neoclassical writings. The classical approach to industrial organization, which was carried into the twentieth century, portrayed the entrepreneur as one who faces uncertainty and incessantly pursues pure profit via three means: intertemporal trade (speculation); the introduction of cost-reducing methods of production; and the marketing of new products. From Adam Smith to Alfred Marshall the spotlight was aimed, first on the forces of experimental diversity which spur the wealth of a nation, and second, on the extensions of the market and consequent redivisions of labour through which economies of scale are reaped without a threat to competition. Of course, the end results of competition (profit-rate equalization and price equal to cost) were of keen scientific interest to the classicals, but they did not think in terms of a world in which all profit opportunities have been recognized and squeezed out. Their main focus was on the importance of the process itself, not on its consummation. The classicals indeed saw the system as equilibrative, but only because entrepreneurs (whose explicit presence in the classical literature will be described in Chapter 4) were inferentially ferreting out and correcting each others’ errors, thereby creating a convergence of returns.

The entrepreneur became a eunuch in neoclassical economies: Assuming [zero-profit] equilibrium,’ wrote Walras, ‘we may even go so far as to abstract from entrepreneurs...They make their living not as entrepreneurs, but as land-owners, laborers or capitalists in their own businesses’ (Walras: 225). Whereas, in classical economics, the omnipresence of uncertainty made the

entrepreneur's discovery of under-valued resources an indispensable component of the process by which firms learn what consumers want and how to do it best. In fact, from the classical perspective, entrepreneurship militated against the idea of zero-profit firms producing homogeneous goods in uniformly optimal-sized plants. In short, the founders recognized that innovations in how to produce and what to produce constitute the very fabric of the non-stop series of creative actions (and equally creative reactions) which characterize the heart of the market. They saw genuine monopoly (exclusive rights of sale, usually rooted in special laws) and trade protectionism as co-equal evils, not just because these phenomena generate an inferior position of consumer welfare (as in comparative-static neoclassical modelling), but more importantly, because they preclude entry and thereby retard progress by stifling entrepreneurship and the *process* of competition (Mill 1864, vol. II:298–9, 337, 547–8).

Yet, partly as a result of Robinson's and Chamberlin's use of the 'classical' model of perfect competition as a straw man against which their model was favourably compared, and partly as a result of the portrayals in Knight (1964) and Stigler (1957), the economics profession has, by and large, come to accept the erroneous idea that the perfectly competitive model (in various degrees of formal development) has been an implicit pillar of economic analysis since Adam Smith. Arrow, for instance, shares the conventional-wisdom interpretation, namely, that the purely reactionary perfect competitor of Walras was the same theoretical construct employed by his predecessors:

In classical theory, from Smith to Mill,...[t]he firm's role is purely passive.... No doubt the firm or the entrepreneur was much discussed and indeed given a central role in the informal parts of the discussion; the role was that of *overcoming* disequilibria. When profit rates are unequal, profit hungry entrepreneurs moved quickly, *with the end result of eliminating their functions*.

(Arrow 1971:68; italics added.)

Likewise, Andreau Mas-Colell has alluded to 'the central position the concept perfect competition has enjoyed since the 18th century' (1982:3), and Philip Williams has supported the traditional view in his book on the history of the theory of the firm, concluding that in classical economics, 'the firm is little more than a passive conduit

which assists in the movement of resources between alternate activities' (P.L.Williams: 11, 33–4, 39, 56). Similarly, Alan Greenspan believes that for 'the classical economists..., the concept of competition...consist[ed] merely of producing and selling the maximum possible, like a robot, passively accepting the market price as a law of nature, never making any attempt to influence the conditions of the market' (Greenspan 1961:60). And Blaug, who has regularly shown an appreciation for the process perspective, has written that the treatments of Adam Smith and his British successors obscured the entrepreneur's distinctive roles as a bearer of uncertainty and discoverer of knowledge (Blaug 1986a: 219–22).

This essay will offer a fortified demurral. I will argue that the role of the entrepreneur as the driving soul of the process of competition was clearly recognized in various degrees of sophistication (though not glamourized) by most leading British writers. Therefore, the neoclassical method of reasoning (via the perfectly competitive model) did not evolve from the classical portrait of the market. Instead, it sprang to life to satisfy Cournot's pursuit of definitional rigour, and eventually became the principal instrument of the *Elements* (Walras: 40, 83–4, 224–5). The perfectly competitive model did not make its real debut as an analytical tool until the 1920s—after the profession had digested Frank Knight and after the influence of Alfred Marshall had waned. Until that time, the way economists reasoned about the market was 'structurally different' (R.Nelson 1986:470). Since the static concept of perfect competition was employed neither subconsciously by the classicals nor consciously by the early neoclassicals, its subsequent adoption as the norm of modern economics represents an over-throw of the classical conception of the market. The consequences of this development on the intellectual evolution of the discipline, and, thereby, on its recommendations for crafting public policy, were profound. Therefore, the conventional historiography of the early neoclassical period needs to be reassessed. Hopefully, this essay will spark a debate that will ultimately result in a new direction in our thinking, thereby validating Weintraub's contention that, in some instances, the history of economic thought can and should have an impact on the work of present-day theorists (Weintraub 1990:271).

As a profession, we have simply failed to acknowledge the less desirable offspring of our blissful marriage to Walras. From a history-of-thought perspective, we need to know, for any given

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body of theory, not only how it developed and succeeded, but more importantly, how it has been perceived and the consequences of its digestion: We seek to understand the way the interpretive community has read the poem...' (Weintraub 1990:276). This does not mean that I favour abandoning the traditional tasks of the historian of economic thought, as epitomized, for example, in Blaug and Walker, whose works evaluate the originality, logical consistency, and progressive application of ideas. (See Backhouse: 18–19; and Weintraub 1992:276.) But I do challenge the widespread assumption that the discipline's monogamous union has yielded more good than harm. The next eleven chapters will elaborate upon all these controversial issues.

2

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The Classical view of competition was a dynamic one and it is misleading to interpret their writings in terms of the [perfectly] competitive model.... It is because of the dynamic nature of...competition that owners of capital were able to exploit *new* profit opportunities, sell *new* commodities, obtain supplies from *new* sources, and sell in *new* markets.

(O'Brien: 53–4)*

In 1921 Frank Knight voiced the idea (shared widely by his newage contemporaries in technical economics) that classical economic analysis was embedded in a primitive, imprecisely defined, yet clearly recognizable version of the perfectly competitive model (Knight 1964:21). A successive wave of prestigious economists accepted this position, and Stigler's 1957 article on the history of perfect competition cemented Knight's view amongst leading theorists. (By leading theorists I mean those who have earned the respect of the entire profession through their regular application of pathbreaking equilibrium models to various policy issues in flagship journals.)

In an essay in *The New Palgrave*, Blaug asked, '[I]s all of classical economics a primitive but prescient version of general equilibrium analysis?' (Blaug 1987:437). The profession's judgment for over seventy years has been that the British classical economists reasoned implicitly within a nascent yet discernable version of the perfectly competitive model (in which the entrepreneur was virtually invisible). Since entrepreneurs were presumed to have had no distinct role in the classical literature, the inexorable movement of price-taking firms

* Unless noted otherwise, all italics within quotations employed throughout this book are those of the original authors.

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toward an *implicitly* calculable equilibrium has been asserted as the central feature of classical treatments of the market. The introductory quote above from Denis O'Brien's text, *The Classical Economists*, stands in stark contrast to conventional wisdom. Unfortunately, little has been done to translate the contrary position into a viable alternative interpretation of events. My goal is to stimulate a modification of mainstream thinking on the roles of entrepreneurship and competition in the history of economic thought by convincingly demonstrating that the equilibrium paradigm, as epitomized by the model of perfect competition, was, in Kuhnian terms, a revolutionary development due to its impact on the cognitive dispositions of many influential economists.

Forthcoming chapters will trace, for instance, how the classical approach to industrial organization was profoundly altered during the 1920s and 1930s by the distinctly neoclassical notions embodied in the perfectly competitive model—notions which reconstituted the profession's understanding of competition and monopoly. Meanwhile, in the present chapter, three complementary themes will be developed, each of which provides valuable background insights on the transformation thesis that sparked my research programme. First, the ideas which distinguish the classical view of competition and monopoly from the neo-classical will be explored. Second, the manner in which these dissimilar conceptions affected the definition of economics and the research agenda of its practitioners will be examined. Third, the real-world functions of the entrepreneur will be explained, because the entrepreneur's contributions, though absent in the formal models of neoclassical economics, were of central importance in classical economics. The impact of this inflection point in conceptualizing was significant, for the elimination of the entrepreneur via the equilibrium vision of the market led to the profession's ready acceptance of Lange's proposal that market forces can be harnessed in a collectivized economy—a proposal that was intriguing, even exciting (in an abstract, model-building sense) to the neoclassical mind, but was incredulously naive to the classical mind.

COMPETITION AND MONOPOLY IN CLASSICAL ECONOMICS

The founders of the discipline did not reason about competition within an intellectual matrix comparable to that which dominates

the mind grounded in neoclassical method. The classicists saw the market as an incessant discovery process by which consumer preferences and the least-cost methods of satisfying those preferences were revealed. The entrepreneur was indispensable to this process, for he possessed a comparative advantage in gathering and weighing dispersed and often conflicting signals. That is, the entrepreneur existed because *judgments* had to be made, as contrasted with the neoclassical vision, in which the only acceptable behaviour of firms is to mechanically reallocate capital in response to a new set of perfect-information emissions—provided like manna from heaven, indiscriminately and simultaneously—to the roboticked helmsmen of each firm. In classical economics, to summarize, competition was the process of action and reaction by which firms *learned* what to produce and how to produce; the relative absence of these adaptive forces was associated with the complacency induced by the privilege of monopoly.

In neoclassical economics, monopoly exists whenever a firm faces a downward-sloping demand curve; in other words, a firm is competitive only if it faces an infinitely elastic demand curve. Expansion of a competitive firm's output causes no change in the price received because its production is an infinitesimally small percentage of the total volume of the particular commodity being sold; that is, changes in a competitive firm's output cannot cause a shift in the market supply curve. Only if a non-trivial number of such firms act in unison will the supply curve be affected. (The very best diagrammatical exposition of these points, uniquely rich in pedagogical insight, is in Alchian and Allen: 111–13. For a broader, real-world discussion of the meaning of competition, see Telser 1982:169, 171, 174.)

Stigler has noted that the classics sometimes confused land ownership with monopoly power (Stigler 1957:3), and Sowell has listed numerous examples of critiques by early nineteenth-century economists of each others' ambiguous use of language (Sowell 1974:139–40). In general, however, the classical concept of monopoly was tightly linked to the permanent profits garnered from mercantalist franchising rights which insulated favoured firms from fear of entry by rivals (Parry 190–3; and Mund: 99–100). Consequently, classical economists did not associate monopoly damage with a particular state of affairs at equilibrium (such as $P > MC$), but rather saw it as an impediment to the will to compete, a condition spawned by exclusive production rights, usually

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bestowed by government (Senior 1938:102–3, 114; and Smith 1937:61). To the rigorously-trained neoclassical mind, such imprecision is lamentable. From a classical view of industrial organization, harm ensued only if institutions existed to inhibit the *process* of competition, independent of the presence of transitory monopoly profits due to $P > MC$ at existing production levels. From this perspective, international capital mobility since World War II has made the world's open economies increasingly competitive, despite the seemingly endless mitosis of product variants generated by this capital (Clifton 1977:138, 144, 146, 150). Clifton was inspired by Marx's insight on this subject: 'The expansion of trade and manufacture accelerated the accumulation of *movable* capital...' (Marx, in Tucker: 182; italics added).

Despite the emphasis placed by Adam Smith on the anti-competitive nature of mercantalist restrictions on capital, the classical writers failed to develop a 'measure of competitiveness', such as 'an index of the rate of convergence of profitability'; that is, the classical literature contains no discussion of a means to track the openness of entry (Auerbach: 17). Given the influence of Francis Bacon and David Hume on the need to observe, measure, and record, this omission is puzzling.

Finally, it is noteworthy that Smith expressly addressed the social cost of rent-seeking and the defensive lobbying arrayed against those seeking privilege. (See the Smithian quotes and discussion in West 1978:830–3, including fn. 4.) Unlike the neoclassical measure of the deadweight-loss triangle, which is 'conducted in an institutional vacuum...[,] Smith's much broader analysis reminds us that people will use resources to profit themselves by actions... directed to changing the rules' (West 1978:842). Moreover, as Tullock has pointed out, successful rent-seeking breeds more rent-seeking (Tullock: 231, in West 1978:842). Smith was thoroughly familiar with the debilitating, progressive nature of the problem. He noted that exclusive franchises have 'so much increased the number of...[monopolists], that, like an overgrown army, they have become formidable to the government, and upon many occasions intimidate the legislature' (Smith 1937:438, in West, 1978:842)

CASE OF THE MISSING (?) ENTREPRENEUR

As economic theory became more carefully formulated in all the western European nations, no operative place was found

for the entrepreneur. This was particularly evident in English classic theory from Smith to Marshall, where many writers made no effort either to define or include entrepreneurship.

* * * *

The difficulty was that English theory was based upon a normal state of equilibrium, established by the multiple reactions of businessmen, consumers, investors, and workers to the prices of goods and services. Individual variations in behavior were seen either as canceled out in the aggregate or suppressed by competition. In this highly aggregative system, any unknown element was to be derived from the relations of theoretically measurable quantities. To say that the entrepreneur was rewarded for risk taking, that is, for uncertainty, was the negation of a proper theoretical explanation.

(Cochran: 88–9)

Leading figures in the profession usually see the dormant seeds of neoclassical equilibrium thinking in classical texts. The standard view, reflected in Cochran's introductory quotation, is that the analyses of our forefathers were entrepreneurless. Blaug, for example, has concluded that, compared to the German and French treatments, the entrepreneur was invisible in the works of British writers, who 'failed to highlight the distinctive character of the entrepreneurial function' (Blaug 1986a: 220). On this point he is emphatic: 'It is evident that Ricardo, and for that matter virtually all the other leading English classical economists, regarded production and investment of capital as a more or less automatic process, involving no critical decisionmaking and certainly no risky judgment or imagination of any kind' (Blaug 1986a: 227). Marian Bowley generally agrees. She has concluded that, with the exception of Adam Smith, the distinction between the entrepreneur and the capitalist 'was not of much interest' among classical British economists (Bowley 1973:38–40).

The shared position of Cochran, Blaug, and Bowley is important because it has reinforced the notion that in the British School, an equilibrium perspective is inherently rooted in the entrepreneurless and hence acquiescent reactions of firms to the prices they face. This notion is now commonplace among neoclassical theorists. However, as noted in Chapter 1, Blaug has elsewhere warned against such an inference; moreover he has implicitly contradicted his 19860 assessment that the British School was indifferent to the role of the

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entrepreneur: '[There exists] a subtle but nevertheless unmistakable difference in the conception of "competition" before and after the "marginal revolution". The modern concept of perfect competition...is foreign to the classical conception of competition as a process of rivalry in the search for unrealized profit opportunities...' (Blaug 1987:443). Blaug's 1986a remarks are probably rooted in the noticeably more subdued British discussions of the entrepreneur, as compared to the prominence of the entrepreneur in the works of Continental contributors. This disparity in emphasis is indeed an enigma, but it does not warrant the modern implication of neglect or omission. The following assessment seems the most balanced: 'Both [Smith and Ricardo] recognized that the entrepreneur was crucial; but possibly because this seemed axiomatic neither chose to dwell upon it' (Parker and Stead: 42). This statement applies equally well to the entire British School. However, for the purposes of this particular study, a comparative lack of emphasis on a factor *may* imply a lack of appreciation for its role, but failure to confer explicit credit upon that factor would be a far more convincing indicator of having been oblivious to the factor's importance. The classical British economists were guilty of the former shortcoming, but not of the latter.

Therefore, while Blaug's lucid insights on the history of thought have been a frequent source of inspiration to me, I must respectfully object to his unqualified conclusion in 1986a (which is widely shared). Granted, Ricardo completely ignored entrepreneurship, and granted, British treatments of the activities of 'undertakers' were not as pervasive and usually not as penetrating as their French and German counterparts. Nor were their treatments packaged in separate chapters; nonetheless, the central idea of the Continental economists—that the entrepreneur provides a unique and indispensable service—*was* acknowledged (in various degrees) by a host of prominent British writers. The unambiguous recognition of the judgment-bearing entrepreneur in the literature from Smith to Marshall (to be surveyed in Chapters 4, 5, and 6) testifies that the classical treatment in the UK differs markedly from today's conventional wisdom of the era.

CONCEPTIONS OF EQUILIBRIUM AND THE ROLE OF THE ECONOMIST

The systematic study of the forms of legal institutions which

will make the competitive system work efficiently has been sadly neglected;...

(Hayek 1976:38)

Hayek has pointed out that the real question facing society is *the determination* of the exact commodities and services by which 'the needs of the people can be most cheaply satisfied' (Hayek 1948:100–1). In neoclassical economics, the what-to-produce question is not an issue: perfect knowledge, market-clearing prices, and the Lagrangian optimality calculus combine to ensure that the utility-maximizing mix of goods is produced at every instant. In the classical discussions, on the other hand, the producer's knowledge of preferences and final prices is incomplete or absent; the revelation of this vital information is the golden by-product of rivalry for the custom of consumers. When the notion of the economic problem was transformed from defining output to allocating output, the role of the economist changed—from an analyst of the public and private avenues travelled by agents in their quest for knowledge—to a builder of models to ascertain equilibrium conditions associated with various initial conditions. The entrepreneur is indispensable in the former scenario but is nonexistent in the latter; therefore, our habits of thought were altered as our conceptual framework was rebuilt under the perfect-information models of the neoclassical era.

Under the classical vision, the system was always moving toward *an* equilibrium (an equalization of capital returns), but capital shifts were spurred by the recognition of *new* opportunities that first created unequal returns. Since the precise avenue of entrepreneurial initiative was unpredictable, one could not ascertain the equilibrium of a system from its original conditions. Therefore, based on the definition of modern general equilibrium theory provided by Arrow and Hahn, which stresses pre-calculability, the classical economists were not the spiritual fathers of the neoclassical paradigm (see the Arrow-Hahn quote in Blaug 1987:443). As Milgate has explained,

[Adam Smith's] particular 'tendency toward equilibrium' was held to be operative in the *actual* economic system at any given time [i.e., a system composed of firms, who, in various periods, were price makers and then price takers]. It is not to be confused with the familiar question concerning the stability of competitive equilibrium in modern analysis. There

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the question about convergence to equilibrium is posed [within a perfectly] competitive environment....

(Milgate: 179)

Henceforth, the term ‘equilibrium allocation’ will mean a general set of market-clearing allocations. With Keynes came the idea of an unemployment equilibrium caused by an excess demand in the money market, which prompts persistent excess supplies in the markets for goods and labour. The Keynesian idea of macro-equilibrium has no role to play here. The traditional market-clearing idea will be employed throughout this book because it connotes the system-wide coordination of everyone’s plans. Since current plans are based on non-uniform expectations of the future, successive interactions between agents *may* not reduce the differences in their expectations, in which case everyone’s plans would not become mutually compatible, and hence intertemporal equilibrium would be unattainable (Rizzo 1992:117, 120–2, 124–5). However, *a rejection of the idea of existence should not be equated to a rejection of the value of equilibrium modelling*. Leading Austrians such as Machlup, Mises, Hayek, and Lachman, for example, have recognized the need to employ equilibrium models (Rizzo 1992:118, 120, 124, 126). Furthermore, most Austrians accept the idea of existence as well, though not of its calculability. In this sense, Austrians are neoclassical, but they reject the mechanistic (non-entrepreneurial) mode of thinking sewn into the fabric of modern economics by the Walrasian portrayal of the market.

This is an important and often misunderstood point, so it deserves elaboration. From an Austrian perspective, the market process *is* equilibrative (in the classical sense of the term), despite the mistakes in judgment that are made during the entrepreneur’s quest to neutralize (rather than be circumscribed by) the constraints he encounters. The equalization of returns and other ‘powerful regularities’ observed in market economies *are grounded in man’s success in discovering and overcoming his errors* (Kirzner 1992:55). The tendency toward equilibrium, therefore, does not require that people be purely self-interested. Equilibrium simply requires that Abraham Lincoln’s maxim be true: ‘You can’t fool all the people all the time.’ The market’s greatest strength is its ability to induce entrepreneurial energy to detect error and make appropriate adjustments. Equilibrium is the product of the ‘universal propensity of man to be wakeful, alert, and purposefully oriented towards the

uncertainties of the future...'. Consequently, the central results of microeconomic theory are assured by the observable penchant of some men and women to learn from their mistakes, 'to size up uncertainties', and to act on their hunches. This process reveals new information—at first only to entrepreneurial prospectors—and hence initially creates pure profit; but it also promotes gradual knowledge-sharing via free-entry replication and thereby ensures the subsequent equalization of returns across industries as the alert, second order of entrepreneurs allocate their capital to the gold mines discovered by the first-order entrepreneurs (Kirzner 1992:53–6).¹

Along these lines it is interesting to note that as the market for equity financing matured, Alfred Marshall began to study the role of stock-market speculators, whom he divided into two basic groups: the experienced and the inexperienced. He explained that the analytical decisions of the former serve to correct the pricing mistakes engendered by the knee-jerk reactions of the latter. In game-theoretic terms, Marshall described how 'shrewd and well-informed' speculators profit from correctly anticipating the 'impulsive' responses of novice traders who usually overreact to daily news bulletins. Specifically, the professionals remain alert for the types of bad *surface* news that is likely to prompt amateurs to sell and drive down stock prices, even though real supply and demand conditions in product and factor markets have not been altered by the events being reported. The pros will plan to buy after the expected transitory dip in prices. Analogously, the reporting of cosmetically good news will spur a buying spree by the inexperienced, followed by a profit-taking sell-off by the professionals (if they detect no real changes to justify higher equity values). Therefore, said Marshall, the experienced speculator profits by 'carefully read [ing]...the inferences that half instructed opinion will derive from the news and rumors of the day...' (see the unpublished, turn-of-the-century manuscript reprinted in Dardi and Galleiti: 592). Unfortunately, Marshall did not address the role of the information conveyed by the initiatives of those stock-market speculators who study incipient trends in real factor and product markets *and who act on their findings*—the resultant trading from which alerts others that new insights have been brought to light. The contribution of this forward-looking professional class has been underscored in the work of the modern school of financial economists, three of whom shared a Nobel Prize partly for their research in this area.

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In conclusion, Austrian economists see the market process much as the classical economists saw it, namely, as a convergent confluence of forces that yields an outcome that, given man's fallible powers, seems counter-intuitive. Anti-equilibrium (non-Austrian) theorists, on the other hand, have emphasized the possibility that the incestuous nature of agents' interactions may magnify the scope for and likelihood of entrepreneurial errors, such as the case of the so called 'irrational' speculative bubble. But these bubbles are burst by those who successfully detect—and handsomely profit from—the widespread, erroneous expectations of others (Garber: 35–6, 52–3). So errors *do* get corrected, and hence '[m]arkets do work'. And this fact has aroused the scientific curiosity of our discipline, for we are intrigued by, and seek understanding of, results that appear paradoxical (Kirzner 1992:60). *Henceforth, the term equilibrium theory will refer to the mainstream conception of equilibrium (à la Arrow-Debreu), rather than to the more general meaning invoked by classical writers and modern Austrians.*

Of course, the central results of microeconomics can also be obtained by positing a set of state-sponsored discovery agents who unearth new insights which are then shared instantaneously with all participants. This portrayal satisfies the mechanics of the model; that is, it yields the powerful regularities of the real world, but only by assuming that government employment can be made perfectly comparable, in its incentive effects, to the private sector. This perspective has fuelled a multi-generational fascination with the idea of market socialism, which we will examine in detail in Chapter 3.

WHAT IS COMPETITION?

According to Hayek, 'Competition is essentially a process of the formation of opinion: by spreading information...[i]t creates the views people have about what is best and cheapest...' (Hayek 1948:106). Moreover, said Hayek (1945:520), the perfect-knowledge assumption has allowed neoclassical economics to assume away *the* problem that needs to be explained, namely,

how the spontaneous interaction of a number of people, each possessing only bits of knowledge, brings about a state of affairs [of zero-profit general equilibrium]...which could be brought about by deliberate direction only by somebody who possessed the combined knowledge of all those individuals.

To show that...the spontaneous actions of individuals will, under the conditions we can define, bring about a distribution of resources which can be understood as if it were made according to a single plan, although nobody planned it, seems to me indeed an answer to the problem which has sometimes been metaphorically described as that of the 'social mind'.

(Hayek 1948:50–1, 54)

Hayek's greatest single contribution has been his emphasis on the market's role in ameliorating 'the real problem faced by society': the imperfection of knowledge and the resultant need for a system which provides incentives for agents to seek and to transmit new insights via the pursuit of profit-making activities (Hayek 1945:530). Herbert Simon, who won the Nobel Prize in economics in 1978, has praised Hayek's treatment on two counts: it restricts 'how much we need to know about everyone else's business to do our own', and it does not get sidetracked by the conditions that preclude a Pareto-optimal outcome. People do not need to understand why prices rise or fall; a 'tolerable' system-wide coordination of plans requires only that people *respond* to price changes, 'even if optimality is beyond reach' (Simon, in Thomsen: 73–4).

The irony, explained Hayek, is that exchanges are consummated precisely because each agent does *not* possess perfect information. If the current owner of a parcel of land, for instance, knew all the facts about future roads and others' plans to develop adjoining acreage, etc., he would not sell at today's imperfect-knowledge equilibrium price. Of course, freedom to receive or to obtain whatever knowledge one can ascertain does not include the power to compel others to supply *their* information (Bartley: 23). In fact, the enactment and tough enforcement of a bilateral full-disclosure law would inhibit exchange and thereby preclude the attainment of a less imperfect price. Under current law, purchasers are not required, in advance, to explain their incentive to buy; therefore, sellers 'have no chance of learning about facts which, if they knew them, would induce them to alter their plans' (Hayek, 1948:53).

The sharp neoclassical focus on the mathematical conditions that define equilibrium, and the resultant abandonment of the classical process of competition, inspired Buchanan to reply that competitive standards are not established via mathematical constructions of zero-profit ideals. Rather, they emerge gradually as various industrial patterns earn acceptance (or rejection). Rules and

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institutions follow to guide future agents. Of course, new insights on the social costs and benefits of various patterns will affect their level of acceptance. Buchanan wants ‘the central part’ of economics to be the study of ‘this *becoming* process, which is brought about by the continuous pressure of human behavior in exchange...’ (Buchanan 1964:218). The bottom line is quite simple: ‘the market’ is the process of competition, namely, the means by which people ‘haunted by the Smithian propensity’ employ educated guesswork to respond spontaneously to their ignorance of others’ activities and plans (adapted from Buchanan 1964:218; Loasby 1976:191–2; and Taylor: 11–12). Hence the essence of a market system is its ability to harness prices to successfully coordinate the goals of each of society’s members despite the ‘division of knowledge’ that prevails (Hayek 1976:49–50). The market cannot function without the rules and customs which insure the ability to compete. The neoclassical emphasis on the mathematical conditions that accompany the end limit of competition deflected attention from the classical emphasis on the sociopolitical conditions needed to ensure the continuation of the process itself. As Nathan Rosenberg has explained, ‘the increasingly formal nature of economies’ resulted in a ‘prolonged neglect’ of the weight Adam Smith had placed on the existence of ‘*appropriate institutions*’ to ensure ‘the absence of all special privilege...’. Only then could we be sure that the free-market will harness self interest to promote the general welfare (Rosenberg 1960:557, 560, 570).

Both Buchanan and Rosenberg have alluded to constraints imposed on competitive behaviour. One of the limits society has placed on individuals is the confidentiality enforced on those whose expertise is hired by firms to transact mergers or other group-like acquisitions (such as the buying of large tracts of ‘wasteland’ in central Florida by the Disney Corporation in the 1950s). The lawyers, accountants, and financiers who become privy to such tightly-held information are paid handsome fees, and a key part of their service agreement is their vow not to reveal the insights of the entrepreneurs who have employed them (Herzel and Katz: 17–23). This legitimate contractarian view has metamorphized into an illogical lumping of all incidental knowledge (acquired by virtue of one’s employment) into the nefarious and illegal category known as insider trading. This unfortunate development is directly traceable to the impact of the inapplicable perfect-knowledge ideal fostered by neoclassical economics. George Gilder has identified the root of

the problem and its harmful consequences for the US capital market:

Throughout the history of capitalism, insiders with a deep knowledge of particular enterprises have supplied the bulk of capital for new companies....

[T]o banish them from the markets is to exclude the key source of long-term cash for companies whose work is difficult for laymen to understand.

[The Securities and Exchange Commission has]...adopted the ridiculous goal of an ‘even playing field’ of information. Inspired by a false image of ‘perfect competition,’ this concept banishes all special knowledge from the marketplace.

The truth is that entrepreneurial information from deep inside companies is the chief real knowledge of the economy. Acquiring and comprehending it is the chief work of inside entrepreneurs. By excluding inside news from the marketplace, the US effectively blinds its stock markets.

(Gilder 1992: A10)

Recent research has measured the gains to small traders from excluding insiders, versus the deadweight loss attributable to the labour and capital expended in the discovery of information provided freely via insider trading. ‘In general, it costs \$2.50 in resources to transfer \$1.00 to [small, uninformed] traders.’ On the other hand, those ‘who benefit the most from eliminating insiders are the market professionals who must compete with them’, namely, the semi-informed cadre of brokers and portfolio managers who earn the lion’s share of the gains to be redistributed by banning insiders (Tighe and Michener: 164–8).

It is interesting to note that shareholders have not used corporate charters or employment contracts to restrict ‘everyday insider trading’ (Seyhun: 177). Furthermore, neither shareholders nor courts have restricted the exploitation of *privileged* information—by those who hold no fiduciary obligation (Seyhun: 151). Contrary to the ‘fairness’ objective promoted by a perfect-knowledge perspective, the equity-holding community understands that profitable trading by non-fiduciary insiders or anyone else with special insight serves others by ‘reducing search costs’ and thereby ‘leads to more accurate stock prices...’. In addition, from a micro viewpoint, allowing

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insiders to profit from their knowledge is a substitute for the higher wages that managers would otherwise demand if they could not trade on what they know (Seyhun: 150). For an excellent critique of the fairness doctrine, which was inspired by the wrong-headed idea that no one should be allowed an informational advantage, see Herzl and Katz: 15–17. The insider-trading issue is simply one example of the anti-market impact of the so called fairness mode of thinking that has found succour in neoclassical theory. Instead of focusing on the spontaneous institutions through which information is excavated and dispersed, the perfect-information, zero-profit paradigm rationalizes policies that are counterproductive in a real, discovery-process environment. As Hayek noted over 50 years ago, '[t]he systematic study of the forms of legal institutions that will make the system work more effectively has been sadly neglected...' (Hayek 1976:38).²

Nations with highly skilled labour, wrote Adam Smith, 'have followed very different plans in the...direction of it; and those plans have not all been equally favourable to the greatness of its produce' (Smith 1937:1ix). The classical perspective of competition suggests, therefore, that a study of various constitutions to govern exchange is at least as important as a microscopic knowledge of the optimal endstate produced by free entry, product homogeneity, and perfect knowledge. Prior to the emergence of the writings of James Buchanan, Ronald Coase, Douglass North, Gordon Tulloch, Oliver Williamson, and other new theorists, neoclassical economics had focused its attention on results and had virtually ignored the role of the governing process. As long as government was considered neutral and all firms were shorn of market power by the perfect-knowledge postulate, the constraining role of decision rules on the 'becoming process' was never seriously considered. By contrast, in an economy driven by the entrepreneurship created by non-symmetric information, the impact of alternative packages of ways and means is of paramount importance. Adam Smith, for instance, attributed China's relative poverty to its anti-competitive set of sociopolitical institutions (Smith 1937:71–2, 95); and Richard Whately emphasized that the application of the *ceteris paribus* assumption to institutions misleads us by masking their important role in economic growth: 'For there *are* several other points in which inequalities may exist as shall effect the result. Wise or unwise laws and customs...do indeed tend to make a great difference as to the advancement of a society in wealth...'

(Whately: 187). In fact, Smith offered a bold, long-range forecast of the future of North vs. South America, based solely on the highly-centralized versus the ‘less illiberal and oppressive’ legacies bestowed by the respective colonizers (Spanish vs English/Dutch). Smith noted that Spain’s colonies were better endowed with natural resources than England’s colonies. Nonetheless, he predicted that ‘the superiority’ of British institutions would enable North America to prosper, while growth in the Southern hemisphere would be stunted, particularly by policies which inhibited intranational trade and which discouraged individual initiative by not ‘securing to everyman the fruit of his own industry...’ (Smith 1937:534–6, 576). Smith’s institutional-based analysis has been recently legitimated by several scholars on Latin America, such as de Soto (196–227), Harrison (xv–xviii, 1–9, 112–18, 126–9) and Machovec (9–21). To Smith, the limiting factor in growth was always the constitution: the motivation, provided by self-interest, was timeless and universal; the barriers to growth were man-made and unnecessary, and were erected always to serve particular interests. Critical to Smith’s analysis...was the conviction, amply demonstrated, that a nation’s institutions... decisively affected its capacity for creating wealth’ (Hartwell: 138).

The members of the Scottish Enlightenment stressed that the laws and customs of a society arose from experience; that is, men and women came to adopt traditions that successfully facilitated the coordination of their individual goals, while less pragmatic alternatives fell into disuse. In other words, laws and customs evolved spontaneously, from trial and error, not from a blueprint issued by some authority figure. Hayek placed great emphasis on the spontaneous nature of societal rules. Language, for instance, is an example of a spontaneously derived set of rules. Hence a grammar text is really descriptive, not prescriptive in the long-term sense, because repeated usage dictates the entries in future grammar books. Our liability laws, similarly, are a product of our experience, not the product of a lawgiver (see Holmes: 5–17, 23–7, 33). Not surprisingly, therefore, researchers in Artificial Intelligence are employing the learning approach to the study of rules formation, as described in Moss: 31, 33; also see his monopoly-application case on 34–7.

It may seem ironic that the discipline of economics, which stresses the role of *individual* choices, should also be concerned with the importance of rules determined via evolutionary *group*

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selection. A first impression of incompatibility evaporates when one realizes that these ideas are complementary, not contradictory. ‘They merely apply to...different levels of human interaction ...’. In the microeconomic world, the objectives of an individual lie ‘at the root of phenomena and events...’; but in the broader sociopolitical milieu in which we must operate, ‘the success of any individual’s endeavours...is dependent upon the overall pattern [of group rules]’ (Moldofsky: 31). For a taste of the debate over the process by which rules are selected by groups to enable their individual members to flourish, including the possible role of order-by-design tempering to offset free-rider problems, see Vanberg: 84–9, and the critique of Vanberg in Hodgson 1991:67–70, 76–9.

J.S.MILL ON HOW WE LEARN

John Stuart Mill frequently emphasized the role of the becoming process in finding the best way to accomplish objectives. In an 1845 essay he endorsed the maxim of Bernard Fontenelle, the seventeenth-century philosopher, that men and women come to select the best course of action only ‘after passing through and exhausting all varieties of error...’ (Mill 1967a:366). To Mill, the lessons distilled from observing and then analysing competing approaches in various arenas of human action ‘enable us to find the [general] rules which ought to govern any state of circumstances with which we have to deal—circumstances which are never the same in any two cases’ (Mill 1988a:255). For example, when questioned by Parliament on a proposal to liberalize the laws governing the capital market, he was asked, ‘Do you not think, even supposing that the [newly proposed investment-pooling vehicles] should not succeed, that it would be judicious to allow them to try the experiment...?’ Mill’s reply reflected the classical view of the market as a discovery process: ‘I think even if it were quite certain that they would not succeed, it would be of the greatest importance that they should be allowed to try the experiment.... [E]ven if such experiments failed, the attempt to make them succeed would be a very important matter in the way of education...’ (Mill 1967b:410).

His response to socialist true believers was similarly tempered by the discovery perspective that dominated classical thinking. Mill wrote passionately that if a market economy over time did not meaningfully reduce the ‘sufferings’ of the working masses, then he

would embrace a radical alternative, because ‘all the difficulties, great or small, of Communism, would be but dust in the balance’ (Mill 1864, vol. I:267). He quickly added, however, that ‘[w]e are too ignorant...to be qualified to decide’, *apriori*, whether capitalism or socialism ‘will be the ultimate form of human society’. His best guess was that the final judgment will hinge ‘on one consideration, viz. which of the two systems is consistent with the greatest amount of human liberty and spontaneity’ (Mill 1864, vol. I:269). Mill was personally convinced by the seemingly logical, nurture-based claims of the socialists on the viability of remoulding mankind’s self-interested disposition; nevertheless, he expressed concern about advocates who have such ‘a serene confidence in their own wisdom’ that they would impose their new order solely ‘on the strength of their own private opinion, unconfirmed by any experimental verification...’. Only through multi-generational trial runs, said Mill, will mankind be able to evaluate the Marxian vision:

If Communist associations show that they can be durable and prosperous, they will multiply, and will probably be adopted by successive portions of the population of the more advanced countries as they become morally fitted for that mode of life. But to force unprepared populations into Communist societies, even if a political revolution gave the power to make such an attempt, would end in disappointment.

(Mill 1967b:737, 746)

Mill prophesied that neither capitalism nor communism would dominate the future. Rather, he was impressed by the initial commercial successes and seemingly unselfish spirits of the private cooperatives formed in France and elsewhere after the Paris uprisings of 1848. In these coop firms, the members collectively held (not owned) the non-transferable capital, and the workers hired and fired their managers. He cited the American fishing industry as another form of a successful coop, in which the ship’s officers and crew worked for shares of the catch, while outsiders owned the capital. Mill wanted to promote a classless society with ‘unity of interest’, an objective he saw as unattainable under traditional industrial organization. So he deluded himself into believing ‘that the time [was] ripe’ in the mid-1800s to encourage a ‘spontaneous...transformation’ to cooperatives, a curious recommendation from someone who was otherwise leery of

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untested ideas. He conceded that the movement's viability depended on a new type of person who would be other-directed and forward-looking, because coop members had to decide on the share of profits to be distributed to themselves as dividends, versus earnings to be retained for depreciation, capital expansion, provision for sick and disabled members, etc. These are precisely the types of problems that thoroughly undermined the Yugoslav coop experiment during the 1970s (see Gardner: 325–30; and Holesovsky: 454–6). Mill also conceded that the innovation rate would be retarded under the new industrial associations, whose members are largely risk averters: 'Co-operative societies may be depended upon for adopting improvements after they have been tested for success, but [traditional entrepreneurs] are more likely to commence things previously untried' (Mill 1864, vol. II:357–61, 365–7, 510, 521–3). In his fifth and earlier editions, Mill lauded every caring, sharing endeavour of the coop firms he had studied; but in his final edition (1871), he offered less praise and added a caution about a looming trend that disturbed him: members of some highly profitable coops were voting to convert their capital into publicly-offered stock shares to secure transferable ownership rights. 'I grieve to say that the Manufacturing Society of Rochdale [one of Mill's star examples in the 1864 edition] has thus degenerated' (Mill 1985:138). Despite the unpromising pattern that was emerging, Mill remained highly supportive of the redemptive qualities of cooperative ventures.

History has not vindicated Mill's optimistic forecast, which was probably rooted more in his aversion to the idea of classes (owners and employees) than on the fragmentary evidence that existed in his own time on the likely longevity of the experimental coop spirit he found so admirable. *This* is why Hayek, like Smith, warned against men of system: they tend to allow their normative fervour to outweigh the lessons of experience, hence their rationally-derived visions can be highly misleading (and damaging). In general, however, Mill was not so easily seduced.

Mill clearly thought in process terms, but his approach was not strictly Hayekian. Mill believed in applying the human intellect to empirical data and experience. Whereas, in the search for general principles, Hayek was distrustful (at times even scornful) of relying on reason. He warned that many of our most familiar institutions have evolved via complex spontaneous processes that we may never fully comprehend. The application of analysis to such institutions

has frequently led to rationally-directed ‘improvements’ that have spawned unintentionally perverse effects (Hayek 1978:148, 157; 1989:6, 27). Therefore, Hayek stressed ‘the primacy of practice in the constitution of human knowledge’ (J. Gray: 34–7). Mill, on the other hand, believed that the correction of error required ‘discussion to show how experience is to be interpreted’. Since the facts are unable ‘to tell own story’, he warned against relying on ‘experience alone’ (Mill 1987:80). Buchanan, the leader of today’s Public Choice School, admires Hayek but is closer to Mill. Buchanan does not share Hayek’s ‘fear that politically orchestrated changes must, in most cases, produce social damage’. He believes that man *can* successfully apply his powers of reason and experience to construct or repair various socio-political rules so as to improve the workings of society, as was done by the framers of the US Constitution. To claim otherwise, as does Hayek, is to offer a ‘counsel of despair’ (Buchanan 1977:31–2, 34, 37–9). I disagree with Buchanan’s interpretation of the limits on statecraft imposed by Hayek’s analysis, but I shall defer my comments to an endnote.³

Most strikingly revealing of Mill’s process-oriented mindset was his position on education. Mill was highly sympathetic to the poor, but he strongly opposed the idea of a government-run school system. Likewise, he roundly condemned a proposal that the government should protect consumers by establishing curricular guidelines for private schools:

The objections...against state education do not apply to the enforcement of education by the State, but to the State’s taking it upon itself to direct that education; which is a totally different thing...[that] I go as far as anyone in deprecating. ...[Diversity in opinions and modes of conduct involves... diversity of education.

(Mill 1987:176–7)

In response to those who wanted the state to control the curriculum and organization of private schools, Mill predicted that such a policy would, *de facto*, ‘lead straight to making education...an absolute monopoly in the hands of [government]...’. In a regulated environment, said Mill, educational standards in the private sector would become hostage to ‘spasmodic fits of interference’ by the majority representatives in Parliament, and the lingering threat of such interference would paralyse the process of competition through which progress in pedagogy is achieved. Mill rejected the

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idea of a known production function for education; his grounds for opposing government standard-setting in private schools was a *tour de force* of classical thinking:

[I]t is far from desirable that all...enterprises [educational or otherwise] should be organized exactly alike; that they all should use the same means for the attainment of exactly the same immediate ends...

* * * *

The truth needs reasserting, and needs it every day more and more, that what the improvement of mankind and of all their works most imperatively demands is variety, not uniformity.

(Mill 1967b:617)

Mill's concern with the deleterious impact of government on the discovery process was not limited to the field of education: it was a general source of apprehension. He appreciated the indispensable role of the 'diversity of modes of action' within a large, healthy private sector, for only in this manner, he correctly reasoned, can a market exist and harness the creative wherewithal 'to originate and ...adopt improvements' (Mill 1987:181, 185). Mill clearly appreciated the idea that central direction necessarily suffocates the creation and transmission of new information:

If the roads, the railways, the banks, the insurance offices, the great joint-stock companies, the universities, and the public charities were all of them branches of the government; if, in addition, the municipal corporations and local boards, with all that now devolves on them, became departments of the central administration; if the employees of all these different enterprises were appointed and paid by the [London] government and looked to the government for every rise in life, not all the freedom of the press and popular constitution of the legislature would make this or any other country free otherwise than in name. And the evil would be greater, the more efficiently and scientifically the administrative machinery was constructed—the more skilful the arrangements for obtaining the best qualified hands and heads with which to work it.... *To be admitted into the ranks of this bureaucracy and... to rise therein, would be the sole objects of ambition.*

[I]n the long run,...[the Leviathan State] will find that... the

perfection of machinery to which it has sacrificed everything will in the end avail it nothing, for want of the vital power which, in order that the machine might work more smoothly, it has preferred to banish. (Mill 1987:182, 183, 187; italics added.)

THE ENTREPRENEUR: KEY TO LEARNING AND DISCOVERY

[T]he basic problem...is that of the *nature* of entrepreneurial ability...

(Scrpanti and Zamagni: 256)

In 1936 there appeared a paragraph which explains, quite effectively, why the study of equilibrium should not be conducted independently from the study of the competitive process. Equilibrium may remain elusive, yet men and women attempt to establish all of its preconditions:

they widen their knowledge and understanding of the universe about them; they attempt to build permanent elements in their patterns; and they try to make things as mobile as possible in time, space, and form, generally increasing substitutability. Ultimately, it is clear, their success is founded on knowledge and understanding. New knowledge and wider understanding may dislocate but they are essential conditions of final equilibrium.

(A.Radford: 343-4)

Since entrepreneurship is inextricably linked to the classical idea of competition, a brief but precise delineation of entrepreneurial functions is essential to all subsequent analysis. Entrepreneurs fill two distinct roles. Most promote general equilibrium through their omnipresent arbitrage activities, while others create new equilibria by engineering new methods of manufacture and by creating new products. The common factor in both roles is incomplete information. After the entrepreneur conducts a round of activity, society's stock of knowledge on prices, potential product variants, and available techniques has been increased. Since we are not omniscient, entrepreneurial initiative is needed to broaden our awareness of unanticipated opportunities and to detect past errors. (For an excellent survey of the literature on the error

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problem, see Kirzner 1978:57–9, 63–74; and Kohler 1990:119–21, 126–7, 501–2.) In short, the entrepreneur is often faced with the need

to form subjective probabilities concerning future developments for which there [is] no statistical past experience.... How does the brain do this particular thing that we know computers cannot do, that is, take decisions on apparently no information? The usual answer is ‘intuition,’ but what can this possibly mean?

The answer has to be that in every decision the brain applies not a limited, accurate, specific, ‘local’ data base, already determined to be relevant to the problem at hand, but rather, to a degree,...it can...find analogies in apparently remote fields. It can also use qualitative and analytical information.

(Marris: 23; also see Tooby and Cosmides: 91–2)

Before proceeding, we must distinguish between data and information (or knowledge). The market provides millions of prices (data); in addition, public libraries are packed with microfiche and on-line systems for retrieving an infinite variety of data and articles on every conceivable subject. But, as every college student learns when confronted by the research that is required to write an honors-grade term paper, *data do not yield information spontaneously*. Analysis—rooted jointed in formal techniques (such as statistical correlations and the discounting of cost/benefit streams), plus experience on the weights to be assigned to non-quantifiable factors (such as customer loyalty)—must be diligently applied to data to generate information. As Daniel Boorstin, former director of the Library of Congress, has explained, ‘knowledge is orderly and cumulative, [while data] is random and miscellaneous’ (in Breivik and Gee: 19).

Biologist Paul Weiss has applied the distinction between data and knowledge to the entrepreneurial role of the laboratory scientist: ‘Knowledge emerges from the distilling, shaping, and integrating of raw material into concepts and rules, and, in the process of condensation and generalization, the number of useful bits of detailed [data] *dwindles*, rather than mounts’ (in Breivik and Gee: 20; italics added). The ironic importance of the ‘dwindling’ role of distillation was also highlighted by Boulding: ‘It is fundamental... that we gain knowledge by the orderly loss of [data]’ (in Lacey: 23).

At a minimum, an entrepreneur must be alert to subtle changes in demographics and government regulatory policies, as well as emerging shifts in prices of substitutes, complements, and inputs. If a suspected change in relative scarcity is detected, the agent who acts ahead of others will usually profit handsomely from his or her discovery. If the entrepreneur's forecast proves correct, the reaping of profit will confirm that new knowledge has indeed been uncovered. If the forecast proves to be erroneous, the resultant financial losses stimulate a reassessment of current judgment criteria. The superiority of the market is its ability not only to detect error, but also to elicit appropriate corrective action.

Much attention has been misdirected to 'the data problem', as if allocative efficiency by government planners will be enhanced when data collection is improved. Unfortunately, this train of thought has confused the real issue. Data volume and accuracy are simply the guiltless scapegoats. The paucity of entrepreneurial effort in *above-ground* activities—due to the suffocation of private initiative in controlled economies—is the main source of inefficiency and static living standards in the Third World. Growth requires not 'more and better data' to facilitate 'more effective planning'; rather, what is needed is the creation of maximum information from whatever data is available, and this is the entrepreneur's forte. The more generally scarce (or asymmetric) is the stock of information, the more vital is the entrepreneur's incessant quest to enlarge and disperse knowledge through changes in prices, induced either by arbitrage of currently-existing products or through the introduction of new substitutes, etc. (For real-world examples of utility-enhancing disseminations of information via entrepreneurial arbitrage in an uncontrolled, purely-exchange economy, see the prisoner-of-war camp illustrations in R.A. Radford: 31-2.)

Some psychologists have placed an 'emphasis on knowledge acquisition' because they believe that adaptive (evolutionary) advantages accrue to those who remain alert to every aspect of their environment and marshal their integrated observations at a suitable moment:

Such information [gathering] need not be related to any particular outcome, or to outcomes of any kind. Humans store knowledge about their physical environment even when its use is not necessarily evident at the time. The potential use

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is, however, vast. The knowledge about a particular environment, gained at leisure, might be used many times over in the course of an individual's lifetime, while some knowledge so gained might never be used at all. Acquisitions of knowledge is thus, in this sense, speculative.

(Orians and Heerwagen: 584)

The highest order of entrepreneurship (and hence the most remunerative) directs its efforts beyond the excavation of new information, for, as Kirzner has explained, 'the services of men who possess knowledge, can, after all, be hired in the factor market' (Kirzner 1973:66). The quintessential essence of entrepreneurship, therefore, is not the actual task of mining information, *per se*, but one's *alertness* to its potential existence *and* the mental fortitude to exploit a situation pregnant with profit potential, even though others may have failed in previous attempts (Kirzner 1973:68, 86–7). The entrepreneur is the agent 'who "knows" where to find those with the market information needed to locate profit opportunities'. The pure entrepreneur's 'propensity to know where to look' for those who possess the expertise being sought, writes Kirzner, ensures that he or she 'dominates the course of events'. Most important, 'the very fact that these hired possessors of information have not *themselves* exploited it shows that, in perhaps the truest sense, their knowledge is possessed not by them but by the one who is hiring them' (Kirzner 1973:58–61, 68). J.B.Say's emphasis on this point is very similar to Kirzner's; see Say's *Cours*, vol. I:100, cited in Hoselitz: 251.

UNSHARED VISIONS AND VERTICAL INTEGRATION

By imagination I mean simply the ability to think up new and fruitful possibilities.

(Nozick 1993:172)

Entrepreneurs borrow capital and hire specialists to enable them to direct bold resource combinations that others cannot yet 'see'; that is, their experience and imagination interact to provide knowledge in the form of foresight, from which profit may be derived. And this foresight has frequently led to cost-saving innovation *made possible only by vertical integration*. For example, suppose I sell leather to

a sofa manufacturer, and suppose I realize that the upgrading of *all* sofa coverings from cloth to leather will lead to a sharp rise in unit sales—because the gain in consumer appeal will be far greater than the increase in price (which will be minimized by the savings from scale economies). Assume further that the firms who buy my leather do *not* share my enthusiastic forecast: ‘then the seller has an incentive to shoulder the buyer’s risk either by taking him over or setting up in competition with him’ (Buckley and Casson, in Silver: 12). The problem here is that the tanner’s advantageous information differential cannot be eliminated by, say, ‘clearly explaining’ the technical facts (i.e., sharing the insight). The leather entrepreneur, notes G.B.Richardson, may indeed have sufficient information to convince himself that his alternative vision will be more profitable than the status quo, but his buyers (and his own upstream suppliers, who may also have to make significant changes to accommodate the entrepreneur’s scenario) are reluctant to accept what they perceive as an eccentric suggestion. For them, the risks appear too great. Finding himself unable to obtain the cooperation of the downstream specialists who possess the technical skills and machinery to undertake the operation at lowest cost, the leather supplier, to realize his vision, ‘must direct his finite managerial resources into areas [where] he does not have a comparative advantage’—which will reduce the ultimate profitability of his venture (Silver: 13–17). Nonetheless, innovation proceeds as the entrepreneur acquires capital and labour to fulfil his vision by employing them ‘as he sees fit’ (Schumpeter, in Silver: 17).

The early automobile makers in the USA, for example, could not convince retailers to invest the sizeable capital required in showroom, storage lots, and inventory. Therefore, the auto firms initially ran their own sales outlets. After the potential profits to be had from specializing in car sales became apparent, ‘automobile manufacturers abandoned branch retail outlets in favour of independently owned, franchised dealerships’ (Silver: 30 and 64). The best illustration of the situation under discussion comes from the autobiography of Henry Bessemer, who revolutionized steel-making in the mid-1800s by learning how to pour fluid metal into molds and ingots:

And yet, with all this newly developed power, I was paralyzed for the moment in the face of the stolid incredulity of all practical iron and steel manufacturers.... None of (them)

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would adopt my process, even under the very favourable conditions which I offered as regards licences, viz., two pounds per ton. Each one required an absolute monopoly of my invention if he touched it at all. This I fully made up my mind to resist, by adopting the only means open to me—namely, the establishment of a steel works of my own in the midst of the great steel industry of Sheffield. My purpose was not to work my process as a monopoly, but simply to force the trade to adopt it by underselling them in their own market.... Thus were established the first Bessemer Steel Works.

(As quoted from Edwards and Townsend, in Silver: 31–2)

The Bessemer case was not an anomaly. The Swift Corporation's vision of shipping fresh meat from Chicago to the East Coast was shared neither by the railroads nor Eastern middlemen, who feared spoilage. So Swift began designing and building its own refrigerated railway cars, opened its own warehouses and retail outlets in the East, and constructed special ice houses to store winter ice for year-round use in its new box cars. Swift's unusual need to integrate forward all the way to the retail level reflected the high uncertainty shrouding its product. Similarly, Kodak was forced to establish retail outlets to sell its revolutionary cameras, which could be easily used by laymen because celluloid replaced the glass plates of professional photographers. Kodak also had to integrate backward into the mass production of paper, film, and lenses to ensure adequate supplies in the face of apprehensive input providers who were reluctant to expand sufficiently to meet Kodak's projected needs (see the original sources cited in Silver: 28–30).

Of course, several alternative explanations exist for the phenomenon of vertical integration, but none of them is inconsistent with the unshared vision hypothesis, and some are inferior in explanatory power (see the examples in Silver: 107–14, 122–9). Therefore, a strong, entrepreneur-based, pro-consumer explanation is available to account for the existence of vertically integrated firms.

EQUILIBRIUM AND ENTREPRENEURSHIP

Questions of how the price system leads the economy to respond to a new situation, how it conveys information from informed individuals to uninformed individuals, and how it

aggregates the different information of different individuals, are never directly attacked.

(Grossman and Stiglitz: 246)

The idea of achieving the socially-optimal bliss point of Walrasian general equilibrium requires the analyst to abstract himself into a world of perfect information. In such a world, entrepreneurs do not exist because firms do not make genuine decisions; firms simply react predictably to known prices, reallocating capital and labour until the Lerner conditions for welfare maximization are fulfilled (Kirzner 1973:38). ‘[I]f in employing factors of production firms are assumed to know *in advance* their marginal products, so that optimal input combinations are [assured], entrepreneurship appears to be devoid of any rationale.’ (Parker and Stead: 74).

A world of imperfect information, on the other hand, requires entrepreneurship. For example, the existence of price differences for a good at two locations will give rise to profit via arbitrage. The entrepreneur is instrumental in recognizing the existence of higher utility uses and reallocating the good ahead of the many others who will become alerted by his actions. Like the mortar which holds bricks together to enable the construction of a wall, Kirznerian entrepreneurship facilitates exchange and thereby fosters the social harmony of Adam Smith by promoting general equilibrium, (analogy borrowed from Lerner 1949:49–50).

Even pure imitators who increase supply and drive down price in the wake of an innovation provide a valuable (though lower-order) entrepreneurial service, for this imitative action requires alertness and initiative to recognize and seize a new opportunity *before* the onslaught of replication eliminates all economic profit (Kirzner, 1973:127–9; and 1985:84–6). The entrepreneur’s comparative advantage, therefore, lies in his capacity ‘to sniff out opportunities lurking around the corner’—‘before others do’. This is the role championed by Kirzner. ‘I view the entrepreneur not as a source of innovative ideas [from thin air], but as being *alert* to the opportunities that exist *already* and are waiting to be noticed’ (Kirzner 1973:67, 74, 78–81; and 1976:120–1; and 1979:29). For example, nitrous oxide (laughing gas) had been widely employed during the mid-1800s as a carnival entertainment vehicle. A dentist recognized that a young man on stage, under the influence of laughing gas, felt no pain when he stumbled and badly injured his leg. As a consequence of the dentist’s alert observation, surgery was

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eventually revolutionized by anesthesiology (Ryan: 4). Similarly, the Swift Corporation's recognition of the revolutionary potential of refrigerated railway cars, which it did not invent, 'enabled Swift to reconfigure the meat packing industry by using refrigeration cars to distribute dressed meat from central slaughter-houses to East Coast markets' (Teece: 215). A plethora of real-world examples of entrepreneurial alertness can be found in Assael: 41–5, 59, 67–8, 329–32, 358, 366–9, 372–3, and 391. Additional real-world illustrations, presented as a series of short case studies, appear in an Assael appendix, on pages C1 to C59.

The Kirznerian entrepreneur is also at work in capital markets. If the Alpha Corporation acquires the Beta Corporation—against the will of Beta's top management—then Alpha will be described pejoratively as a 'raider'. Such 'unfriendly' acquisitions will be commonplace whenever the acquired firm's assets can be purchased (via stock market shares) at a price well below the values these assets will attain after being redirected into new ventures by the new owners. Such opportunities arise because corporations are sometimes afflicted with agency problems; that is, the top management does not aggressively use stockholders' capital to seize available profit opportunities. In these cases, new groups of entrepreneurs appear, offering the owners (the stockholders) a better share price in return for transferring managerial control, *en masse*, to the new team. Raiders, therefore, insure that capital goods are selling at equilibrium prices. (For a compact yet thorough and highly readable overview of this issue, see Mishkin: 174–7 and 185–96.) Kirzner's theory of entrepreneurship highlights the cruciality of such reallocative activity (whether in consumers' goods or producers' goods), whereas, in Schumpeter, 'struggles for control in the financial sphere' are decisively categorized as 'social waste' (Schumpeter 1976:80). The preliminary empirical data has supported Kirzner's position. Successful takeovers (and real threats of takeovers) have, *overall*, generated significant gains to stockholders, while those firms who used 'greenmail' to deflect takeovers caused losses to their stockholders (Kohler 1990:135). Bondholders have also benefited. The unusually high-yield 'junk' bonds that were issued to finance takeovers (and to underwrite new firms) have, *on average*, far outperformed other investments, thereby enriching those who held on to them (Gilder 1993: A18). Finally, a study of the US banking industry has yielded compelling evidence on the disciplinary contribution of raiders. 'Several states

completely prohibit the corporate acquisition of stock in more than one bank'; in 1987, one-fourth of all publicly-traded banks were located in these states (Schranz: 306, 311). A comparative analysis of investment returns revealed that banks in takeover states are more profitable, hence 'takeovers do provide an incentive for managers to improve their performance'.

When takeover activity is restricted, increased use of substitutes for providing the incentive to maximize firm value such as management stock ownership or concentration of equity ownership is observed. However, [these measures were not as effective at ensuring the fidelity of agents; that is,] a noticeable difference in profitability persists between firms in the two types of markets, indicating that these alternative mechanisms do not completely compensate for the absence of an active takeover market.

(Schranz: 300–1)

Public complaints against 'struggles for control in the financial sphere' emanate most loudly from groups whose members suffer wage cuts as input demand shrinks in the leaner, reorganized corporations—which had become targets of acquisition *precisely because of the losses traceable to input payments that were no longer warranted*. For a more comprehensive discussion of the social benefits and social costs of takeovers, see Milgram and Roberts: 181–3 and 510–21, but neither Mishkin nor Milgram and Roberts have addressed the fact that a reduction in wages *must* follow a decline in the marginal product of labour (from reduced consumer demand)—an eventuality that is revealed, but not caused, by the actions of raiders. The critics of raiders who emphasize the 'unfair shifting of the adjustment costs to labour' are simply turning a blind eye to the inescapable factor-price consequences of *general equilibrium theory*.⁴ Raiders are the agents who finally carry out the long-overdue reallocations that have been postponed by the agency-cost inertia of hired management:

Even when managers do acknowledge the requirement for exit [from industries with high excess capacity], it is often difficult for them to initiate the shutdown.... Rather than confronting [the] pain, managers generally resist such actions as long as they have the cash flow to subsidize the losing

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operations. [Such cases provide] dramatic evidence of the failure of corporate internal control systems....

This is precisely where the forces of the capital markets—the Leveraged Buy Outs...and venture capital firms—did so much to rationalize investment and management decisions in the 1980s.

(Jensen: A6)

The second role of the entrepreneur is captured in the familiar swashbuckling image created by Schumpeter, who concentrated on the quasi-heroic entrepreneur as the engine of progress—the source of ‘creative destruction’—the progenitor of disequilibrium who pushes the production-possibilities frontier outward. ‘[Price] competition in the ordinary sense’, said Schumpeter, ‘becomes a matter of comparative indifference’; what really matters is ‘the competition from the new commodity, the new technology, the new source of supply, the new type of organization...[that is,] competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits...of the existing firms but at their foundations and their very lives’ (Schumpeter 1976:81–6, 132). The advent of the ‘super’ market, for instance, destroyed untold thousands of mom-and-pop grocery stores that had been a fixture of American society before World War II.

A study of nineteenth-century American inventors revealed a tight link between the prospect for personal gain and inventive success; that is, the evidence strongly suggests that Schumpeterian change is *not* an exogenous factor (Khan and Sokoloff: 292). Furthermore, ‘Insiders, who perhaps had stronger incentives to invest in inventive activity [due to] better information about the state of the market, were the norm’ (Khan and Sokoloff: 296). Sixty per cent of the inventors in the data set chose royalties over a one-time, lump-sum payment for assignment of licensing rights, and 85 per cent ‘were directly involved in [the] commercial exploitation’ of their inventions (Khan and Sokoloff: 301–2).

A recent example of a Schumpeterian innovation is the Instant Car Cooler, put on the market in 1989 by its inventor, physicist Domingo Tan. Responding to his son’s complaints about the inferno-type heat that builds up in parked-and-locked automobiles during the summer, Dr. Tan reflected on cheap and easy coolants. He noticed that fine water mists greatly reduce temperature (such as during a rainshower), and he observed that a mixture of alcohol and water is applied to the skins of babies with fevers. The result was a

new spray product of 90% water and 10% alcohol, which vaporizes instantly and reduces the temperature inside a sun-baked car from Fahrenheit 120° to 80° in under four seconds (Andrews: C5).

As Loasby has explained, 'Kirzner's entrepreneur profits by assisting cohesion, Schumpeter's by disruption. Each might be regarded as providing opportunities for the other;...' (Loasby 1982:244). But Kirzner would take issue with Loasby on this point: Kirzner believes that the innovator-entrepreneur is not necessarily a disrupter of equilibrium. Instead, he or she who introduces a new product or technical progress in production may be seen alternately as one who, like Domingo Tan, brings forth an 'equilibrating response to preexisting tensions...' (Kirzner 1973:66-74, 77-81, 129-31). Adam Smith, I believe, would have agreed with Kirzner. In an epistemological discussion in his lectures on the history of astronomy, Smith made a point that, while having nothing to do with entrepreneurship when it was written, is nonetheless highly relevant to Kirzner's conception. Smith's description of the more discriminately alert senses of certain specialists brings to mind the Kirznerian entrepreneur, whose piercing reallocative eyes are like the finely tuned ears of Smith's musician, which 'allow him to discern a dissonance where others hear only harmony.... Thus the flow of events that was customary and smooth, is interrupted; and the mind, seeing the gap, requires that it be bridged' (From a summary of Smith's example, as described in Pokorný: 388). Most of the profession, however, has adopted Loasby's interpretation. Therefore, Schumpeter's innovator-entrepreneur is seen as the cause of change and uncertainty, while Kirzner's alert, coordinator-entrepreneur is the beneficiary of heightened uncertainty, for he profits from sniffing out, *ahead of the pack*, the resulting impact of incipient change and seizing the opportunities thereby created. In other words, 'Kirzner's entrepreneur is engaged in spotting ways of making the best of a given set of technical circumstances' (Ricketts: 60).

For example, suppose a Schumpeterian entrepreneur introduces a new product, such as wire services using phone lines and computers. The Kirznerian entrepreneur, recognizing that this can speed the transfer of funds between financial institutions, capitalizes on his or her insight by adapting current software technology so as to enable banks and brokerage houses to exploit the new wire technology. For another illustration, consider the case of the now-ubiquitous FAX machine. Long-line facsimile reproduction technology has been around for 150 years, but

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noticing its ability to outperform same-day, more expensive delivery services was an act which dramatically enhanced the value of FAX resources during the early 1980s. (The FAX concept was patented in 1842 and was commercialized briefly in Paris in the late 1860s. The Associated Press wirephoto system, started in 1934, was the first modern application. See the *Parade [Sunday] Magazine*, 5 April 1992, p. 22, and *Scientific American*, June 1938, pp. 334-6.)

Thus the domain of the entrepreneur encompasses much more than the pioneering of revolutionary breakthroughs in how to produce and what to produce; it also includes the ceaseless train of 'insider-trading' opportunities that arise from being *alert to and acting on* newly emerging potentials which are not yet generally recognized. This point is being stressed because the nearly invisible nature of Kirznerian entrepreneurs has resulted in an unwarranted minimization of their contribution, particularly when compared to the admittedly more romantic image evoked in Schumpeter (see, for example, the deprecative comments in Gilder 1984:260; and Blaug 1986a: 227).

The entrepreneurial role emphasized by Kirzner is essentially the same as outlined in the thirty-year scattered reflections of Walras, who wrote that 'The definition of the entrepreneur is, in my opinion, the key to all economies' (D.Walker 1986:1). Walras recognized that while the entrepreneur may also provide managerial services, his distinct function, as summarized by Donald Walker, was to exert the force of equilibrium via his 'recognition and exploitation of inequalities between quantities demanded and supplied at non-equilibrium prices—in factor markets as well as the markets for final goods' (D.Walker 1986:4-6). According to Walker, the letters of Walras described the entrepreneur as the agent who initiates the *tâtonnement*⁵ process in response 'to the emergence of a profit or loss, that is, by a state of disequilibrium ...'. However, the entrepreneur is not the ultimate cause of a particular set of values: 'Walras...argued that...the consumer is, in the last analysis, the true demander of labor.... Entrepreneurs cannot do more than give effect to the decisions of consumers' (D.Walker 1986:8-9).

Edgeworth praised Walras' definition of the entrepreneur's function. The role of the entrepreneur, however, could not be woven into a set of simultaneous equations whose solution was meant to describe the prices and quantities to be arrived at *only if*

the anticipations of all participants are fully satisfied. Walras noted in his *Elements* that profit is rooted in uncertainty and hence ‘is correlative to a possible loss...’ (D.Walker 1986:3, 20). Nevertheless, the mathematical requirements of model-building necessitated that the market be seen from a zero-profit perspective. This was an easy decision for Walras, because, notes Walker, uncertainty was seen by Walras as ‘exceptional and not normal’; hence he believed ‘that theoretically, abstraction ought to be made from it’ (D.Walker 1986:3). Walras’ valuable classical insights on the role of the entrepreneur were drowned by his need to disallow the asymmetric information that, in the real world, causes trading at non-equilibrium prices—trading that moves the economy toward a set of equilibrium values that are *not* the same as the solution set yielded by Walras’ system of equations (Chapter 6 will elaborate on this point). The elimination of trading at non-equilibrium prices foreclosed an operative role for the entrepreneur. Since the entrepreneur had been written out of the script of the newly emerging body of neoclassical thought, the interest of theorists, quite naturally, ‘moved in other directions...’ (Cochran: 89).

Before concluding the discussion of entrepreneurship, two points concerning Schumpeter’s portrayal should be considered. First, Carol Shaw Solo has disagreed with Schumpeter’s characterization. To her, entrepreneurship is not dependent on the ‘extraordinary efforts’ of particular individuals; rather, it is a routine outcome of the market process: ‘producers compete by developing and introducing innovation...’ (Solo: 418, 419, 428). Arthur Cole went even further. He said that day-to-day management is entrepreneurial whenever it is part of ‘an integrated sequence of decisions...undertaken [specifically] to initiate... or aggrandize a profit...’ (in Cochran: 91). The second and more important point is that Shumpeter’s description of creative destruction has much in common with the portrait painted by several classical economists. Yet his account appeared novel in the 1940s because leading theorists had been divorced from the classical notion of the market process since the turn of the century. Consequently, Hoselitz was led, in 1951, to offer the following unchallenged assessment: ‘Only after it had been shown by Schumpeter that the entrepreneur was not the guardian of economic equilibrium but the disturber of equilibrium was a new and fruitful development of entrepreneurial theory possible.’ (Hoselitz: 254). Schumpeter undoubtedly agreed with Hostlitz’s account of his contribution, for in his *History of*

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Economic Analysis (1954:556), he referred to the *complete absence* of the entrepreneur in the writings of the Ricardians and Nassau Senior, a charge that will be evaluated in Chapters 4 and 5. In 1934 Schumpeter had written that equilibrium analysis ‘explicitly or implicitly *always has been* and still is the centre of traditional theory’ (quoted in Blaug, 1986a, 230, fn. 4; italics added). *Schumpeter mistakenly believed that the classical economists shared Walras’ vision of the market economy as an essentially stationary system*, that is, one which has no *endogenous* forces at work to disrupt an attained equilibrium (Schumpeter 1991:166). In his role as an historian of economic thought, therefore, he accepted the mainstream’s presumption on the continuity-of-equilibrium thinking. Evidently, Schumpeter was unaware that not only the concept of creative destruction, but also the fundamental linguistic composition of the term itself, were embodiments of early classical ideas upon which Marx had drawn to fashion his own social vision of impending confrontation.

Adam Smith, for example, wrote that competing firms strive ‘[to] jostle one another *out of employment*’ (Smith 1937:717; italics added). And Sismondi, who was invited to write a lengthy piece on Adam Smith’s political economy (in layman’s English) for the *Edinburgh Review*, had described in his 1819 principles text how patentable new methods drove the innovator’s competitors into bankruptcy: ‘their...circulating capital will be lost; [and] their workers will [be] laid off and will lose their livelihood.... Each improvement...has killed...old producers no one saw, and which have disappeared unsung;...’ (Sismondi: 264, 265). Similarly, Ricardo, while not alluding to an entrepreneur, nonetheless wrote, in 1821, that ‘all improvements in agriculture and manufacture...never fail, at the moment of their introduction, to deteriorate or annihilate the value of a part of the existing capital of farmers and manufacturers’ (Ricardo: 181).

Jeremy Bentham (1748–1832) also addressed this theme at various times during the early 1800s. Bentham’s ‘projectors’ (or ‘reformers’) were responsible for revolutionizing method *and* product (Bentham 1843:76; and 1952:170). Zolton Sebestyen, who chronicled Bentham’s ideas in a doctoral dissertation, has concluded that, with minor exceptions, ‘J.A.Schumpeter’s innovating entrepreneur is practically identical with Bentham’s projector...’ (Sebestyen: 81–82, including fn. 1). As noted above, Schumpeter believed that the British classical texts were devoid of

noteworthy commentary on entrepreneurship, but he granted an exception to Bentham's writings on this subject, which, he said, have 'remained almost unnoticed by professional economists' (Schumpeter 1991:254). But the observations of Smith, Sismondi, and Ricardo demonstrate that Bentham's insights on creative destruction were not unique. And around 1860 Nassau Senior had described the rise of oligopoly and the 'extinction of the smaller capitalists' (Senior 1928, vol. II:11). Earlier, Marx and Engels had cast the image in stronger terms in *The Manifesto of the Communist Party* (1848): 'Constant revolutionizing of production, uninterrupted disturbance of all social conditions...distinguish the bourgeois epoch from all earlier ones.... All that is solid melts into air; all that is holy is profaned....' Small businessmen and craftsmen were forecast to be swept into the seething proletariat, as 'their specialized skill is rendered worthless by new methods of production'. Schumpeter's dismal sociopolitical message, that creative destruction erodes the protective strata of capitalism by eliminating small merchants and farmers—thereby emasculating its ability to mount a defence when brought under attack by the swollen and hostile intellectual class—is rooted in Marx and Engels: 'The development of Modern Industry cuts from under its feet the very foundation [of] the bourgeoisie...' (All from Tucker: 476, 480, 483). Schumpeter correctly noted that, in Marx, 'the business process runs substantially by itself' (1954:556)—an assessment certainly applicable to Ricardo as well. However, as we shall learn in Chapters 4 and 5, the total neglect of the entrepreneur's role in Ricardo and Marx was not representative of other notable nineteenth-century writers, such as Senior, Malthus, McCulloch, and J.S. Mill, nor of Adam Smith and Sir James Steuart.

Finally, in 1901, at the close of the classical era, Sidgwick repeated the view that the process of competition causes an unavoidable 'destruction of the existing value' of human capital and physical capital. One's education and training, wrote Sidgwick, '[is] liable to be diminished or annihilated...just as the value of material instruments' (Sidgwick: 364–6). A postscript: the growth of the service sector, and franchising in particular, has invalidated the vision of Senior, Marx, and Schumpeter on the extinction of small firms. Franchising has allowed independent businessmen to multiply and flourish, thereby fortifying the independent-owner component of capitalism's political wall of defence.

SUMMARY

Three areas were surveyed to heighten the reader's awareness of the pronounced change in perspective that took place during the early twentieth-century transition between the classical and neoclassical eras. First, the classical discovery-process approach to competition and monopoly was contrasted with the neoclassical state-of-affairs-at-equilibrium approach, which errantly assigned a neutral role to sociopolitical factors. Second, we examined how these differing conceptions affect one's answer to the question posed by Buchanan: 'What should economists do?' That is, we examined the neoclassical emphasis on the conditions that define the consummation of the market's competitive process, an emphasis which led to three decades of virtual neglect of the nature of the market process and the institutions needed to promote it. Third, various aspects of entrepreneurship were explored to reveal how one's habits of thought are shaped by how one defines the market. To this end, the views of Kirzner and Schumpeter were contrasted.

The actions of Kirzner's behind-the-scene entrepreneurs are constantly moving the economy toward equilibrium—oftentimes a new equilibrium on a higher P-P frontier recently created by the disequilibrium activities of Schumpeter's mover-and-shaker entrepreneurs. However, the actions of Kirznerian entrepreneurs are not predicated on the pre-existence of a Schumpeterian entrepreneur. Kirzner's entrepreneurs are continually at work, for in a world of incomplete information, trades *do* take place at *non*-equilibrium prices. This is precisely the process by which equilibrium prices—and the optimum coordinates within the current set of technical production possibilities—are discovered (a topic to which we shall return in Chapter 6).

Hayek's highlighting of the division-of-knowledge aspect of a market economy has brought to the fore an issue that is highly relevant to this essay. Putting aside the effects of externalities in production and consumption, the equilibrium outputs that would be directed from a fully-informed centre can *not* be the same as the production decisions that emanate from a system in which each participant's awareness of others' projects is fragmentary. This was Hayek's great contribution, namely, that the process of exchange is a product of *incomplete* information on the part of each agent, for if even a few people could learn everything, then the profit-making plans of resource buyers would be known by sellers and thereby

paralyse numerous negotiations. Therefore, the idea of creating a perfectly-informed centre—by, say, depositing each agent's partial knowledge into an interconnected societal brain—leads to a distorted image of how the market functions, for the market's successful coordination of human action *depends* on the inability of any entity to put it all together in the Walrasian sense of things. In fact, if every participant *were* perfectly informed, then a dictatorial power would be required to break the ensuing gridlock by *directing* the consummation of that subset of outcomes which otherwise would be precluded by the intractability introduced by the omniscience of transactors. Hence, as one writer has put it, 'perfect information [is] perfectly useless', because its existence in a real economy would 'destroy any mutually beneficial trade which ...may otherwise have [occurred]' (King: 415). The misleading impact of the Walrasian model on our thinking about the nature of exchange was not lost on Hayek, who 'at one time was greatly fascinated' by Walras' work. Though Hayek maintained an 'aesthetic admiration for [its] achievements,' he nonetheless became 'more and more skeptical of the *instructive value* of [its] construction...' (Hayek, in Moldofsky: 182; italics added by present writer).

Most intellectuals continue to be drawn to the perfect-knowledge conception—for two reasons. First, they have been weaned on the ideas of the French Enlightenment. Second, they find inherently unattractive the 'selfish' ideas of the lacklustre figures of the Scottish Enlightenment, the works of whom, even today, remain largely unfamiliar to the typical professor in the humanities. The French writers were committed to a goal they had described as extremely difficult, but which, they thought, was possible: the mapping of the complete tree of knowledge. They had an abiding faith in their rational, collective capacity 'to encompass the infinitely varied branches of human knowledge in a truly unified system' (D'Alembert: 5). Therefore, to the French intellectuals of the eighteenth century (as well as to most members of the Western intellectual community in the twentieth century), the vision of a society whose inter-relations are fully comprehensible—and hence amenable to the goal of consciously directed change—appears far more attractive than Adam Smith's seemingly rudderless state of natural liberty, whose elements are interconnected in obscure, oftentimes impenetrable ways. Nevertheless, in the Smithian world of real, everyday life, each agent acquires, through trade, the fruits

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of others' specialized knowledge without a consolidated depository of such knowledge and without a complete understanding of how all the branches of the tree of knowledge fit together to form the resultant whole. This profound accomplishment precludes the need for a centralized coordination of individual actions. Moreover, the imposition of a master blueprint is doomed to failure, because the game-theoretic approach by which people select *and revise* their projects will constantly thwart the planners' goals. In his Nobel Memorial Lecture, Hayek attacked the hubris of the men of system: 'If man is not to do more harm than good in his efforts to improve the social order, he will have to learn that... he cannot acquire the full knowledge which will make mastery of events possible' (Hayek 1975:442).

The bottom line of Chapter 2, and the entire book, is this: The ejection of extraneous sociopolitical factors from the field of economics was supposed to separate 'is' from 'ought' (à la David Hume) and thereby make allocational analysis as ideologically neutral as physics or any other science. However, the law of unintended consequences could not be eluded. The new paradigm unwittingly injected a pro-planning bias by fostering a fascination with the idea that national welfare can be improved through a perfectly-informed centre. This proposition has proved to be especially alluring to highly educated men and women, particularly professional scholars, who, for the most part, were enraptured by their student encounters with the principles of the French Enlightenment, and have remained convinced that rational minds (i.e., learned and well-intentional minds) can construct a better world than what has been provided by the anarchic free market, whose explication and intellectual support are traceable to the sober, unromantic (and hence unappealing) writers of the Scottish Enlightenment.⁶

3

THE MAGNETIC LURE OF MARKET SOCIALISM

[T]he assertion that socialism would be more efficient, more rational than capitalism...is now ridiculed in many quarters. How could any serious economist have ever suggested that dynamic entrepreneurs should be replaced by government bureaucrats?

(Persky: 229)

Only those drunk on perfectly competitive, static equilibrium theory could have swallowed such nonsense. I was one of those who swallowed it as a student in the 1950s and I can only marvel now at my own dim-wittedness.

(Blaug 1994:1571)

The removal of the entrepreneur via the adoption of the Walrasian general-equilibrium model led to a highly distorted view of the market in neoclassical theory. In classical economics, a specific class of agents did *not* take prices as given. To the entrepreneur, prices are not parametric; that is, entrepreneurial behaviour is not based on the assumption of price immutability. Entrepreneurs are constantly examining the current price structure of substitutes and complements to discern information that others do not yet see, and they exploit their findings to create new utilities which, in turn, alter relative prices. In short, entrepreneurs undertake actions to change the terms of trade. Instead of adjusting themselves to existing conditions, they pursue initiatives that induce *other* participants to adjust to newly discovered opportunities which better serve consumers. Moreover, their function is not eliminated

by the equalization of returns and elimination of pure profit which their actions promote, because the equilibrative actions of any given round of entrepreneurs is continually being unsettled by successive waves of initiatives. In short, since the depth of unexplored knowledge is unfathomable, the set of undiscovered opportunities to enhance consumer welfare is inexhaustible.

Insight into this non-parametric role of prices was lost in neoclassical economics, which portrayed the market as a set of solution rules for efficiently allocating *existing* goods and services among *existing* alternative uses. This can best be seen in Lange's model of market socialism, which is based on the Robbinsian definition of the economic problem. Determining the equilibrium price vector, said Lange, requires only three data: knowledge of consumer preferences, knowledge of opportunity costs, and knowledge of available resources (Lange 1971:22). In Lange, every person regards prevailing prices 'as given data to which he has to adjust himself.... Market prices are thus parameters determining the behaviour of the individuals'. Lange concluded that the problem of socialist calculation can be solved, theoretically, through a series of trial-and-error prices. Producers react to shortages (or surpluses) by raising (or lowering) their prices until general equilibrium is reached (Lange 1971:27, 35). In fact, concluded Lange,

this trial and error procedure would, or at least could, work *much better* in a socialist economy than it does in a competitive economy. For the Central Planning Board has a much wider knowledge of what is going on in the whole economic system than any private entrepreneur can ever have, and consequently, may be able to reach the right equilibrium prices by a *much shorter* series of successive trials than a competitive market actually does.

(Lange 1971:37)

Lange believed that mature market economies were inefficient, for two reasons: the presence of externalities and the loss of competitiveness. The broad panoply of information that presumably would be available to central planners would ensure that third-party costs would be correctly addressed and that natural resources would be optimally exploited. Employing the Pigouvian language of the pre-Coase Theorem era, Lange explained that, in a capitalist system, negative externalities 'can be removed by proper

legislation, taxation, and bounties..., but a socialist economy can do it with much greater thoroughness' (Lange 1972:53). For the historical reality on this issue, which reinforces Coase's insights on how pollution problems are held at bay (not eliminated) by *private, transferable* property rights, see the panoramic coverage in Murray Feshbach's *Ecocide in the USSR* (New York: Basic Books), and the graphic pictorial in the 'Toxic Wasteland' cover story of *U.S. News & World Report*, 13 April 1992, pp. 40–51. (Excellent, contrasting summaries of the Pigouvian and Coaseian treatments are available in De Serpa: 507–17).

The second source of inefficiency cited by Lange, greatly diminishes competitiveness, was rooted in his subscription to the Marxian view of monopoly capitalism (as popularized by Baran and Sweezy). Lange saw Western economies as populated by unresponsive mega firms, a situation which militated against welfare maximization. Since a return to perfectly-competitive conditions under modern capitalism was impossible (due to the large plants required by technology), he argued that collectively-owned resources, guided by artificial market mechanisms, provided the most logical means of reinvigorating large, lethargic firms and thereby reclaiming the fruits otherwise attainable only under a perfectly competitive regime of private-enterprise firms (see the summaries of Lange in McCormick: 141–2, and Persky: 230–3).

Lange also claimed that this system could better address the so called equity-efficiency trade-off, for its market-style allocations supposedly would ensure efficiency, while its post-production redistributions of income would reduce inequality (and hence, to an egalitarian, increase fairness). Maurice Dobb, a fellow Marxist, challenged Lange on this point. Dobb explained that input prices serve a dual purpose: they measure the dollar votes being cast *by* input owners (as general consumers), and they send a scarcity signal *to* input owners (as producers of a specific input). Under Lange's scheme, the production of high-taxed inputs would decline over time, but the quantity demanded (based on the pre-tax wage facing firms) would not decline, hence persistent shortages of the high-taxed inputs and persistent surpluses of the low-taxed inputs would necessarily plague the factor markets of a Langean system. By moving toward a more equal distribution of income, the socialist state buys more equality only by inducing inefficiency. This, wrote Dobb, 'is the central dilemma' faced by socialism. (see the extended quote from Dobb in McCormick: 145). In addition,

one must face the ethical question (usually ignored): ‘To insist on an egalitarian distribution...is to acquiesce in the systematic exploitation of society’s most economically valuable members.... [M]arket socialism would result in just this sort of exploitation’ (Arnold: 28).

Four points should be noted here. First, Lange’s model of market socialism assumes that prices under capitalism are nudged toward equilibrium by robotic firms who simply receive signals and react (via the algorithmic, marginal-cost programming in their behaviour circuits) to either boost or contract output. Second, the attainment of Lange’s general equilibrium requires the managers of socialist firms not only to be aware of the extent of shortages and surpluses, but also to have the incentive to react. Third, and most significant, no changes in what to produce or how to produce can emanate from these managers because their behaviour rule is to receive prices as parametric data; that is, they cannot envision alternative uses, hence experimentation by manufacturers to satisfy as-yet unknown tastes or to develop improved input combinations is impossible. New products, changes in method, and new technology presumably must be introduced by command from centralized R&D bureaus whose scientists, unlike all other agents, do not have to adjust their behaviours to the prices currently facing them. Fourth and finally, Lange recognized that real-world socialist governments would never adopt his model as their economic blueprint, nor did he want them to do so. Therefore, alternative central-planning channels had to be developed to ensure that data from the bottom were available to the decision-makers at the top. Lange believed that the market’s information flows could be replaced under command socialism with artificial feedback mechanisms, and he pursued their development through his research and course offerings (in econometrics, mathematical programming, and cybernetics) at the University of Warsaw (Wellisz: 584).

The notion that prices are parametric—that prices are independent of any single agent’s actions—was described by Hahn as the ‘cancer at the heart of [Walrasian] theory’, robbing it of the ability to explain price changes and the self-improvement projects of participants. The parametric-price assumption is valid only in a zero-profit system, and, according to research cited by Hahn, ‘if the no-surplus condition does *not* hold, an agent can by his actions affect the equilibrium prices of an economy’ (Hahn 1980:130). With the triumph of *neoclassical* theory, ‘long-run supernormal

profits were rationalised in terms of defects...which should be tackled through “competition policy”. The possibility that continuing high profits are a feature of a healthy competitive process (implicit in Marshall’s account of the “rent on ability”) were discounted’ (Parker and Stead: 77).

Kirzner’s critique of Lange’s approach captures the essence of the conceptions of the market implicit in classical texts—a conception largely lost under the neoclassical vision of firms who cannot detect the profit potentials embedded in the prices they face:

In emphasizing exclusively the ‘parametric’ function of market prices, Lange misunderstood the central role of the market. The primary function of the market is *not* to offer an arena within which participants can have their decentralized decisions smoothly coordinated through attention to the appropriate list of given prices. The market’s essential function, rather, is to offer an arena in which market participants, by entrepreneurial exploitation of the profit opportunities offered by disequilibrium prices, can nudge prices in the direction of equilibrium. In this entrepreneurial process prices are *not* treated as parameters. Nor, in this process, are prices changed impersonally in response to excess demand or supply. It is one thing for Lange to assume that socialist managers can be motivated to follow rules with respect to centrally promulgated given ‘prices’ (in the way capitalist decision makers can be imagined to treat given equilibrium market prices). It is quite another to assume that the *non-parametric* function of price in the market system, the function dependent on entrepreneurial alertness to opportunities for pure profit, can be simulated in a system from which the entrepreneurial function has been wholly excised.

That Lange did not understand this nonparametric function of prices must certainly be attributed to a perception of the market system’s operation primarily in equilibrium....

(Kirzner 1985:128)

Kirzner has attributed the decisively pro-Lange treatments in postwar textbooks to the mainstream’s ‘utter failure to understand the flaws in Lange’s discussions (flaws that Hayek had identified)’ (Kirzner 1985:129). But Kirzner’s treatment has been too generous.

The problem was not purely one of ignorance. The methodological revolution which divorced ‘political’ from ‘economy’ was virtually complete by the 1930s, hence there was absolutely no enthusiasm for a critique that was challenging the *centralized** (see p. 95), perfect-knowledge foundation of the Walrasian analytical framework. To engage Hayek would have required the ploughing of non-Robbinsian fields that were no longer part of the discipline. More significantly, the mainstream must have viewed the ultimate implication of Hayek’s critique as quite preposterous—namely, that an exclusive reliance on its new paradigm was implanting, unintentionally yet assuredly, an anti-Smithian vision of the market. This implication, which is inferable from Hayek’s discussions of the knowledge problem, was surely rejected by pro-free market Walrasians, for they saw the Walrasian model as *reinforcing* Smith’s support of the invisible hand. Hence the dismissal of Hayek’s argument, I believe, was partially a case of intentional disregard, as well as misunderstanding. For example, Hayek’s 1935 assemblage of historical and contemporary essays on the efficacy of a planned economy prompted two reviews, both in the UK, and both unsympathetic. Maurice Dobb, a leading Marxist, used his review in *The Economic Journal* (September 1935) to explain the feasibility and advantages of central planning. The reviewer in *Economica* (August 1935) was also critical of Hayek, arguing that nothing in economic theory suggests that free markets provide an output mix superior to what could be devised by planners. No appraisal of Hayek’s book appeared in the *American Economic Review*, *Journal of Political Economy*, or *Quarterly Journal of Economics*. The mainstream’s general lack of interest in Hayek’s arguments was again revealed when the *American Economic Review* published his use-of-knowledge article in 1945. Not a single reply was forthcoming. But the profession’s silent reaction was consistent with its new methodological goals. Hayek’s strain of analysis was tied, not to the market’s equilibrium state of affairs, but rather to its process, which, unfortunately, no longer had a role in the study of economics: ‘[T]he problems of collectivism are not problems of economic theory, but political problems, and... the economic theorist, as such, has...nothing to say about them’ (Knight 1936:254, 264).

Through benign neglect the new leadership sidelined Hayek’s pursuit of an idea that was antithetical to the neoclassical interpretation of how a market performs its magic. Coming to grips

with Hayek's critique would have required a contentious discussion over the role of public versus private ownership in harnessing the disparate nature of formal and tacit knowledge in society, a *passé* topic that was outside the politically-neutral playing field on which neoclassical economics had elected to practice its craft, and hence an unwelcome detour for a discipline that was fortifying its scientific credentials.

WHENCE TECHNOLOGY?

[P]rogress...[is] dependent in part on a process of trial and error....

(Young 1928:534)

Scientific research is considered exogenous in the neoclassical model used by Lange. Prior to, say, 1700, science was certainly exogenous; however, modern capitalism introduced a huge dose of endogeneity. From the eighteenth century onward, technological breakthroughs were spawned by 'the challenge to overcome frustrations in workmanship, raw materials, implements, and labourers, [a challenge that] had become an excitement to the inventive genius on the one hand and to the business spirit on the other' (Koebner: 388).

A close look at the trail of technology and pure science in recent times has undermined the conventional notion of exogeneity. An entrepreneur's belief that research in a specific area is likely to pay big dividends is usually derived from a recent successful trial that was engineered without a clear idea of whether or not it would work. If the new method works, *then* curious theoreticians launch a quest to fully illuminate *why* it worked (or why it failed, whatever the case may be). The process of finding why it works will also precipitate a string of applied investigations to capture further advantages from the initial trial breakthrough. Therefore, the market has transformed much of pure science into an endogenous activity. According to Rosenberg, 'the stereotypical view of the temporal priority of basic [abstract] research'—that it precedes commercial applications by many years, as in the US space programme—is misleading. What really happens in most instances is that the 'lucky' initial entrepreneurial change in method or raw materials—whose implementation had been based on an intuitive 'gut feel' anchored in the principles of mechanical/chemical

engineering (without an understanding of the underlying science)—ignites a round of pure theoretical research which, in turn, yields a series of new applied developments. Consequently, a technological breakthrough usually marks the beginning of R&D in an area, not its culmination (Rosenberg 1986:141–59).

ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT

Only if we understand why and how certain kinds of economic controls tend to paralyze the driving forces of a free society...can we hope that social experimentation will not lead us into situations none of us want.

(Hayek 1976:viii)

Valuable basic research on the specific roles of entrepreneurs in various Third-World societies has continued to the present day. (See, for instance, the contemporary case studies in Brigitte Berger 1991, and in Chickering and Salahdine 1991, as well as the enumeration of the work from the 1960s and 1970s in Leff: 52). Moreover, the 1940s and 1950s were marked by an active interest among economists as well as other social scientists in the retarding impact of the apparent dearth in Third-World entrepreneurial skills. However, the earlier focus on entrepreneurship as an indispensable factor of production waned as many Third-World nations posted healthy gains in Gross Domestic Product during the 1950s and 1960s (Leff: 49–50). The private and public bureaucratization of the entrepreneurial function—as explained in Schumpeter (1976:132–3) and in the ‘corporate-technostructure’ theme of Galbraith (1967:70–1 and 1973:82)—came to be an accepted explanation of the sufficient elasticity of entrepreneurial supply during the era of sustained postwar expansion. In addition, the new economic historians demonstrated that people in the Third World have reacted rationally to relative prices. Consequently, an entrepreneurless perspective of routinized market mechanisms rose to prominence and thereby helped to shift the analytical emphasis toward ‘structural macroeconomic conditions...’ (Leff: 50–3). This was unfortunate, for it reinforced the dominant Walrasian perspective, in which ‘technological advance [is] seen as occurring in an inexorably impersonal manner[,]...[with] no suggestion that the set of opportunities likely to be in fact discovered *might in some*

way depend on the institutional framework within which growth was sought (Kirzner 1985:70; italics added).

[T]he problem of entrepreneurship in development has been significantly redefined: the concern...is now that some people have performed *too well* as entrepreneurs' (Leff: 51). The grinding poverty of the bottom quartile, when contrasted with the highly visible gains at the top, has aroused resentment among the former; more importantly, the rewards flowing from the entrepreneurial initiatives that create new wealth have been invidiously portrayed, in insidious Marxian fashion, as coming at the expense of the working classes. The resultant hostility has fuelled harsh recriminations against Third-World entrepreneurs, who usually are members of minority groups, but who rarely receive the attention of First-World watchdog agencies on human rights (see the list of victims in Leff: 50–1 and 56). At a minimum, the complaints of 'social imbalances' (Leff: 60) have unleashed the threat of confiscatory tax measures which institutionalize the corrosive effects of envy (see the unique and highly pertinent treatment in Schock: 46–64, 303–15, 323–60). The long-term deleterious impact of such policies is almost never addressed in development texts. In fact, Myrdal has virtually endorsed the sanctions taken against minority-class entrepreneurs, as discussed in Bauer 1972:194–8. The dominant implicit opinion seems to be that entrepreneurship and hence growth will be unaffected by such measures; as Leff has explained, imaginative effort has come to be seen as a group activity whose accomplishment is perceived as part of the immutable mechanics of corporate life. Hence 'social justice'—interpreted as the reduction of inequality of end results, *regardless of the lack of privilege in the rules governing productive activity*—is seen as a costless objective that can and should be pursued via a redistributive tax system.

The 'given' nature of the societal decisions on what to produce and how to produce in neoclassical theory, combined with a de facto equating of unequal as inequitable, have contributed to the pro-planning bias in the literature of economic development, a not-so-subtle bias that continues to dominate the standard treatments. The second edition of one widely-used text, for example, (by Malcolm Gillis, Dwight Perkins, Michael Roemer, and Donald Snodgrass), discussed the recent resurgence of pro-market opinions in the Third World, but, overall, national planning was portrayed as a valuable tool that simply needs sharpening to improve its

usefulness. No counter-arguments were included to explain how the disparate nature of society's collective knowledge militates against the effectiveness of a from-the-top direction of resources. Gillis *et al.* conceded that planners frequently promote exotic industries whose capital-intensive production functions are ill-suited to the Third World; moreover, in areas where the intensive use of labour is practical, the authors noted that the price distortions created by public-sector controls act to discourage an optional factor mix. Their conclusion: 'by and large the record [of planned economies] is poor'. Nonetheless, the surprising recommendation offered in their second edition was that '[t]his should not...deter countries from continuing to plan'. The authors' bottom-line summary was that bureaucratic infighting, shortcomings in data collection, insufficient econometric forecasting, and untrained, uncommitted civil servants combine to undermine the planners' worthwhile objectives (Gillis *et al.* 1987:102–20, 197–203, 554–7). The idea that central planning may be inherently harmful was simply not addressed. The Walrasian view of knowledge, not the Hayekian, completely shaped the discussion.

In another leading text (by Michael Todaro), the coverage is very similar to the approach in Gillis *et al.* On balance, Todaro's fourth edition (1989) views 'free-market mania' sceptically; the existence in developing countries of numerous deviations from perfectly competitive norms ('market failures') justifies substantial public intervention to offset their utility-reducing impact (Todaro: 503–36). One of Todaro's key arguments in support of planning (and against a loosening of restrictions on the private sector) is the inapplicability of the perfect-information postulate within Third-World economies; that is, uncertainty on the part of buyers and sellers is cited, ironically, as '[p]erhaps the most important reason' that developing nations should *not* enlarge their reliance on the market's discovery process. Thus the neoclassical framework has produced a pro-planning (information-consolidating) conclusion that is logically consistent with the perfect-information postulate of its main model, yet this conclusion—that the government should restrict those agents whose 'monopolistic' actions ameliorate society's ignorance—is inimical to *development!*

The Third World's 'suspicion of the market', based on a belief that 'private producers were too myopic...or too uninformed', has led to an 'all-pervasive and detailed' intrusion by the state into

every aspect of the economy (see the enumeration in Krueger: 7–8, 29–37). Instead of enlarging the freedom of entrepreneurs to accelerate the quest for new knowledge on production methods and consumers' preferences, it is usually suggested that the government should continue 'to intervene...by guiding producers and consumers' (Todaro: 533). Rarely is it acknowledged that a *dirigiste* policy—by worsening the information problem via constraints on entrepreneurial initiative—ineluctably creates long-term 'bureaucratic failures' whose dynamic social burden overwhelms the static gains from correcting 'market failures', thereby inhibiting rather than promoting the task of development (Lal: 10–16). By essentially assuming away the inertia-induced costs of government intervention, it has appeared that net social benefits can be derived from the presumed rifle-like precision of wise, state-directed reallocations aimed at reducing market failures. This naiveté was a product of the Walrasian era. Classical liberal thinkers entertained no such illusions, as evidenced by the remarks of Justice Oliver Wendell Holmes over a century ago: '[T]he prevailing view is that [the government's] *cumbrous and expensive machinery* ought not to be set in motion unless some clear benefit is derived.... State interference is an evil, where it cannot be shown to be a good' (Holmes: 77; italics added).

The third edition of Gillis *et al.* has addressed the cost of bureaucratic failure and fully describes the free-market reforms that are needed (1992:109–28). This is an encouraging addition, for, according to econometric studies by the World Bank and independent scholars, price distortions 'have had strongly deterrent effects' on Third-World growth: the worse the distortions, the slower the growth¹ (Singh: 83–4, 94; and Krueger: 46, 52–3). Furthermore, the output losses streaming from the haemorrhagic inefficiencies of state-owned enterprises is staggering. In Turkey, for example, government-run firms employed 'more than three times as much capital and about four times as much labor per unit of output as private firms...'. India's picture is much the same. Through the 1980s, the public sector owned 62 per cent of the capital, yet accounted for only 30 per cent of the value added in manufacturing, while private firms, who held just under one-third of India's capital, accounted for over two-thirds of its value added in manufacturing (Krueger: 25). The high *social cost* of parastatals was unable to stem their appeal, for state-owned enterprises yield the sweetest *private* cream to those who can attach themselves to

the publicudder: 'they provide employment sinecures for politically well-connected workers, while their ability to allocate electric power and transport facilities gives political and bureaucratic figures [monopolistic] control of strategic inputs' (Rosen: 39). The booty squeezed from the real production of others—through bribery, premia on foreign exchange, and monopolistic advantages via import licences and exclusive government control over strategic inputs—was estimated to be 20 per cent of GNP in Ghana in the early 1980s. Krueger, who coined the term 'rent-seeking' to describe such activities, estimated these transfers at 15 per cent of GNP in Turkey in 1968 and 7 per cent of GNP in India in 1964. A 1984 update (by Mohammad and Whalley) raised by fivefold the estimate for India (all reported in Ampofo-Juffuor *et al.*: 537, 539, 541). Of course, the deadweight burden of rent-seeking also afflicts developed economies (see the discussion and diagram in Carlton and Perloff: 101, 107).

The proliferation of state-owned enterprises between 1960 and 1980—from roughly one hundred to four hundred each in Brazil, Mexico, and Tanzania, for example—was rooted in a spurious notion fuelled by the Walrasian model, namely, 'that there was little to distinguish between private and public ownership...' (Krueger: 23–5, including fn. 29). In this vein, Krueger cited the work of Jan Tinbergen, a Nobel Prize-winning pioneer of development theory. In his retrospective statement, written in 1983, Tinbergen did not waver from his support of the ownership-indifference approach. He unequivocally reaffirmed the conventional view by explaining that a society's what-to-produce and how-to-produce decisions can be well executed by a government composed of able managers who gather cost/benefit data and conduct present-value 'project appraisals' (Tinbergen: 319–22, 326). Thus the intellectual affirmation of Third-World development policies is directly rooted in the Walrasian conception of the market through the professions' acceptance of the plausibility of Lange's model. The worst part of all this is that the output sacrificed via price distortions, together with the resources wasted by state-owned firms, have starved Third-World tax bases of the revenues needed to fund the legitimate governmental legs of development, such as water, sewers, roads, a reliable mail system, and primary education. Attention has been lavished 'on the operation of parastatal enterprises, and controlling private sector activity', yet there has been a chronic 'failure in the delivery of essential infrastructure in ways that...raised costs for

those who did attempt to produce goods and services' (Krueger: 19–23).

At a conference of the National Bureau of Economic Research in 1954, leading mainstream figures readily conceded that the welfare conclusions drawn from neoclassical (equilibrium) models are inapplicable to the analysis of dynamic scenarios, such as the sphere of economic development (Stigler 1955a:7; J.Miller: 131, 135–6; and Bain: 139). But the textbook treatments and Ph.D. qualifying examinations in micro theory have continued to create the opposite impression. Through one-point-in-time measures of consumer versus producer surpluses, *and more so through the idea that the basis of ownership is irrelevant to the model's outcome*, successive generations of postwar economists have been taught to see the world as Walras had seen it, the most damaging manifestation of which is the pro-planning bias throughout the literature of development. Moreover, despite the admonishments of the new thinkers on development (described in Rosen: 37), my impression is that most development specialists have remained averse to market solutions. Their hearts still favour the views which dominated the field at the end of the colonial era, namely, 'that government intervention, public provision, inward orientation and economic planning all enhance a country's development'. (Greenway and Morrisey: 241). As late as 1971, for example, Paul Streeton rejected a stream of studies which had linked successful Third-World growth to free trade. Streeton went so far as to deride this research as part of 'the literature of pamphle-teering...' (Edwards: 1361–3, 1371–3). A more recent study on taxes and development is also illustrative. The authors built a case for a high-profile government sector financed by substantial taxation, and predictably dismissed the 'resort to "government failure" arguments to justify minimal state activity...' (Burgess and Stern: 764–65). It seems, therefore, that in this field, hands-on policy change will precede classroom theory; in other words, the 'fundamental transformation of economic policies' that 'still is necessary' in many Third-World countries (Krueger: 4) will outpace the fundamental transformation in perspective required of most of those who teach students how to think about development.

The preponderant record of failure of planned economies is usually counterbalanced in development texts by references to exceptionally prosperous countries like South Korea and Taiwan, which have centrally-directed industrial policies (Gillis *et al.*

1987:119; and Todaro: 534). Rarely is reference also made to the alternative explanatory scenario, namely, that the Pacific tigers have succeeded 'despite industrial policy, not because of it' (Gardner: 207; and Lawrence: 5). The Asian success stories are more likely rooted in the overwhelming dominance of their competitive institutions, and not in the relatively minor role played by the tax breaks and interest subsidies that induce private investment into areas targeted by government planners, such as those promulgated by Japan's powerful Ministry of International Trade and Industry (MITI). For example, 'some of Japan's most prosperous companies, including Sony and Honda, were picked as losers by MITI, while a number of sectors, including the bicycle and motorcycle industries, have blossomed without governmental aid' (Gardner: 207). The most recent example is the MITI-directed wrong turn taken by Japanese firms in the development of high-definition television (Beltz: 22-7). For additional accounts of specific serious errors by MITI, see Buckley: 19; Dixit: 182-3; Goto: 2181; and Schlesinger *et al.*: A10.

A multi-industry study of MITI's long-term effectiveness by two Harvard economists has concluded that MITI picked both winners and losers, but, based on the overall evidence, Japanese industrial policy yielded a net minus. (See the study's profile in *The Economist*, 26 February 1994, p. 69). Remarkable was a statement by MITI's director in 1994, Hiroshi Kumagi, who expressed the new, anti-central planning sentiment in the Japanese government: '[We must] try to provide an environment conducive to entrepreneurship and innovation' (Schlesinger *et al.*: A10). (See also **p. 95.) Yet, incredibly, President Clinton is attempting to move the United States toward the discredited policy of the Japanese. The new US National Institute of Standards and Technology (formerly the Bureau of Standards) 'is slated for one of the steepest increases in the federal budget, an 80% jump...'. The mission of this new agency is to copy the Japanese by being a 'power broker' on new technology: 'it is deciding which technologies the federal government should [support]...'. Hence the state, not the competitive process, will henceforth identify those 'critical' breakthroughs which deserve to leap ahead of others via tax-financed subsidies (Davis: A1). Clinton economic advisors Laura Tyson and Allen Blinder believe the USA needs to direct more of its economic development from Washington (see their quotations on industrial policy in Buckley: 18). And Labor Secretary Charles Reich, whose ideas are particularly influential in

the White House, wrote that the ‘pre-existing selfish preferences’ of individuals should not be allowed to outweigh ‘what is good for the country’ (in Gitlitz: 45). An alarmed Paul Krugman, meanwhile, has warned against forging a ‘new partnership between government and business’ for the purpose of guiding ‘extravagant (and misguided) investments to enhance national competitiveness’ (Krugman 1994:109).

In the 1950s and 1960s, Japanese entrepreneurs consistently exceeded the goals established in national plans. This performance strengthened the Japanese advocates of planning, who began to argue that competition between firms—spurred by the desire to beat the plan’s targets—had been largely responsible for Japan’s rapid recovery from World War II. However, in 1964 a Japanese professor of economics dismissed this explanation as an ‘excessive exaggeration’ of the effects of planning. The ‘unprecedented upsurge’ of Japan was due not to the parallel presence of industrial planning, but rather was rooted in the Japanese economy’s ‘vitality within itself, namely the ‘abundance, education, and assiduity’ of its workforce, and its people’s unusual willingness to postpone present gratifications, which fuelled the free-world’s highest rates of saving and investment (Shinohara: 170). Rarely (if ever) are such contrary views found in development texts.

A more striking, present-day example from Asia is the ‘Tale of Two Cities’, written by Alwyn Young and published in the 1992 *Macroeconomic Annual* of the National Bureau of Economic Research. Young studied two city-states, Hong Kong and Singapore, whose sociopolitical climates are very hospitable to unregulated prices, contract law, etc. Singapore, however, has pursued an activist industrial policy fuelled by significant levels of savings ‘deposited’ via high taxes. As a result, Singapore’s investment (as a percentage of national income) has been *twice* the ratio in Hong Kong for two decades, yet Singapore’s growth rate has *not* exceeded that of Hong Kong. In other words, as Barro has explained, ‘Singapore’s forced saving and industrial targeting have been mistakes’. Young’s comparative data illustrate that ‘Singapore’s prosperity in terms of production has not been translated nearly as much as Hong Kong’s into high levels of consumption...’ (Barro: A16). A similar comparative case can be made for Korea and Chile, whose ‘take offs’ can be traced to liberalizations undertaken, post 1963 in Korea, and post 1978 in Chile (Edwards: 1373–6).

The disadvantages incurred by arrogantly attempting to direct resources centrally—when society's knowledge is totally decentralized—are seldom explained (much less emphasized), in the literature of development. For instance, Gillis *et al.* have noted that most planned economies deliberately 'favor poorer majorities over entrepreneurially accomplished minorities' (1987:102); however, no analysis was provided of the indispensable role of entrepreneurs in identifying historically appropriate technologies of production and in reconciling consumers' conflicting wants within the constraints faced. These tasks, when accomplished by planners, satisfy egalitarian instincts, but only at the cost of retarding the alleviation of general poverty (via inhibited growth). The treatment in the Gillis and Todaro texts is typical for the field. In the study of development, whose heart is dynamics, it is particularly regrettable that, in general, the texts contain no chapter dedicated to fully elaborating and contrasting the idea of spontaneous order with its antithesis, order by design, together with the closely related role of the entrepreneur and the network of ancillary institutions required to facilitate 'anonymous, impersonal exchange across time and space' (North 1994:363, 365).

Two development texts which do describe the innovation and coordination roles of the entrepreneur (but not his institutional milieu) are E.Hagen: 236–40, and Nafziger: 282–6; however, the division-of-knowledge tar baby faced by non-market regimes is not explicitly addressed. As a result, most students of development remain unaware of the essence of Hayek's critique. Since their thinking is moulded within the confines of the Walrasian model, the Hayekian-inspired alternative vision, within which the entrepreneur's coordinating antennae are society's eyes and ears, is foreign to them. The entrepreneur thus remains someone who 'takes advantage' of people's ignorance, an exploitative practice that will disappear in a system in which the state ensures that everyone is equally informed. This unfortunate state of pedagogic affairs is not due to intentional omissions, nor to unintentional oversights, nor primarily to ideology (though the latter, lurking in most economic writings, is more pronounced in development than in other branches of the discipline). The cursory treatment of the entrepreneur and the virtual absence of the division-of-knowledge problem, in development survey texts as elsewhere in the mainstream literature, is largely due to the influence of our equilibrium paradigm—in whose absence we would be analytically

impoverished as predictive scientists—but which implants a vision that inextricably links societal welfare to the conditions that define perfect competition. Consequently, deviations from the Walrasian exemplar invite the advocacy of compensatory actions by the state.

The shallow treatments of entrepreneurship in most development texts is especially unfortunate, on two counts. First, entrepreneurship, unlike other natural resources, *is costless*. Second, the failure to exploit its unique ability to create an awareness of improved allocations serves to seriously constrain growth in the Third World:

In the case of entrepreneurial alertness,...a decision-maker never considers whether to apply some given potential alertness to the discovery of opportunity A *or* opportunity B.... To recognize that opportunity A exists need not preclude simultaneously recognizing that opportunity B exists.

* * * *

That in the real world we encounter innumerable instances of faulty and inadequate entrepreneurship must be interpreted, therefore, not as evidence of the absolute scarcity of entrepreneurial alertness (with the existing stock of it having been applied elsewhere), but as evidence that *the alertness costlessly available has somehow remained latent and untapped*. The central question then looms even more significantly than ever: What institutional frameworks are best suited to tap the reservoir of entrepreneurial alertness which is certainly present—in potentially inexhaustible supply—among the members of society?

(Kirzner 1985:24–5; italics added)

Baumol has added that circumscribing traditional entrepreneurial initiative with taxes and an army of regulatory disincentives does not eliminate entrepreneurship. Instead, such hostility has served historically to drive entrepreneurs from mainstream commercial activities into criminal pursuits or political rent-seeking, thereby depriving domestic firms of the alertness skills they so desperately need to deploy their resources efficiently (Baumol 1990:894, 899–903, 907, 909; also, see the comment on insider trading by publicsector fiduciaries in ancient China, in Spengler 1964:237). The direction of entrepreneurial leadership into activities of predation versus production is determined by the institutional framework: If it

‘rewards piracy then piratical organizations will come into existence; and if the institutional framework rewards productive activities then organizations—firms—will come into existence...’ (North 1994:361). A recent study has concluded that the persistence of underdevelopment in most cases ‘can be explained by the misallocation of entrepreneurial resources to activities that do not foster growth’, such as rent-seeking and the forecasting of future inflation levels. Therefore, the development literature should radically redirect its emphasis from the ‘representative agent-social planner framework’ to the ‘central role [of] political institutions and entrepreneurs’ (Sturzenegger and Tommasi: 236).

PERFECT COMPETITION AND CENTRAL PLANNING

[I]t was not the *possibility* of planning as such which has been questioned..., but the possibility of *successful* planning....
(Hayek 1935:203; italics added)

The advocate of a free-market economy is not against planning, per se. ‘The question is whether...it is better that the holder of coercive power [government] should confine himself in general to creating conditions under which the knowledge and initiative of individuals are given the best scope so that *they* can plan most successfully; or whether a rational utilization of our resources requires *central* direction and organization of all our activities according to some consciously constructed “blueprint”’ (Hayek 1976:35). From this perspective, government planning, in the main, is objectionable because it is simply ‘a preemption of other people’s plans’ (Sowell 1992:63). Hayek believed that the opportunity cost of central planning was unacceptably high, hence he vigorously opposed it. The mainstream, however, had come to see a potential functional efficiency equivalence between capitalism and socialism:

Can Socialism work? Of course it can.... [F]uture generations of economists will look upon arguments about the inferiority of the socialist plan as we look upon Adam Smith’s arguments about the joint-stock companies.

I do not advocate socialism.... All I wish to emphasize is... that it is possible...to develop and regulate capitalist institutions as

to condition the working of private enterprise in a manner that differs but little from genuinely socialist planning.
(Schumpeter 1976 [1942]:167, 196; and 1950:447, 449–50)

In the passages quoted immediately above, Schumpeter was assessing the *theoretic model* of socialism expounded by his former student, Oskar Lange, with whom he had worked closely. From a speech given by Schumpeter a week before his death, we know that his 1942 interpretation of socialism as the ‘heir apparent’ of Western capitalism (1976:61) was based on the gradual emergence of a *de facto* socialist reality in which the government would exercise broad control over what to produce, how to produce, and, most importantly, over distribution via an ‘indefinite extension of the sphere of wants that are...to be satisfied by public enterprise, either gratis or on some post-office principle...’. Schumpeter carefully explained that a state-managed, slow-growth, ‘*labourist capitalism*...may survive indefinitely’, but he said that such a system could not serve as a refutation of his central thesis (of the demise of a vibrant free-market economy in the United States). *Real capitalism*, said Schumpeter, ‘means a scheme of values, an attitude toward life, ...the civilization of inequality...[which] is rapidly passing away ...’ (Schumpeter 1950:447–9). In short, the increasing design role of the visible hand of the state means the inexorable crippling of the invisible hand of Adam Smith’s spontaneous order, through which the commercial affairs of ‘a great society’ (not ‘*The Great Society*’) are orchestrated (Smith 1937:421). Although Schumpeter believed that socialism could work, he did not welcome its ascent. In short, he was ‘resigned to the necessity of taking medicine he didn’t like’ (James Tobin, in März: xiii). Schumpeter revealed his belief that the historical life-essence of the American system was being slowly drained dry by the continuous losses from a thousand intrusive paper cuts:

We need not accept [Alvin Hansen’s underconsumption] stagnation thesis [of 1938]...to be disturbed by the possibility that [stagnation may ensue] after all if the private-enterprise system is *permanently* burdened and ‘regulated’ beyond its powers of endurance. In this case, an outright socialist solution may impose itself...as the lesser evil.

(Schumpeter 1950:450)²

The market has never been ideally favoured by economists and

philosophers, even in the classical age. J.S. Mill, for instance, longed for an unspecified but improved system. Gradually, however, the market earned widespread political acceptance, though the support of intellectuals was often reluctant due to perceived distributional inequities. The market was tolerated by most, but only a minority embraced and defended it as the best alternative of all known or thus-far proposed arrangements. After Walras, theoretical disaffection grew. The market increasingly came to be seen as a highly workable system for generating the growth and allocative efficiency otherwise attainable only through a dream-team marriage of central planning and an as-yet unachievable omniscience on preferences, production functions, externalities, and the optimal path for savings and investment. With error eliminated via the Walrasian model's perfect foresight, welfare maximization was demonstrable through mathematically calculable, utility-maximizing bundles of consumer goods, produced by output-maximizing combinations of inputs. It was against the pro-planning spirit invited by such mental constructs that Dostoyevsky took aim in his essay, *Notes From the Underground*:

What [man] wants to preserve is precisely his noxious fancies and vulgar trivialities, if only to assure himself that men are still men and not piano keys....

For instance, he'd swear loud enough for the whole world to hear[,]...and maybe his swearing alone would get him what he wanted, that is, it'd prove to him that he's a man and not a piano key.

Now, you may say that this too can be calculated in advance and entered on the timetable—chaos, swearing, and all—and that the very possibility of such a calculation would prevent it, so that sanity would prevail. Oh no! In that case man would go insane on purpose, just to be immune from reason....

And, since this is so, I cannot help rejoicing that things are still the way they are and that, for the time being, nobody knows worth a damn what determines our devices....

What I'm for is whim, and I want the right to use it whenever I want to.

(Dostoyevsky: 114–15, 118)³

What Dostoyevsky feared was the threat to freedom augured by a system's promise to improve resource allocation via perfect, centralized knowledge of its parameters. Foreknowledge means that mistakes are impossible. But the elimination of error also means the elimination of genuine choice, which is the essence of the human soul. If I *already know* the consequences of each available course of action open to me, then the ultimate path is, in effect, given, not chosen. To choose means to weigh the expected yet unknown consequences of one's options. If I'm certain, in advance, that the utility to be derived from candy bar Alpha is higher than the utility obtainable from the equally-priced alternative, candy bar Beta, then no discriminatory judgment, no careful weighing, is required. Hence the act of will—known as choice—is not required, for Alpha becomes the predestined candy to be consumed (Kirzner 1992:52; and Hayakawa: 89).

Pro-market theorists have argued effectively that Dostoyevsky had nothing to fear from the pedagogical triumph of perfect competition and mathematical economics. As Demsetz has explained, the 'true function' of the model of perfect competition is to facilitate understanding of a decentralized economy; that is, since perfectly competitive producers respond solely to dollar votes, the resultant decision-making matrix 'deprives authority of any role in the allocative process'. Therefore, from the perspective of a microeconomist, 'the perfect competition model is a powerful tool for demonstrating the rationality of allocative outcomes in the absence of central planning' (Demsetz 1992:209; and Scropanti and Zamagni: 372). Yet, ironically, the perfect competition model has also been featured as the genotype upon which central planning agencies (who prize the efficiency of equilibrium prices) must base the *execution* of their what-to-produce decisions. That is, consumers would presumably select from the broad menu initially offered, and the resultant profit/loss levels would guide future production adjustments by planning boards. According to Jaffé, it was the centralized perspective of Walras' system that was the source of Lange's inspiration:

Lange insisted...that precisely because the [Walrasian] equilibrium model...is devoid of any specification of the institutional framework, precisely because it consists in nothing more than a pure theory of exchange,...positing only a freely competitive market of the atomistic variety,...this sort

of model provides a scientific base for understanding the day-to-day mechanics of any economy, be it a capitalist economist or a socialist economy, provided, of course, that in these economies freedom of choice in consumption and in occupation is preserved.... Lange [himself] concluded, with the general equilibrium theory in mind, that ‘...in providing a scientific basis for the current administration of the capitalist economy, “bourgeois” economics had developed a theory of equilibrium which can also serve as a basis for the current administration of a socialist economy.’

(Jaffé 1983:281)

The model of perfect competition provided the foundation, not only for socialists with left-wing (redistributionist) ideologies, but also for those who prized social stability, such as the National Socialists on the fascist right in Germany. Heinrich von Stackelberg, for instance, concluded that the existence of asymmetric information, and the incessant search by oligopolistic firms to overcome same, leads to perpetual disequilibrium without an assured benefit to society (Konow: 154–6). ‘The solution to this instability, according to Stackelberg, was...the creation and regulation of compulsory cartels...by a strong state’ (Konow: 159). The regulatory policies of the liberal Western democracies, said Stackelberg, were fragmented by the need to achieve parliamentary compromises. What is needed, argued Stackelberg, is a *fully* coordinated intervention from the top. Such a system, he wrote, ‘leads in principle to the same result as perfect competition’. On this point he sounded the same as Lange: ‘The actual deviations of the corporate-state equilibrium from its ideal should not...be assessed any differently from the actual deviations in the past of the...free capitalist economy from [its] theoretical ideal’ (Stackelberg, in Konow: 159).

PLANTING THE SEEDS

The impact of the Walrasian system on the profession’s approach to development can be seen taking shape in the thoughts of three influential economists who helped to father the equilibrium paradigm. All three (Pareto, Barone, and Knight) were politically opposed to traditional socialism, but their technical contributions implanted a pro-planning bias in the as-yet unnamed field of economic development. Vilfredo Pareto, who later fathered the

planned economy of Mussolini's Italy, wrote in 1897, for example, that the new, ideology-free tools of mathematical economics had demonstrated that effective planning could be accomplished by employing the perfectly competitive outcomes of the Walrasian system. He believed that a perfectly-informed socialist regime could attain the market's allocative efficiencies by cloning its technical relations:

Professor Walras' great contribution to economic discussion was his discovery of a general system of equations to express the economic equilibrium. I cannot, for my part, sufficiently admire this portion of his work....

* * * *

Science does not attempt to establish any particular method of economic organization, and it is not the business of science to do so. Science does, however, attempt to solve problems of the following kind: (1). What are the effects of a regime of free competition? (2). What are those of a regime of monopoly? (3). Those of a collectivist regime? All these questions must, of course, be treated, not from a polemical point of view, but solely for the purpose of ascertaining what results would follow upon their installation....

[W]e have been able vigorously to prove that the coefficients of production are determined by the entrepreneurs in a regime of free competition precisely in the same way as a socialist government would have to fix them if it wanted to realize a maximum of [utility] for its subjects.

(Pareto 1897:499)

Pareto cautioned that our virtual inability to solve higher-order matrices meant that the Walrasian system of simultaneous equations cannot actually be employed by real-world planners to calculate equilibrium values (Pareto 1897:500). After the advent of the modern computer, Lange and his supporters contended that the revolution in microelectronics will someday compensate for the computational limitations of manual human methods, a view that has retained its credibility due to the centralized-knowledge perspective fostered by mainstream theory. (For an endorsement of Lange's computer vision, see Arrow 1974:5). Pareto, writing at the turn of the century, could not imagine the computer age. He believed, as Walras had erringly believed, that the equilibrium vector

generated by the market is identical to the solution of Walras' mathematical rendering, in which disequilibrium transactions were disallowed. So although Pareto had concluded that the solution set to Walras' system of simultaneous equations could never be obtained algebraically, he saw this fact as unimportant because he believed that the market did all the mathematical grinding for us. Pareto, therefore, reinforced the idea that the market is really just an elaborate calculating machine that yields the same values as Walras' equations. For him, the rules of economic theory are simply the inverse of the portrayal in the Walrasian model:

[I]t would not be mathematics which would assist political economy, but political economy [which] would assist mathematics. In other words, if one could know all these equations, the only means to solve them which is available to human powers is to observe the practical solution given by the market.

(Pareto, in Hayek 1940:125–6)

Pareto's bottom line represented the new thinking that was about to overtake every branch of the discipline. To him, the process insights of the classical economists, particularly the role of entrepreneurial alertness, apparently were no longer to be part of the study of economics. Only the mathematical cross-relations of the functions that describe the behavioural reaction patterns of perfect-knowledge agents were to be of interest:

Is it not a most remarkable fact that a system of equations should thus be able to express not only the general character of economic phenomena, *but every single detail as far as we may have any knowledge of them*. The entire body of economic theory *is henceforth bound together in this way* and knitted into an integral whole.

(Pareto 1897:492; italics added)⁴

The second of our triumvirate of equilibrium pioneers is Enrico Barone, whose sophisticated 1908 Walrasian model of a collectivized society was resurrected by Lange in the 1930s (see the short essay on Barone's model in Blaug 1986b: 11–12). Barone, like Pareto, was personally opposed to socialism, but his analysis encouraged the appealing ahistorical notion, directly rooted in Walras (78–80 and 257),⁵ that the basis of ownership was irrelevant to the achievement of static efficiency:

In the consideration of production in a collectivist State there are two questions entirely distinct from each other. The first is: Will it be beneficial for some of the capital to become collective property and for production to be socialized? The second is this: How, in a collectivist regime, ought production to be directed? *One can discuss the second question quite independently of the answer one gives to the first.*

(Barone, in Hayek 1935:235; italics added by present writer)

Frank Knight's perspective reinforced the position established by Pareto and Barone: 'the free market...would...have to be employed by any socialistic state...as the only feasible method of administering a large scale organization'. In the free market to which he is referring, '[p]erfect competition must exist'; that is, there must be 'no 'bargaining'...' (Knight 1947:200–1). It is interesting to note that, seven months *ahead* of Lange, Knight published an article whose analysis was completely couched in Langean terms:

[T]he theory of marginalism...would no[t]...be changed by the replacement of [capitalism] by [socialism]....

The bare fact of substitution of a collectivistic for a competitive-individualistic form of organization does not logically or necessarily imply any particular change...in the empirical course of social-economic life. Anything that can happen under one organization[al] form could happen under [the] other, without violating any known law of...human nature ...[or] logic.

In addition, there are several fundamental respects in which the problems of a collectivist economy would be enormously simplified in comparison with those of a system based on private property[,]...[such as the problem of] monopoly, including advertising....

(Knight 1936:256, 257, 263)

As a final, more contemporary illustration, consider that Peter Wiles directly applied the implications of the Walrasian model to claim, in 1977, that central planning is not only feasible but is desirable; that is, Wiles believed that the rationally compelling nature of Lange's model foreshadowed the eventual worldwide triumph of market socialism:

THE MAGNETIC LURE OF MARKET SOCIALISM

Perfect competition sheds a flood of light on the Soviet-type economy. The perfectly competitive market is a highly organized, expensive and artificial institution, somewhat comparable to a planning office.... [P]erfect competition is the most centralized allocation system in the world, except for the crucial production decision.

* * * *

[U]nder perfect computation all...information would be equally available. There is now only one entrepreneur: the computer. All...substitutions are proposed to him alone (the actual initiatives must mainly still come from people), and he decides between them on a simulated perfect market. Could it happen, such a thing would be a great improvement of the many imperfect markets, and capitalism would surely die. However there are many technical reasons [related to the collection, storage, and analysis of preference and cost data] why this will not happen soon, though I personally feel it is only a matter of time [before computers can turn Lange's vision into a reality].

(Wiles: 278)

Neoclassical analysis inspired a new frame of mind, one that was inhospitable to the classicals' adherence to the mathematically unverifiable proposition that government control over resources, *in general*, was necessarily harmful because it suffocates the entrepreneurial initiatives that constitute the heart of the market's process of discovery (see Mill 1987:182, 183, 187, as quoted above in Chapter 2). In the Walrasian model, preferences are given; consequently, there is no need for a discovery process and the *classical* concept of the market ceased to have any meaning. Thereafter, the nineteenth-century liberalism inspired by the Scottish Enlightenment found itself on the defensive. Under the new view, the model of perfect competition demonstrated how an economy should ideally function, and the Walrasian model with perfect foresight ends up as practically identical to the image of a planned economy (Ingrao and Israel: 230). In other words, the real-world market, hamstrung by incomplete information and other 'imperfections', became the second-best alternative. As Joan Robinson explained in 1935, 'An all-wise dictator, to whom every utility function was known, could increase the social benefit

derived from given resources by revising the constitution of the set of commodities produced under perfectly laissez-faire conditions' (J.Robinson 1966:50).

A central-planning application of Walras' model appeared early. In 1929, Harold Hotelling explained that new entrants selling a homogeneous commodity will position themselves close to their competitors to avoid the disadvantage imposed by higher delivery costs. Hotelling demonstrated mathematically that this decision was socially sub-optimal because it resulted in higher total delivery fees to consumers than would be the case if firms were distanced from each other based on population density. He suggested that central planning of locations could eliminate the tendency 'to cluster unduly' and thereby minimize total delivery costs, a benefit unavailable from the invisible hand, which promotes 'the wastefulness of private profit-seeking management...'. Hotelling's analysis might have been altered had he incorporated the *costs of exchange*, notably the time and gasoline expended by consumers who prefer to visit not only the sellers of product A, but also the sellers of A's substitutes, products B, C, D, etc., which are never perfectly identical to product A. The costs of weighing alternatives, which must be borne during the process of selection, are minimized by shopping malls and other retail centres that create, from Hotelling's perfect-knowledge perspective, a wasteful clustering of those who are selling essentially identical commodities (Hotelling: 52–6).

Hotelling complained that the absence of *real* variety under capitalism is due to the reluctance of firms to offer anything radically different from the established norm (for fear of deterring buyers, the mass of whom are unaccustomed to change). Each new manufacturer simply adds a minor differentiation to an existing product. Consumers, therefore, 'are confronted everywhere with an excessive sameness' (Hotelling: 54)—which, by parallel logic, could presumably be rectified via state control of the production decision. Consequently, neoclassical thinking had led Hotelling ineluctably toward socialist solutions, not only in the location case, but also in his trend-setting analysis of goods with zero marginal cost, such as radio and uncongested bridges (Posner 1983:198).

SOCIALIST ENTREPRENEURS?

Implicit [in the criticisms levelled at Lange is the contention] that the energies needed to set into motion a truly market-responsive

economy can only be generated when its actors are vitally bound into that system. Thus behind the analytics of the Mises-Lange dispute lie two views of ‘human nature’

(Heilbroner: 1111)

The comparative-systems literature continues to produce improved blueprints for socialism. The entire first issue of *Science and Society* in 1992, for example, was devoted to ‘alternative visions and models’. Elsewhere, recent Langean contributors have advocated that a generous mix of salary and bonuses can be paid to the managers of socialized banks and industries to generate sufficient rivalry to elicit the same entrepreneurial foresight as found under capitalism (see the theoretical discussion in Yunker: 128–32; and the application case of Algeria, in Boukaraoun: 122–3). More worrisome is the lingering impact in other disciplines of Walras’ ownership-indifference proposition. A prize-winning paper on collectivized agriculture in China by an undergraduate majoring in anthropology, for instance, concluded that ‘the improvements in peasant livelihood in rural China’ are *not* attributable to the ‘devolving [of] production to the household within a market context’. Rather, the author maintains it was a change in *the production function* that boosted output, namely, the ‘reemergence of comparative-advantage specialization and trade, the channelling of surplus agricultural labor into productive off-farm employment, and the increased usage of modern agricultural inputs...’. All of these factors, combined with ‘work-metering methods attuned to labor contribution’, it is contended, would have yielded the same results under a collectivized system as were obtained after decollectivization (Michelson: 6, 10). Blinded by the Walrasian ownership-indifference proposition, the young scholar could not see that the production function is *not* independent of the spontaneous forces released by private ownership.

To the mainstream economist, whose criteria of rationality have been shaped by mechanical input-output production functions, a proposal to induce entrepreneurship under socialism by duplicating the capitalist reward structure seems eminently logical. But four inextricable aspects of the nature of collective regimes militate against it. An examination of these four areas will illustrate that genuine entrepreneurship cannot be cloned within a system that *by definition* is shorn of the sociopolitical institutions which enable specialization and trade to spring spontaneously to life.

Paralysis from uncertainty

Consider the response to a new social order which vowed to forgo its longstanding egalitarian agenda and promised that, henceforth, it would dispense liberal rewards in proportion to the value of entrepreneurial contributions. The following thought would no doubt be widespread in the minds of people: 'If the state did not hesitate to seize the accumulated fruits of others' past creative energies (i.e., their stocks of material wealth), then it certainly won't hesitate, at an opportune time, to seize the accumulated fruits of my future efforts'. The egalitarian impulse embodied in socialist ideology—which led to the collectivization of private property in the first place—would create ineradicable uncertainty and thereby discourage initiative. *To assume otherwise is to assume away the nervous system that defines the organism under study.* In this context, John Stuart Mill (who was highly receptive to the theoretical new-man goals of socialism), felt it necessary to invoke Hobbes' warning that if 'the fruit [of industrious behavior] is uncertain,...civilization will not take root, and the life of man [will be] solitary, nasty, brutish, and short' (Hobbes: 186, cited in Mill 1967b:749; see also 746). Hayek's updated version of Hobbes' idea is cast in more appealing terms: 'There is probably no single factor which has contributed more to the prosperity of the West than the certainty of the law which has prevailed...' (Hayek 1978:208; also see Hayek's elaboration of this point on 231–3, 289, 306–23).

The father of market socialism had invoked the familiar and illogical spectre of those who 'are starving [while] others are allowed to indulge in luxury' (Lange 1972:53). The continuing threat posed by the idea of market socialism to owners' rights to the dividends flowing from their physical and human capital can be seen in the position of John Roemer, who recently endorsed market socialism as a means of establishing 'democratic control of the social surplus (profits) by the mass of people who produce it, rather than by a class of capitalists' who have 'expropriated' this income via an 'illicit' set of property rights (Roemer: 1728–9). 'We do not believe that entrepreneurial functions require, for their elicitation, the large drain on the social surplus that corporate capitalists usually exact, nor that inherited wealth serves a useful social purpose' (Bardham and Roemer: 103).

A contemporary test case of the ownership-indifference claims of market socialists appears to be underway in China, where

carrot-and-stick incentives (including bankruptcy) are being employed in collectively-owned rural village enterprises to encourage a diligent labour force and to induce managers to allocate resources efficiently (Naughton: 270; and Jefferson *et al.*: 239–40, 256). This new ‘collective ownership form does not have a precise legal definition in China, leading to some uncertainty about property rights’. That is, membership rights and the control of residual income remains in the hands of government officials (Naughton: 266, 267). Since the ownership status of China’s new ‘village enterprises’ remains ‘murky’, their success seems to have given new life to the contention that clear property rules and privatization are *not* required to produce market behaviour. The argument can be summed-up thus: Private capital largely built these enterprises—and China’s heightened growth is flowing from the fact that investors and local employees conduct themselves *as if* they had full claim to the returns—yet Beijing has stated unequivocally that all assets belong to ‘the people’. Therefore, it appears to some economists that ‘the burden of proof’ has shifted back to those, like myself, who believe that uncertain ownership precludes a flowering of the market process (Freeman: 403–6).

The Chinese experience demonstrates, not that the status of ownership is unimportant, but rather, that *the strong expectation* of an eventual *de jure* assignment of property rights yields results that closely resemble those associated with a formal *ex ante* assignment of such rights. Suppose, at some point in the future, the collective-ownership claims of the Communist Party are exercised (via redistributive measures) to mollify the complaints of those who have been benefiting only slightly from reform (as opposed to the huge gains accruing to some workers, farmers, and merchants). Then a disincentive earthquake will ensue that will bring the Chinese economic miracle to a halt. Uncertainty over the ultimate disposition of property rights has been minimized by the post-Mao trajectory of China. With each passing year, the expectation of *formal* change grows stronger. Consequently, the heightened labour productivity in the new Chinese (and Russian) enterprises is likely traceable to the workers’ anticipated permanence of the new input-payment practices. It is not likely to be traceable to the introduction of coops or other organizational modes that are handicapped by the adverse selection and moral hazard problems surrounding the markets for membership in the workforces of such enterprises. (Hendley: 132,150–2; and G.Dow: 118–19,132).

The rural village enterprises ‘facilitate cooperation through implicit contracts among community members locked into an ongoing relationship’ (Naughton: 266). Each additional year of such relationships will make it more difficult for the government to activate its public-ownership claims. I suspect that the Chinese people are convinced that the imminent passing of the last of Mao’s contemporaries will bring a successor regime that will eventually but definitely implement a *de jure* recognition of the *de facto* private-property rights established over the past decade or so. And it is *this* prospect which is fuelling the explosion of entrepreneurship in China.

Reaping the ‘unfair’ benefits of good luck

To further understand the fanciful nature of the socialistentrepreneur proposal, consider the basis for rewarding entrepreneurs when the resources under their control earn an extraordinary return traceable entirely to ‘pure, dumb luck’—a frequent case in the real world. Burton Klein has drawn an interesting analogy between the search for food by ants and the search for economic profit by firms. His mathematical model and his industrial data suggest that ‘[deterministic and stochastic] forces work jointly’ to produce positive sum games (Klein: 95–6, 112, 115–121). Luck, therefore, is a homogenized ingredient of economic profit. But gains from luck are viewed by Rawlsians as ‘undeserved’, so I strongly suspect that such gains would not be subject to managerial bonus shares in a socialist regime, regardless of how ‘market oriented’ it otherwise might be. In any case, it is worth emphasizing at this point that the earnings component attributable to luck is an essential part of the long-run motivational calculus that propels entrepreneurs:

What switches on the entrepreneurial antennae appears to be ...the situation [that] holds unknown possibilities.... It is the entrepreneur’s awareness of the *open-endedness* of the decision context that appears to stimulate the qualities of self-reliance, initiative, and discovery....

* * * *

From this perspective a profit component that emerges from a ‘lucky’ entrepreneurial decision—in the sense that it would be wholly unreasonable to believe the decisionmaker seriously

entertained any expectation that this particular profit component might emerge—is not at all to be dismissed as having played no incentive role.... [I]t is precisely the entrepreneur's awareness of the potential that the situation held for the wholly unexpected that may have stimulated action and discovery.

(Kirzner 1985:109–11)

A real-world example of the role of entrepreneurial luck is the sandpaper case at the Minnesota Mining and Manufacturing Company, better known as 3M. In 1987, 3M noticed that its sales of household sandpaper were astronomical. In a quest to explain the puzzling success of this routine product, 3M researchers discovered that their sandpaper just happened to fit the needs of do-it-yourself furniture refinishers (lucky break number one). Along the way, they also learned that these refinishers were frustrated by the lack of an effective, non-toxic solvent to remove old paint and varnish (lucky break number two). The result: a new solvent called Safety Stripper, launched in 1988. Furthermore, 'dozens of new products that could be used with it [were moved into] test phases'. All of this occurred 'because 3M wanted to know why its customers were using more sandpaper than the company expected' (Assael: 357). The occasional appearance of such 'lucky' cases *is expected*, and, as they reveal themselves, they are exploited; therefore, the fortuitous opportunity is a random yet inherent part of the tacit profit calculus that drives the entrepreneur. The entrepreneurial basis of the market process harnesses the insight of Louis Pasteur's reply to those who had downplayed scientific breakthroughs rooted in lucky finds: 'In the fields of observation, chance favors only the prepared mind'—an insight which has been aptly sharpened by a recent writer, C.C. Gillespie: 'the mind has to be not only prepared but cocked ahead of time'. (For the original sources, see the discussion in Schweber: 196.)

Entrepreneurial labour

The third aspect of the nature of collective regimes which militates against the new proponents of market socialism is that full payment for entrepreneurial contributions would severely restrict the promotion of 'social justice' (an explicit goal of socialism). Full compensation for entrepreneurs would mean that reductions in

inequality could be achieved only via redistribution of the dividends on physical capital (a minor share of total income). This would be so because the multi-faceted, ubiquitous nature of the returns to entrepreneurial human capital—the annual bonuses garnered by those middle and upper managers who, on a day-to-day basis, make successful decisions based on certain costs but *uncertain* benefits (and whose salary premiums account for much inequality)—presumably would be protected from confiscatory taxation. Otherwise, the proposal to clone the market's reward structure would be hollow.

Marxist critics have complained that the income disparities created by the managerial bonus system are unjustifiable. This charge was renewed in 1992 after the publication of a flawed comparison of US executive salaries with those in Japan and Europe, where a more substantial portion of the total compensation package lies submerged in tax-free perquisites, such as Tokyo golf-club memberships, which are hundreds of times more costly than a similar membership in Los Angeles. In any case, liberal payments for entrepreneurial labour are neither unnecessary nor undeserved. At any given point in time, entrepreneurs earn a monopoly rent on their gift (natural or acquired) of superior judgment. Over the longer term, however, part of the entrepreneur's income is the payment required to induce others with this gift to *become entrepreneurs* (Marshall 1920:577–8).

Since the entrepreneur does not divine opportunities through occult abilities, he must devote part of his talents to securing financial backing so as to enable him, first, to search for unrecognized business potentials, and second, to seize such opportunities once identified. In other words, alertness alone does not make one a successful entrepreneur. You must be able to persuade others—that is, ‘to make them see what you see, to convince them that there *is* \$500 lying out there if they are only willing to put their money in the project...’ (Arjo Klamer, in Choi: 136; italics added). If the obstacles cited in points one and two (in the preceding pages) are precluded by assumption, then, for argument's sake, the issue of creating socialist entrepreneurs can be couched within a scientific framework, wherein it becomes ‘fundamentally...an empirical question, for which only actual experimentation with market socialism could provide a more or less definitive answer’ (Yunker: 133). This is tantamount to assuming that it is genetically possible to create cats that bark. But to abstract

away from the inherently *social* character of the constitution governing rewards is to obviate the real problem. To assume full property rights in the creative energies of human capital, and moreover, to assume that dollar votes will determine what to produce through an entrepreneurially driven discovery process, is to assume the existence of relationships that are totally incompatible with the anthropological soul of the phenomenon known as socialism. Such propositions have created intriguing results when modelled mathematically, but, as Mises has explained, the model builders of market socialism curiously assume the presence of those very institutions '*which it is the goal of socialism to eliminate*' (Mises 1951:141; italics added). More realistic was the position of Dobb, who argued steadfastly against allowing consumer preferences to determine the pattern of production and the follow-on pattern of factor rewards. Hayek wrote that Dobb "favored abandoning the freedom of the consumer [and the resultant input-payment structure] if by the sacrifice socialism could be made possible" (Hayek 1935:215). Dobb's programme, noted Hayek, 'has not had many followers' among socialist theorists in the West (Hayek 1935:217). But Dobb's ideas certainly proved to be popular among socialist practitioners in the East, including Poland, where Lange served as a top official for many years.

Lange's blind devotion to communism reached its zenith in 1954, when he described the 'profound theoretical significance [and] far-reaching practical importance' of the final work of that highly respected thinker, Joseph Stalin. The publication of Stalin's *Economic Problems of Socialism in the U.S.S.R.*, wrote Lange with dripping reverence, 'is a great event in the history of learning ...'. It has 'revealed the...paths of socialist evolution' and thus should be applauded as a 'giant step forward towards the complete emancipation of mankind...' (Lange 1954:145, 173, 180).

The nature of ownership

Ownership...is...*private*...in the sense that it deprives others of the advantages which depend upon the right of disposi[tion].

[T]he distribution of property rights effects a kind of mental division of labour, without which neither economy nor systematic production would be possible.

[I]t is not possible to divorce the market...from...a society...in which...[private owners] can *dispose* of their property as *they* think fit.... The market is thus the focal point of the capitalist order of society;...it cannot be 'artificially' imitated under Socialism.

(Mises 1951:39, 117–8, 137–8; italics added to final paragraph)

Ludwig von Mises subtly raised an issue—allied to a system's reward structure but distinct from it—that seems to have fallen through the cracks in the debate over market socialism. Since the nature of ownership is tightly bound to the extent of specialization—and hence to the gains therefrom (the bedrock of economics)—its relevance cannot be easily sidestepped via accommodative cloning assumptions. Armen Alchian insightfully expounded upon this particular point in 1977, and the relevance of this oft-overlooked issue merits the provision of detailed excerpts from Alchian's analysis:

The variety of joint sharing of property and ownership rights is a testimony to man's ingenuity. But if one asked what the difference was between any two of them, say public and private ownership, he would find the answer not so easy.

To sharpen the issue, consider a small-town theater owned by one thousand corporate shareholders (each with one share) and an auditorium owned by the one thousand residents as public property.... Assume...the city auditorium is operated to make money, not to subsidize some group, and so is the private theater.

Furthermore, in both cases the managers and employees were induced to take their jobs only because the salary enhances their own wealth or well-being.

[T]he differences between public and private ownership arise from the *inability of a public owner to sell his share of public ownership* (and the ability to acquire a share without a purchase of the right [by simply emigrating to the jurisdiction with public ownership]).... We are not...asserting that there are no other differences, nor that this difference has not been noticed before. Instead we are emphasizing the *unique* importance of this difference in the ownership rights.

[T]he inability to sell one's share of public ownership remains a potent [negative] factor in the costs-reward system impinging on all members of the public and on the employees and administrators of the publicly owned institution.

The differences in skills of people as owners make pertinent the principle of comparative advantage through specialization in ownership. *If ownership rights are transferable*, then specialization of ownership will yield gains. People will concentrate their ownership in those areas in which they believe they have a comparative advantage.... Private property owners can specialize in knowledge about electronics, devoting much of their effort and study to learning which electronic devices show promise, which are now most efficient in various uses, which should be produced in larger numbers, where investment should take place, what kinds of research and development to finance, etc. *But public ownership practically eliminates possibilities of specialization among owners*—though not of employees in the publicly owned venture.

(Alchian: 135–8, 140; italics added to the final paragraph)

Advocates of socialism have recently claimed that publicly-owned, non-monopolistic economies can harness the efficiency of the market by cloning the Japanese *keiretsu* model, and thereby overcome the agency problem facing owners who do not control (manage) a firm's resources.⁶ Therefore, the issue raised by Mises, and so capably elaborated by Alchian, remains of central importance to the debate over the viability of socialism. Bardham and Roemer, for example, reject 'the simple-minded ideology of free marketeers' who continue to insist that 'the market mechanism can function only with full-scale capitalist property rights'. They believe that an effective solution to the agency problem in collectivized industries is available, and an understanding of its corrective role will enable economists of all political persuasions 'to disentangle the concepts of private ownership and the competitive market that has led to the premature obituaries of socialism' (Bardham and Roemer: 102, 115–16).

Their proposal is intriguingly simple. Since a socialist economy has no capital market to exercise discipline over agents via leveraged buyouts (by raiders), a package of relations closely

reassembling the Japanese market's oversight system of interlocking directorates can serve the same end. Since Continental Europe's system has evolved along lines similar to the Japanese model, controlling the agency problem through the threat of takeover (as in the USA) is not necessarily superior to some alternative method, such as 'the more persistent exercise of [oversight] by conferring various 'rights to consultation...and decision-making on shareholders, creditors, employees, and non-executive directors' (A.Hughes: 23, 25–6).

There are two types of keiretsu. One is a financial corporate grouping across industries, bound by mutual stock-holding and a main bank as the nucleus; the other is a hierarchical grouping of firms connected by inter-industrial input-output relations, with a major manufacturing firm at its apex (Bardham and Roemer: 107, fn. 2). The outline of Bardham and Roemer is based primarily on the first type, with a few features grafted from the second (vertical) type, of which there are thirty-nine in Japan (Schnitzer: 115). Within a Bardham and Roemer regime, 'the state would not own a public firm *directly*'. A firm's shares would be owned by four interested parties: other firms who serve the given firm; employees of the given firm; employees of other firms which hold shares in the given firm; and a main investment bank which would serve as the chief source of borrowed funds. Most importantly, the main bank would also monitor and evaluate the affiliated firm's key policy decisions for the other investors and lenders (Bardham and Roemer: 108; *italics added*).

The keiretsu cloning scheme, though novel and inviting, is mortally susceptible to a Mises-Alchian critique, because *the state must own the main bank!* Its officers, therefore, will be vulnerable to the same political pressures—rooted in anxiety over creative destruction—that led in the 1970s to the bloated, indiscriminate borrowings of domestic and foreign capital by the infamously inefficient parastatals throughout the Third World. Each of the other 'partners' in any Bardham-Roemer ownership consortium will likewise be faced with pressure to support distressed firms. In principle, these 'owners' should be able to divest their shares or to otherwise induce policy changes and thereby discipline a deficient management team. In practice, however, the political forces governing communally-owned resources will surely hold sway, and the threat of political vengeance will create a timid policing corps that will prefer to respond to 'suggestions' from those who exercise

appointment authority, namely, elected officials who are hypersensitive to workers' fears of involuntary change and who will find that they can be enriched via corruption payments. To assume otherwise is to expect the emergence of a new, unprecedented political reality in which cats can bark. 'The futility of trying to insulate public firms from political pressures is best illustrated by the experiences of public enterprises in western Europe.... Despite extensive mechanisms for independent governance, most public firms are subject to heavy-handed government interference', as in the cases of British Coal and Air France, where the elected authorities refused to reduce payrolls and opted to fire top management instead! (Shleifer and Vishny: 170).

Kornai's warning on 'the systematic tendency of self-reproduction of the bureaucracy' casts a plaguing shadow over any socialized system, whether autocratic or democratic (the Kornai quote is in Bardham and Roemer: 114). Kornai's warning has been echoed by a Czech economist, Václav Kluson, who has reminded us of the state's unfailing proclivity 'to intervene with force in the enterprise sector'. The objectives of the 'former administrative model' were largely *political*; therefore, the 'organizational structure of the centre' poses an omnipresent threat to the managerial independence of any socialized firm. Moreover, the lack of private ownership precludes 'the real danger': losing one's capital. Recall that under the Bardham-Roemer scheme, all shares are being *held* by various interested parties but are *not owned* by these parties. And here is where the insight of Mises (and Alchian) is particularly germane: '[O]nly a *specific* owner can endure the *consequences* of competition;...an entity that can or must transfer the results of its competition...to society as a whole, cannot be a participant' (Kluson: 38–40; *italics added*).

In the final analysis, the well-known problem of the soft budget constraint (i.e., state leniency in underwriting losses) remains inseparable from the nature of a collectivized economy. The numerous institutional safeguards enumerated by Bardham and Roemer—to insulate oversight consortia from political intrusion (pp. 112–13)—consist of elaborate yet unconvincing paper-tiger barriers, readily ignored within a system which, in Roemer's words, has rejected as 'illicit' the principles of contractual property rights that constitute the foundation of a market economy (Roemer: 1729). Thus the inescapable Achilles' heel of the insider-monitoring plan of Bardham and Roemer is the very 'ownership' of shares *whose sale or*

total dissolution is ultimately subject to public veto. The only effective mechanism for disciplining a state-owned enterprise is the threat of privatization. Yet, in a committed socialist system, such a threat does not exist. Therefore, despite the ownership-indifference arguments that have kept the Lange model alive, the combined weight of deductive logic and real-world experience have bolstered the contention that '[the nature of] ownership...matters, and matters a lot' (Vining and Boardman: 226).

THE POTENTIALLY ACIDIC EFFECTS OF ENVY

Before closing this discussion, I must briefly mention the corrosive yet neglected impact on entrepreneurial effort of the intensification and institutionalization of envy that is bred by collective ownership. The elimination of private capital encourages envy through two channels. First, as the society becomes more equal, all remaining disparities become amplified. Second, an official policy of equality promotes a religious belief in the specious idea that inequality is necessarily inequitable. The ensuing resentment becomes especially pernicious when inequality is fed by any income source that is perceived as underserved (such as profit-making). Thus, as Hahn has explained, 'The externality of envy is perhaps...only correctable when there is nothing to envy' (Hahn 1982:8). This is why the communist parties of every 'people's republic' carefully concealed, with high walls and armed guards, the luxurious perks lavished on their top office holders. See the catalogue of typical illustrations in *The Russians*, by journalist Hedrick Smith (1976:30–53).

Adam Smith, as we will see in Chapters 4 and 5, was well aware of the serious threat posed by an arousal of this immoral sentiment (one of the seven deadly sins), but, with rare exception, twentieth-century social scientists in the West have totally ignored its existence. In the formerly communist East, on the other hand, there is a heightened appreciation for envy's role in eviscerating a society's creative energy. For example, a leading Russian economist has recently described the seemingly irreversible paralysis of 'age-old natural incentives' caused by the inhibitive envy nurtured by socialism (Shmelyov: D1). The same anxious concern over the Soviet citizen's preoccupation with 'watching his neighbor's pocket'—entrenched by seventy years of collective ownership and the consequent obsession with 'antisocial' sources of income—has

been expressed by the young leaders of Russia's new political parties (Broder: 9). The suppression of vengeful behaviour fuelled by this natural instinct can be accomplished through social disapprobation and the channelling of retribution into competition, but this will be a formidable task. A drastic reduction in the paralytic level of envy throughout Eastern Europe must be accomplished if domestic entrepreneurship is to flourish. Otherwise, the hostile environment nourished and intensified by socialism will continue to inhibit the emergence of market forces, which require the redirection of man's envy into emulative, not vindictive, venues. The recovery period will be slow, especially in Russia, where the overhang from the old regime's exploitation of envy is broad and deep:

The systematic removal...of the most independent and most active of [the community's] members, which has been going on for decades, has left an imprint of greyness and mediocrity on all sections of society....

* * * *

In practice, 'justice' is motivated [by the wish] 'nobody should be better off than me'. This idea is [driven] by hatred for everything that is outstanding.

(Russian sociologist, in Feuer: 143)

By way of contrast, one of the reasons for the success of the American experiment was the cultivation of institutions that neutralized the natural 'feeling of envy' promoted by democracy, a system which 'foster[s] a passion for equality which [it] can never entirely satisfy'. Although the US Constitution promised *political* equality, there was no pretence offered of economic equality. Alexis de Tocqueville, touring the new republic in the early 1830s, 'speedily discovered that the Americans had made great and successful efforts to counteract these imperfections of human nature.... [This was accomplished by] turning those same passions which might have worked havoc in the state to the good of the township or the parish. The American legislators seem to have succeeded to some extent in opposing the idea of right to the feelings of envy...' (Tocqueville, vol. I:201, 325). For example, the US Constitution's original prohibition against income taxes was sustained for over a century. Nevertheless, in a democratic system,

the market's survival is threatened by two omnipresent dangers: either the majority may employ the ballot box to 'redistribute resources from the minority to itself, or special interest groups (the 'factions' feared by James Madison in *Federal Paper No. 10*) will 'pressure the government to pursue policies that benefit [themselves] at the expense of the rest of the population' (Shleifer and Vishny: 171). Without specific Constitutional provisions to address these dangers—provisions protected from repeal by large super-majority amendment requirements—the market will be slowly but surely strangled by the egalitarian impulse that emanates from a democratic polis.

How, precisely, was the energy from envy initially converted into a positive force? In short: under America's market system, each citizen was so occupied with enlarging his or her absolute level of personal wealth that one's relative position was, at worst, a minor distraction. Moreover, the *free-entry nature* of the US economy *enabled* people to pursue the 'love of well being' that was 'the predominant taste of the nation...'. The right to enter any occupation or business (for whites) meant that the old, European-based barriers were 'swept away'; *however*, the new system also 'opened the door to universal competition', which became an unanticipated constraint that shifted the burden of success to the individual, who could no longer blame his plight on the privileges accorded family lineage. This environment created 'constant strife between the inclination[s] springing from the equality of [political] condition and the [open-to-all yet competitive] means it supplies to satisfy them...' (Tocqueville, vol. II:130, 138).

Early nineteenth-century Americans, nearly all of whom owned property and had learned to appreciate the benefits of a private-property system, were incessantly seeking to enlarge their assets,⁷ often through capital gains realized via the establishment of successive homesteads during the westward expansion. Tocqueville explicitly recognized that the highly *unequal* results of America's *deliberately rules-based* competitive process served, ironically, to forestall the odious, overtly resentful, envy-based behaviour that is commonplace in egalitarian societies:

When inequality of conditions is the common law of society, the most marked inequalities do not strike the eye; when everything is nearly on the same level, the slightest [differences] are marked enough to hurt it. Hence the desire of

equality always becomes more insatiable in proportion as equality is more complete.

(Tocqueville, vol. I:245, 247, 297–8, and vol. II:136–8, 295)

The American experiment flourished because its citizens' love of liberty outweighed the always-lurking, 'depraved taste for equality, which impels the weak to attempt to lower the powerful to their own level...'. Instead, Americans consciously formed 'a general-combination [to] protect their liberty'; that is, they preferred the sweet fruits of 'inequality with freedom' over the social dead end augured by economic equality (Tocqueville, vol. I:53). And this is why the American Founding Fathers—who convinced the citizenry to adopt institutions to ensure that prudence would prevail over passion—are considered uninspiring by those romantics who worship 'progressive' revolutionaries such as Lenin, Mao, and Fidel (see Kristol: 142–4 and 150–2).

SUMMARY AND CONCLUSION

There is much still to be distilled from the intellectual debates that festered in the 1930s, debates that have been, for the most part, put aside for the last sixty years.... The modern work on information does not begin to address the knowledge problem in economic theory.

(Colander: 1436)

Analyses were provided, first, to explain that a parametric pricing rule is equivalent to the absence of a market (as the classical economists understood the term), and second, to describe the extent of the pro-planning bias that has dominated development economics, a bias fathered by the equilibrium paradigm's analytical mindset. Third, I presented four arguments to support the contention that entrepreneurship cannot be harnessed without the panoply of property rights traditionally attendant to a private-ownership system.

The dysfunctional elements of the idea of market socialism lie outside the Robbinsian domain that defines modern economics, a fact which enabled the profession to sidestep the key problems of uncertainty and entrepreneurship and endorse the principal outline of Lange's vision. Therefore, the 'Lange-type solution was not a

solution at all. The debate was “won” by ignoring the arguments of the opposition’ (Hodgson 1992:755). Nonetheless, Lange’s model had a profound impact. The profession’s endorsement reinforced a mechanical, entrepreneurless mode of thinking within which Lange’s system came to be seen as a vaguely viable option by those early, post-Stalin reformers who struggled in vain to deoosify the centrally-administered economies of Eastern Europe. Unfortunately, the resulting slogans that came to dominate ‘the published economic literature in the reform countries...engendered naive, false hopes...’ (Kornai: 145). The bottom line on the socialist-entrepreneur issue is this: Entrepreneurship and the process of a *private*-enterprise market are inseparable phenomena. A horse painted with black and white stripes does not behave like a zebra. A genuine market is impossible without the discipline infused by the power of decentralized proprietors to divorce themselves from their share of ownership. Entrepreneurship cannot be drawn forth by painting a collectivist-minded system with the promise of intellectual property rights that conflict with its *raison d'être*; no one will be fooled (partially adapted from an article by journalist Samuel Brittan, as quoted in Milton Friedman: 13).

The purpose of this chapter was not to fulminate against government, *per se*. My concern is with the manner in which the Walrasian model has coloured the way neoclassical economists reason about the market, particularly their ready acceptance of government intervention to improve market outcomes. My purpose is not to proselytise for strict laissez-faire. Hayek explained that blind support of laissez-faire has diverted attention not only from the proper roles of government as enumerated by Adam Smith, but, more importantly, it has also contributed to our neglect of a ‘systematic study of the forms of legal institutions which will make the competitive system work [more] efficiently ...’. Hayek readily conceded that where it is impossible to employ competition, as in natural monopolies, or public goods, or even in the provision of certain social services, ‘we must resort to other methods of guiding economic activity’. Therefore, a devote of a free market is not ‘for leaving things just as they are’, nor for disdaining all use of government. Rather, a market advocate believes that, ‘where effective competition can be created, it is a better way of guiding individual efforts than any other’ (Hayek 1976:17, 36, 37, 197–8). Moreover, effective competition cannot be created in a collectively-owned system, despite the mathematically appealing non-solutions

THE MAGNETIC LURE OF MARKET SOCIALISM

fathered by Walras, Pareto, Barone, Lange, and their latter-day supporters.

Still to be covered (in Chapters 4 and 5) is a detailed examination of the classical heritage: a catalogue of the treatments of the competitive process by the classical writers. The numerous upcoming illustrations will strengthen my thesis that the emergence of the perfectly competitive model seriously impaired the profession's understanding of the network of process currents that constituted our forefathers' conception of the market.

*In chapter 6, we will see that the Walrasian 'auctioneer' must acquire all information before trading any commerce.

**In a major role reversal, officials at MITI...are arguing that design and construction of a \$750 national fibre-optic network needs to be left to the private sector.... Sheltered by regulation and paternalistic planners, Japan's technology companies have fallen well behind their US rivals.

(Hamilton: A1)

COMPETITION AND ENTREPRENEURSHIP IN CLASSICAL POLITICAL ECONOMY¹

[In] 1697 Daniel Defoe gave the name ‘projectors’ to the distinctively future-oriented and knowledge-possessing men whose form of life was most closely attuned to the dynamics of market competition. [Through the price system, said Defoe, a projector] ‘converses with all parts of the known world. This, and travel, makes a true-bred merchant...the most capable...to contrive new ways to live.’

(Haskell: 558)

The classical economists were the first to describe competition in meaningful detail. The mercantilists, most of whom benefited from their monopoly franchises, wrote little about competition (E.Johnson: 6). Fragmentary exceptions, however, can be found in Mun: 18–20 and Petty: 92. The classicals saw competition as the process which governed the formation of new prices. This process consisted of iterative adjustments sparked by three actions: forecasting out-year supply, developing new methods, and introducing new products. As Samuel Hollander has noted, ‘The Smithian conception of competition must be carefully distinguished from the modern conception which envisages sellers (and consumers) as “price takers” rather than “price makers”’ (Hollander 1973:126).

Of course, not every classical economist discussed all three means of profit seeking. Some, like Carey, Lauderdale, and Fawcett made numerous references to ‘the competition of capitals’ but had virtually nothing descriptive to say about the actual process of competition. Also, Ricardo reasoned purely in equilibrium terms. In a letter to Malthus he explained that his only concern was with final results, not intervening events (see the extended quote in

Spiegel: 316). As Fogarty has correctly noted, Ricardo attacked problems 'in strictly scientific fashion by posing clear-cut hypotheses, such as perfect competition...' (Ricardo: xv). Ricardo's undertakers were forerunners of the fully-informed firms of Walras and hence had nothing in common with the genuine entrepreneurs who, as we shall see, dominated the writings of his contemporaries and successors. Ricardo, therefore, is the odd man out. His narrow treatment of the market was uncharacteristic of his era, more neoclassical than classical, but consistent with his desire to focus exclusively on comparative statics (Ricardo: 50, 73).

The purpose of my research programme is to challenge the conventional wisdom, shared by a score of leading economists since Knight, that the classicals, who wrote extensively on the equilibrating forces in the market, had ignored the process by which new equilibria were created. Thomas Sowell, for example, has extrapolated the reasoning of Ricardo (the comparative analyses of endstates) to all of 'his disciples and popularizers' (Sowell 1974:113–14). And Blaug has highlighted the 'tendency throughout the history of economic thought to place the accent on the endstate of competitive equilibrium rather than the process of disequilibrium adjustments leading up to it', an emphasis that 'became remorseless after 1870 or thereabouts...' (Blaug 1987:443).

I do not dispute that classical economists paid ample attention to the idea of an endstate in which price converged to average cost; however, this interest has been exaggerated by the nearly exclusive focus on endstates in *neoclassical* economics, particularly after 1920. I take issue with the conventional view that classical treatments were as one-sided as modern treatments. For the three decades prior to 1920, a bifurcation period existed. The new paradigm was intruding steadily on how the market was being portrayed, but, at the turn of the century, Walrasian analysis remained on the fringe of what was being taught in most universities. Within twenty-five years, however, the situation was completely reversed, and the classicals' keen interest in the process of competition was muted by the profession's monogamous marriage to the general equilibrium system, which, by its nature, must disregard entrepreneurship. Hence the market process became extraneous to neoclassical analysis.

Unlike Ricardo, the vast majority of the classical economists, including those in the UK, reasoned about the market by addressing

one or more aspects of the competitive process. By highlighting classical passages pertaining to each of the three vehicles of profit-seeking (speculation, new methods, new products), I will demonstrate that the classicists did not view the market *solely* as a set of mechanical, computational reactions promoting equilibrium (as in the perfectly competitive model). Unlike their successors, the classicals also saw a series of bold actions crafted by entrepreneurs in their unremitting pursuit of pure profit. Unfortunately, however, the classicals failed to distinguish between the supra-normal returns (economic profit) created by entrepreneurial initiative, versus the payments from two intertwined sources: the normal returns that reflect the forgone opportunity of employing the productivity of the firm's capital in some alternate endeavour, plus the time-factor premium collected by the capitalist who invests *now*, but who must wait several periods to collect the future value of his present commitment of funds. (For an explanation of the interest component, see Fetter: 3–4, 208, 233–6, 242–5, 286–7). As in modern-day accounting, the classicals had lumped together all of these payments as profit—the distributive share paid to a single factor class, capital—an ‘analytic blunder’ examined in Kirzner (1979:41–52). From this merging, Walras made the erroneous inference that the early British economists had failed to understand the separate functions of the entrepreneur and the capitalist (Walras: 423, cited in D.Walker 1986:2). On identical grounds, Schumpeter drew the same mistaken conclusion about Mill’s understanding of the role of the entrepreneur (Schumpeter 1991:255–6). Later in this chapter we shall see that the judgment of Walras and Schumpeter was unwarranted. Incidentally, the businessmen of the eighteenth century, unlike the economists, did not conflate interest and profit. Research into the accounting ledgers of early firms indicates that the bookkeeping practices of the period, though defective in several respects, were nonetheless all ‘linked by a common, though unspoken assumption’, namely, ‘that profits are not... payment for capital or created by capital. Capital is adequately rewarded by interest at the current rate.... Profits are distinct and are rewards of entrepreneurship *per se...*’ (Pollard: 233–5).

THE HISTORICAL SETTING

Despite the mercantilists' total rejection of the anti-usury teachings of the Catholic Church, the pre-classical era remained philosophically influenced by the residual flavour of the Aristotelian ideal of reciprocity in exchange. This concept had been endorsed for centuries by the Scholastics, who regarded the free-entry price as morally acceptable because reciprocity allowed for a gain to offset the 'cost' of risk-taking (Hollander 1987:16). The fundamental concern of the Scholastics 'was to assure the avoidance of monopsonistic and monopolistic exploitation. If this end could be achieved by the market, well and good. But the price determined by civil authority might be preferable in some circumstances' (Hollander 1987:18). During the early Middle Ages, for instance, inelastic demands (from limited substitutes), *and* inelastic supplies (due to immobile markets for capital and labour), *and* local relations based on hierarchical status and family/ community bonds (versus inter-regional relations based on impersonal exchange mechanisms), all combined to create situations in which a high price caused, say, by a natural disaster, would *not* generate additional production elsewhere to relieve local distress. In such an environment, a new, above-historical-cost equilibrium price was seen as an unjustifiable transfer, rather than as a necessary signal to spur the reallocation of resources. As the market gradually expanded, the arguments for administered prices lost their cogency due to the emergence of additional substitutes, a more mobile peasantry, stock companies to raise capital, and the replacement of family name by productivity as a basis for one's status.

Both the Church Schoolmen and the mercantilists recognized the significance of self-interest in getting things accomplished, but they were convinced, after centuries of accepting the arguments for order-by-design regimes, that an uncontrolled economy, guided only by the invisible hand, would be chaotic and ruinous (Hollander 1987:25). It is not surprising, therefore, that the classical writers, facing an audience weaned on such ideas, would repeatedly emphasize that a *laissez-faire* regime will generate, first, a stable, competitive socioeconomic order, and second, exchange relations consistent with the inherited sense of commutative justice (that is, price equal to cost). However, the competitive system in the minds of the classicals was a motion picture of initiatives and

responses thereto, with the latter being continually unsettled by fresh doses of the former. Thus the notion of appraising individual frames for merit (under a price vs cost criterion)—isolated from the ongoing nature of the process—was inconsistent with the classical vision of how a spontaneous system functions to discover socially-beneficial values that were non-existent at a preceding point in time. The state of affairs ultimately created by competition was certainly discussed by every classical writer, but to apply a magnifying glass to the price-equals-cost (equilibrium) condition, as if it were the heart of classical analysis, is a case of mistaking ‘the shadow for the substance’ (Beach: 17). In fact, Adam Smith’s most emphatic and recurring thematic point—his explanation of the invisible hand (Smith 1937:421–3)—had nothing to do with the final *results* of the process and had everything to do with the role of incentives, i.e., the *nature* of the process.² ‘Smith was more interested in the *pursuit of income* than in its size, and in the process of contracting than in its actual outcome’ (West 1976:587).

Simply put, the classicals’ understanding of the nexus of profit-seeking behaviours known as the market was not grounded, tacitly or otherwise, in a modern notion of examining the effects of an exogenous disturbance by comparing the initial state to the post-adjustment state. Moreover, the identification of the market as a set of convergent forces promoting a general equilibrium free of endogenous change was a pathbreaking contribution of neoclassical economics, which elected to divorce itself from the process of competition so as to focus exclusively on parametric behaviour and its results, as Ricardo had done.

In the main, the portrait that is going to unfold is one in which entrepreneurs play the key role in the process of competition—a process which, for all practical purposes, was seen as perpetual. As Whately cautioned (with reference to the dismal Malthusian steady state), ‘a “tendency” toward a certain result...[requires] the existence of a course which, if *operating unimpeded*, would produce that result’ (Whately: 248–50). Whately believed that the entrepreneurial one-upmanship of the market process precluded the idea of a terminal equilibrium. For example, he explained that the human being’s natural propensity for emulation, ‘the desire of equalling or surpassing others’, ensures a ‘race [for *relative* position that] never comes to an end’:

[T]he effort of each man, with a view to his own credit, to

rise, or at least not to sink, in society, causes, when it *becomes general*, the whole Society to rise in wealth. And the progress thus occasioned by *emulation* is indefinite; because the object aimed at by each of a great number, viz. *superiority* to the rest, can never be attained by *all* of them.

(Whately: 145–8)

The race in classical economics to enhance one's relative return on investment and thereby attract capital was understood to be a positive sum game and was pursued through three venues: dealing in forward markets, experimenting with novel production techniques, and introducing new goods and services to garner the custom of additional consumers. Examinations of each venue will demonstrate that the classical economists recognized that the uncertainty shrouding these three endeavours called forth entrepreneurship and the spontaneous discovery process known as competition. As one late-classical textbook writer explained, 'The only force that can grapple with the infinities of ignorance is the [competitive] force of freedom with its infinite variations and circumstance...' (J.S.Nicholson: 431).

SPECULATION

Behold, there come seven years of great plenty throughout all the land of Egypt: And there shall be seven years of famine.... Let them gather all the good of those years that come, and lay up corn under the hand of Pharaoh.... And the famine [came] and was over all the face of the earth ...And all countries came into Egypt...to buy corn....

(Genesis: Ch. 41, verses 29, 30, 35, 56, 57)

To simplify the discussion in this subsection, it will prove helpful to clarify the relationship between the following three phenomena: a perfect *market* (as distinct from perfect competition); intertemporal trade (speculation); and arbitrage. A market is the geographic area within which transportation costs and transaction costs for a commodity are uniform. A market is perfect if all buyers pay the same price for a given commodity. Since Knightian perfect competition assumes perfect knowledge by all producers and consumers, a market populated solely by price-taking firms will have only one price charged to all buyers. So Knightian perfect

competition is sufficient to insure a perfect market. However, perfect competition is not necessary for a perfect market; for example, a monopolist who cannot price discriminate will sell at one price in a given market. Product differentiation, therefore, is not a sufficient condition for an imperfect market (J. Robinson 1971:197). As Stigler has aptly commented, '[Jevons'] merging of the concepts of competition and market was unfortunate, for each deserved a full and separate treatment' (Stigler 1957:6). Perhaps the conceptual merging introduced by Jevons, coupled with Marshall's aversion to the notion of perfect competition, prompted Marshall to drop his original assumption of 'a perfect market' in his *Principles* (first edition: 402, vs. eighth edition: 341), a change which Stigler described as curious (Stigler 1957:14).

The existence of a perfect market precludes gains from arbitrage (exchange at the *same instant* of time), but not from speculation (exchange *across* time). The profits of arbitrageurs stem from their alertness to the existence of an imperfect market, for arbitrage is the buying of a commodity at location A in a given market and the *simultaneous selling* of the commodity for a contractually guaranteed higher price at location B within the same market. This is how a market *becomes* perfect! Speculators, on the other hand, profit from facing uncertainty. Speculation (known more formally as intertemporal trade) is the buying of commodity X at time t_1 and the selling of X *at the same location* at an unknown but expectedly higher price at some future time, t_2 (I. Fisher: 261, 338).

If one assumes, for simplicity's sake, a rapid inventory turnover at the wholesale and retail levels (as in Smith 1937:498), then shopkeepers can be seen as quasi-arbitrageurs whose specialized knowledge of their local markets gives them an advantage that the differently-focused manufacturer (or government official) could not easily duplicate. Manufacturers, said Smith, cannot maximize profits by dealing directly with the consuming public because the firm's specialized knowledge is in the *production* of goods, not the *selling* of goods. Smith understood that society prospered by enabling those with the best assessment of the situation—those closest to the consumers (the shopkeepers)—to broker the allocation decision. Therefore, if the typical firm were to despecialize by diverting capital from manufacturing to retail sales, it would experience a lower net return on total capital deployed. Hence shopkeepers, not manufacturers, detect and respond to arbitrage opportunities (Smith 1937:494–9 and McCulloch

1965:124). To this day, vertically integrated firms usually do not integrate forward all the way to the retail level.

In classical economics, entrepreneurs were speculators as well as arbitrageurs. In short, an entrepreneur was an opportunity-seeking agent, who, by dint of information-gathering and experience, could *envision* changing demand or supply patterns of raw materials (and manufactured goods with long production lead times), and boldly act to reap economic profit. Sagacity and prescience are his trademarks. Moreover, the entrepreneur's speculative purchases are made *before* an emerging change in demand or supply conditions is generally recognized in the market. As his gains begin to appear, capital switching is not yet underway. Merton Miller has explained that professional stockmarket speculators should not be seen as agents who place random casino bets, and his view of financial markets is applicable generally. He emphasized that '[t]he prospect of trading profits is the bribe, so to speak, that society uses to motivate the collection, and ultimately the revelation, of dispersed information on supply and demand' (M.Miller: 8).³ Thus the behaviour of the second tier of entrepreneurs—the stampede which eventually causes the high-priced commodity to increase in supply and drop in value—is signalled in the first instance by the gains of speculators. In the classical literature, therefore, the entrepreneur's profits were based on foresight, as opposed to the unimaginative non-entrepreneur in the perfectly competitive world, where all behaviour is based on universally known price/profit stimuli (thereby insuring an instantaneous return to general equilibrium after an exogenous shock).

Short digression on profit, equilibrium, and opportunity cost

A point of technical elaboration may prove helpful here. In the absence of exogenous shocks, perfect competition insures perfect equilibrium at every instant because changes in demand are foreseen correctly (due to perfect knowledge), hence appropriate supply adjustments are concomitantly forthcoming. As a result, general equilibrium is perpetual if exogenous shocks are excluded. If *systematic* manna-from-heaven changes in technology are incorporated, the economy will grow but always remain at equilibrium because perfect-knowledge firms will anticipate the coming technological changes and make appropriate supply

adjustments at the moment of their introduction (see Stigler 1957:11–12, especially the final paragraph of the extended quote from Knight). Therefore, even *if* technical progress *is* attributable to the efforts of particular individuals or firms, they will *not* capture a reward: their ideas will become public goods, hence their expected profit will be ‘immediately and fully bid away as a result of [perfectly-informed] competitors imitating their ideas’ (Hahn and Matthews: 850).

In such a perfectly-informed system, pure or economic profit is impossible. Capital owners (stockholders) will earn dividends—a rental income or interest payment for usage rights, equal to what they could earn by deploying their capital in any other activity—but the firm which is ‘renting’ capital from others will have nothing left over to pay a premium or bonus dividend beyond the competitive ‘rentals’ already disbursed. So total revenue will equal the sum of the opportunity costs of all inputs. If an incipient filament of profit appears (due to some random and hence unanticipated event, such as a change in demand or supply rooted outside the system), *nominal* rents and wages will *immediately* rise, causing the incipient profit to evaporate as quickly as it appeared. Moreover, asset prices will appreciate in turn (that is, machinery prices and tuition will increase), thereby preventing a rise in the rental *rates* on physical and human capital. For example, if the dividends paid for the use of a lathe increase from \$10 to \$13 due to unexpected growth in the demand for furniture, the market value of the lathe will be bid up from \$100 to \$130, hence the capital owner’s return on investment in the lathe will be unaffected. (Of course, the owner will reap an accrual in his wealth via the capital gain realized on the lathe).

The zero-profit scenario breaks down as soon as ignorance intrudes. With asymmetric information, it will take time for all participants to correctly gauge a new situation and to bid up input prices. This delay will slow the rise in the firm’s short-run outlays and thereby provide profits to the users of the inputs. In a world of uncertainty and costly search, the forecasts of those who are actively employing capital are usually better than owners who are passively renting-out their capital. Entrepreneurs are alert to such opportunities and move to seize them—capturing profit by directing capital to an area where its full usefulness is not yet recognized by others (Pasour: 86–91).

The market does indeed reveal opportunity costs, but only

because of the entrepreneurial discovery process. Consequently, one of the most beneficial contributions of process thinking is that it explains not only the existence of profit (the product of ignorance), but it also explains that *an input's opportunity cost cannot be assessed without the existence of a potential for profit!* As Stigler so artfully put it: 'The ascertainment...of the maximum value of each resource in alternative uses is a task which only the unsophisticated would assume and only the omniscient would discharge' (Stigler 1968:72). Equilibrium theory assumes that we already know what we want to know, namely, the most useful avenue for deploying every resource, and this has deflected attention from the crucially important role of those who are located 'inside' the market and whose trading activities alert us to new, higher-value opportunities. These are the agents who pursue and exploit their superior time-and-place information, an important role explicitly noted by Smith (1937:423, 497) and amplified by Hayek (1978:156). The portrayal of profit as an accidental, fleeting by-product of exogenous factors almost destroyed the profession's appreciation for the agent whose sole purpose is to seek out and take advantage of the informational asymmetries that keep an input's price below its value in some alternative use (as reckoned at equilibrium). Therefore, equilibrium analysis is an integral part of process analysis, and their separation has caused many economists to lose sight of *how* opportunity costs are ultimately quantified.

Speculation (continued)

Nearly every classical economist examined the role of the speculator; here we shall concentrate on the treatments of Smith and Longfield, with brief references to Say, Senior, and Mill. Adam Smith explained that when a merchant begins buying a particular commodity in volume, 'it must be because he judges that the market cannot be so liberally supplied through the whole season as upon that particular occasion, and that the price, therefore, must soon rise' (Smith 1937:500). Smith recognized the vital role of the speculator, whose pecuniary interest in forecasting future conditions of supply (relative to demand) 'makes him study to do this as exactly as he can: and as no other person can have either the same interest, or the same knowledge, or the same abilities to do it exactly as he, this most important operation of commerce ought to be entrusted entirely to him...' (Smith 1937:500). In addition,

Smith noted that the speculator was mobile between industries, moving from corn to sugar to tea, etc.: 'He enters into every trade when he foresees that it is likely to be more than commonly profitable, and he quits it when he foresees that its profits are likely to return to the level of other trades' (Smith 1937:114).

Much of modern-day foreign exchange theory on frictionless adjustments to new expectations in spot and forward markets, such as in Tsiang (98–101, 105–6) and Khouri (119, 139–41), reads like a direct application of the classical analysis of entrepreneurial speculation. For example, J.B.Say wrote that, 'The *prospect* of an abundant vintage will lower the price of all wine on hand, even before a single pipe of the expected vintage has been brought to market...' (Say: 260; italics added). Nassau Senior made a similar observation:

the *probability* of an alteration in the state of supply influences value.... In every commercial community there are capitalists who make it their business *to look out for* commodities of which the supply *is likely* to be deficient, to buy stocks of them, while they are comparatively cheap, and to sell them when they are comparatively dear.

(Senior 1928, vol. II:16; italics added.)

The best overall discussion of speculation was offered by Longfield, who explained that the 'terror' which medieval society felt toward speculation was unwarranted (Longfield: 55, 58–9). A speculator, said Longfield, was nothing more than a dealer who looks ahead and

buys when he foresees that the market is likely to rise, and he gains a profit according to his prudence and correctness of his speculation.... [Speculators] merely alter the time in which [the commodity] is offered to the consumer, and transfer it from a period at which the comparatively low prices show that provisions are comparatively plentiful, to a period when the comparatively high prices indicate a comparative scarcity.... Their information on the subject is generally pretty correct, as their success depends on it.... A dealer soon learns to know what effects his speculations and purchases have upon the market price, and if the dearness is in part caused by his purchases, he knows that it will not continue, and he will cease to buy or to hoard what he foresees he must

at a future period sell at a loss.... [Therefore], the risk to the public is [not that the speculator will buy too much; the real risk] is rather that he will not speculate enough....

(Longfield: 60–2)

John Stuart Mill reaffirmed the classical tradition in this area. Speculators are specialists whose comparative advantage is their foresight, and ‘The interest...of the speculators as a body, coincides with the interest of the public;...they can only fail to serve the public interest in proportion as they miss their own ...’ (Mill 1864, vol. II:287). Mill’s conjecture has been borne-out in a recently developed model of an open economy with speculators. If the speculators’ judgments are accurate, ‘consumers’ terminal utility is higher than their initial utility, and the equilibria to which the price processes converge are Pareto optimal’; whereas, if speculators *consistently* bet on the wrong outcome, a sub-optimal price bubble will ensue (Benninga: 242–3, 250, 253–4). However, experience has demonstrated that herd behaviour is never universal, hence the sub-optimal bubble path is soon broken by the contrary actions of the more prescient speculators.

Recall that intertemporal trade is but one of the three vehicles of competition in classical economics. Stigler’s reading of Adam Smith’s description of the bidding between sellers and buyers (which was based on Stueart 1966:172–8) led Stigler to conclude that in Smith, ‘Competition is a process of responding to a new force and a method of reaching a new equilibrium’ (Stigler 1957:1–2). But to Smith—and especially so to his successors—competition entailed much more than just responding to a new force. Competition was also the conscious act of *creating* a new force via intertemporal trade and through pioneering breakthroughs in how to produce and what to produce. In classical economics, a firm seeks not just to match its rivals, but to exceed them. One-upmanship was the norm: ‘[Competing firms strive] to jostle one another out of employment.... Rivalship and emulation render excellency,...and occasion the very greatest exertions’ (Smith 1937:717 and 732).

NEW METHODS OF PRODUCTION

Man is essentially an imitator; his instincts impel him to amalgamate with the mass.... [W]hy then should the

individual waste the sweets of a momentary existence in rashly and needlessly tasking his feeble powers to form a new path, when one already exists, along which so many have trodden, and which their footsteps have beaten smooth?

(Rae: 208)

The classicals made repeated references to how the quest for profit induces entrepreneurs to cut costs via the introduction of new methods of production and new technologies. J.B.Say even went so far as to mention that attention to stock turnover rates could generate savings by reducing the capital borrowed (and hence interest paid) to finance inventories (Say: 145). In classical economics, therefore, information on the most efficient means of production was something to be *sought*—and he who found it first stood to reap pure profit. Most of the classicals had something to say on this subject, but, for brevity's sake, I shall concentrate on the writings of Smith, Bentham, Senior, Marx, and Mill. We will begin with Mill because he captured the essence of the classical view of competition via innovations in how to produce.

J.S.Mill

In Mill, firms do not make changes in their method of production primarily in response to changes in factor prices (as is the case under perfect competition). Firms which were mere reactors simply vanished from the scene in time. Mill saw revolutions in productive technique as the very means by which the firm's long-run success could be assured. Innovators prospered; mere imitators did not. In Mill's view, he who rests, rots. Competition was the process which generated continued breakthroughs by entrepreneurs who 'fear being thrust back by the efforts of others to push themselves forward' (Mill 1864, vol. II:337). Moreover, exclusive commercial privileges retard this process by shielding entrepreneurs from the anxiety which otherwise impels their quest for new methods:

When relieved from the immediate stimulus of competition, producers and dealers grow indifferent.... A person who is already thriving seldom puts himself out of his way to commence even a lucrative improvement, unless urged by the additional motive of fear lest some rival should supplant him by getting possession of it before him.

(Mill 864, vol. II:547–8)

In Mill, therefore, innovation is not seen as a temporary protective barrier against competition; rather, innovation in how to produce is portrayed as a prerequisite to survival, for the firm must operate in a jungle of incessant one-upmanship. Only in a steady state, said Mill, may we hope to see an end to the ‘struggling to get on’—‘the trampling, crushing, elbowing, and treading on each other’s heels, which form the existing type of social life...’. (Mill 1864, vol. II: 336). But, as noted earlier in this chapter, man’s emulative instincts, lauded by Smith, ensure that the race to better one’s competitors will ‘never...end’ (Whately: 147).

Adam Smith

Although Smith recognized the role of entrepreneurship in revolutionizing methods of production, his treatment was cursory in some respects. Smith obliquely discussed the adoption of new production methods in agriculture and manufacturing, but most innovation in how to produce was largely seen as a natural out-growth of the deepening of the division of labour rather than as the result of the extraordinary efforts of individual entrepreneurs. Recall that one of the three avenues through which specialization increases wealth is the endogenous improvements in tools and methods that are spurred by the desire of workers to lighten the toil of their labour (Smith 1937:9–10). This was seen by Smith as a grass-roots phenomenon: widespread and gradual. In his system, therefore, ‘economic change is primarily the product of a vast number of minor changes introduced by a multitude of comparatively small undertakers. It is not the result of activity on the part of a minority of creative leaders’ (Spengler 1959:8–9). In other words, specialization and commercial freedom spawned opportunities for alert individuals at every level, hence the Schumpeterian entrepreneur is not singled out. Nonetheless, the role of Schumpeter’s pathbreaker is acknowledged. Hollander, who generally agrees with Spengler’s assessment, has cited several specific examples of Smith’s emphasis on ‘innovatory investments’ to demonstrate that ‘the evidence is by no means...one-sided’ (Hollander 1973:207, 211, 212, 216, 217, 227). Smith’s bottom line, says Hollander, is that improvements in production are undertaken to lower price and are thus ‘engendered by competition’ (Hollander 1973:212): ‘The increase of demand...encourages production, and thereby increases the competition of producers,

who in order to undersell one another, have recourse to new divisions of labor and new improvements of art, which might never otherwise have been thought of' (Smith 1937:706, quoted in Hollander 1973:212).⁴

In 1827 Thomas Hodgskin challenged Smith's position 'that these improvements may all be traced to [the] division of labor ...'. Hodgskin contended that innovations 'are closely connected to the will of man', but man's will to provoke change is driven solely by population pressure: 'Necessity is the mother of invention; and the continual existence of necessity can only be explained by the continual increase of people' (Hodgskin: 78, 83, 84, 86). Although John Rae agreed with the necessity theme,⁵ he countered that the spark which 'undoes the palsy of the mind', and 'excite [s] the inventive faculty to activity', was not population growth. Rather, improvements are spurred by social/political/economic disruptions which expose the possibility of new input arrangements (Rae: 222–3). In Rae, entrepreneurs accumulate capital as a deliberate means of seizing new input arrangements, whereas in Smith, macroeconomic expansion and the routine *deepening* of the division of labour (i.e., new specialties) were seen as spontaneous generators of opportunities for technical change which self-interested agents would exploit (see Brewer: 1,6). Adam Smith was 'living in an age when...economic progress was not only consciously sought but seemed in some way to grow out of the [new liberties and competitive forces created by a freer market]. Improvements, then, were not something to be explained' (Young: 529).

Competition, increasing returns, and new technology

The most recently quoted passage from Smith (on the tendency of firms to exploit new divisions of labour and new technology to gain a cost advantage as the market expands) was employed not only by Hollander, but also by Richardson, who quoted it approvingly to support a theme of direct relevance to this paper. Therefore, a digressive exploration of this point will prove highly beneficial, after which we will return to our review of British classical writings on the entrepreneur's role in determining how to produce.

In *Wealth of Nations*, 'Adam Smith did not appear the least troubled by the thought that competition and increasing returns might not be able to coexist...'. For the modern theorist, 'the incompatibility between competition and increasing returns is

made to appear ineluctable...by the nature of the [equilibrium] model of economic reality in terms of which he habitually thinks' (Richardson 1975:353–4; also see 357–8). The how-we-see-things problem to which Richardson refers is apparent in Stigler's article on the extent of the market, which described the 'conflict' between decreasing cost and perfect competition inherent within *Wealth of Nations*. This conflict, said Stigler, 'was temporarily resolved in favor of Smith's theorem [that deepening specialization reduces cost] by the simple expedient of ignoring the conditions for stable equilibrium' (Stigler 1951:85). The late classical and early neoclassical economists saw nothing irreconcilable between the maintenance of a competitive (i.e., barrier-free) economy and gradual downward shifts over time in short-run average cost curves caused by deepening specialization. But this does not mean that they were consciously 'ignoring the conditions for stable competitive equilibrium'; rather, before 1921, most economists *simply did not think about competition in static terms*. From Smith to Marshall, market activity had been suitably framed within a process perspective; the equilibrium model became the dominant paradigm of analysis less than eighty years ago. In fact, said Richardson, 'perfect competition...might reasonably be regarded as a denial of Smith's central principle' (1975:353–4), a point that also disturbed prominent turn-of-the-century economists such as Alfred Marshall and Allyn Abbott Young, the latter of whom supervised Knight's dissertation at Cornell, from which *Risk, Uncertainty and Profit* was born. (See Young's comments in Blitch 1983b:362–4; also see Marshall 1920:xiv–xv, 461, 549).

Analogously, the 'denial of Smith's central principle' distorts macro analysis conducted with the traditional Keynesian-cross or IS/LM models. For example, if foreign trade is initially balanced and the level of imports and exports both double, then $\Delta IS=0$, hence $\Delta Y=0$. However, within an aggregate supply/aggregate demand framework cast in a long-run Smithian mould, a doubling of foreign-trade volume will *deepen* specialization, gradually shifting the production function upward and the AS curve outward, generating $\Delta Y>0$ despite $\Delta AD=0$. This is precisely how Adam Smith and Alfred Marshall saw the relationship between foreign trade and domestic development. According to Smith, exports were the means by which the high costs associated with 'the narrowness of the home market' can be overcome. Low volume 'hinders the division of labor', whereas the high volume achieved through

international trade reduces costs by enabling specialization to be ‘carried to the highest perfection’ (Smith 1937:45). Marshall cited the foregoing passages from Smith and signalled his agreement:

[W]hich a country exports may be such that the difficulty of producing them diminishes...when their amount increases.... [T]he extent to which division of labor ...can be carried is enlarged by every extension of the foreign markets....

The introduction of the economies which are requisite in order to render possible such cases as this on a large scale have seldom been effected within a short space of time. The lapse of generations has been required for that development of England’s invention and economies in manufacture which was attributed in part to her export trade.

(Marshall 1974:12–14)

Marshall’s *Principles* explained that the ‘economies of manufacture’ which occur as Smith’s division of labor is ‘carried to the highest perfection’ are *not* primarily internal economies but rather are external economies (Marshall 1920:318, 320–1, 500). Stigler, in his seminal paper on the extent of the market, supplemented Marshall’s list of external economies by explaining that the deepening of specialization wrought by the widening of the market is accomplished via the flowering of new firms that perform highly specialized tasks for industries from whose wombs they sprang. Stigler’s contribution will be addressed more thoroughly in Chapter 9, which will be dedicated to the inter-related issues of competition and increasing returns.

Before leaving Smith, it is worth noting that Koebner has offered a logical explanation for Smith’s lack of emphasis on the individual initiative that sparked many of the great inventions of his age. Smith’s oft-cited references in *Wealth of Nations* to the collusive inclinations of businessmen (pp. 128 and 460) allow us to infer safely that, *from Smith’s post-mercantilist vantage point*, a businessman’s interest in creating permanent profit through monopoly privilege appeared far stronger than his interest in creating transitory profit via technical breakthroughs in how to produce or what to produce: ‘Monopoly of one kind or another...seems to be the sole engine of the mercantile system’ (Smith 1937:595). Adam Smith’s objective was not to expound on

the marvels of an industrial revolution that, in the 1770s, was in its infancy, and of which he was fully aware (see the evidence in Hartwell: 130–7). Rather, Smith saw as his mission, said Koebner, ‘an enlightenment of the public mind which would operate for the total abandonment’ of the restrictions on entry, namely, those ‘mean and malignant expedients of the mercantile system’ that had become commonly accepted throughout eighteenth-century Europe (Koebner: 389–91; and Smith, 1937:577, respectively). This aspect of Smith’s work has been dimmed, writes Skinner, ‘as a result of the developing orthodoxy...’. In particular, ‘attention might be drawn to Smith’s concern with *processes* of adjustment rather than with equilibrium *states*, and to his emphasis on uncertainty’ (Skinner 1990:162). Ronald Coase agrees: ‘Adam Smith...thought of competition...as a process, rather than as a condition defined by a high elasticity of demand.... I need not conceal from you my belief that ultimately the Smithian view of competition will prevail’ (Coase, 1977:318).⁶

In summary, Adam Smith recognized, albeit without fanfare, the entrepreneur’s role in changing the technology of production. Smith also stressed the non-equilibrium nature of the cost-reducing forces slowly unleashed through the greater division of labour that accompanies extensions of the market. In striking contrast to Adam Smith’s low-key approach to changes in method is the more explicit and enthusiastic coverage in Jeremy Bentham, to whose works we shall now turn.

Jeremy Bentham

A contemporary of Smith, Bentham lived to 1832 and wrote sporadically yet substantively about the intrepid entrepreneur who improved the process of production. His ideas pre-date those of John Rae. Unfortunately, Bentham did not organize his observations in a compact essay or chapter: ‘They are scattered throughout his voluminous writings, the sheer size and style of which are themselves formidable obstacles to overcome...’ (Sebestyen: 4). For this reason, perhaps, Bentham’s ideas on the entrepreneur received no recognition from other classical economists.

Bentham employed the terms invention and innovation interchangeably, and he used ‘projector’ or ‘reformer’ instead of entrepreneur or undertaker. Projector was a common word in the 1800s, but it had acquired a negative connotation among

businessmen because a projector was much more than one who undertakes a business venture. A projector was a bold innovator who changed the status quo of a given industry by gambling on an untested, pathbreaking idea (Sebestyen: 87, fn. 1), but Adam Smith once used the term in an early lecture to refer to governmental planners who stifle private initiative (A. Gray: 533). In Britain during the seventeenth and early eighteenth centuries, the word 'undertaker' was regularly employed to mean Bentham's projector, i.e., the French entrepreneur (Hoselitz: 242). Naturally, those with established positions in commerce resented the movers and shakers (the 'reformers') who introduced new, cost-reducing methods of production (Sebestyen: 34–5). Reformers capitalized on their 'inventive faculties', a term which Bentham had described as '*imagination* directed in its exercise to the attainment of some particular *end*' (Bentham 1843:281, in Sebestyen: 38; Bentham's italics). Change was sparked by those who 'keep a look-out for the fittest and most promising means...' (Bentham 1843:277). 'The envy, and vanity, and wounded pride of the uningenious herd', said Bentham, was the source of the reprobation directed against projectors (Bentham 1952:169, 184, in Sebestyen: 87).

The profit realized from adopting improved production processes is, ironically, the sociological inhibitor of trailblazing activity in traditional steady-state economies. Medieval Europe, for instance, can be likened to today's primitive cultures, where 'the basic ethos is usually anti-entrepreneurial, hence severe social and legal barriers normally constrain projectors. This is not accidental: a society which is economically stagnant can only remain in harmony and stability if the status quo is basically unchanging. *Those who rise rapidly to wealth are seen to do so at others' expense*, and thus the ambitious are condemned...' (Allen Thompson: 105; italics added). Adam Smith was perfectly aware of the dangers from erroneous inferences of social injustice in a dynamic system that is misapprehended as being static:

Wherever there is great property,...the affluence of the few *supposes* the indigence of the many. The affluence of the rich excites the indignation of the poor, who are often both driven by want, and prompted by envy, to invade his possessions. It is only under the shelter of the civil magistrate that the owner ...can sleep a single night in security.

(Smith 1937:670; italics added)

As Smith explained, the resentment over ‘supposed’ injustice is multiplied by envy—‘that passion which views with malignant dislike the superiority of those who are really entitled to all the superiority they possess’ (Smith 1976:244). Envy, a natural but profoundly ‘disagreeable sentiment’, limits our ability to truly ‘sympathize with the joy of others’. So instead of genuinely sharing others’ happiness, we often, at best, can only feign sympathy: We are glad, we say, on account of our neighbor’s good fortune, when in our hearts, perhaps, we are really sorry’. Moreover, since we are aware of envy in others, prudence teaches us to treat our own successes modestly, so as ‘to avoid that envy which [prosperity or personal triumph] is...apt to excite’ (Smith 1976:44, 47).

The impersonal nature and legal institutions of the market largely insulate innovators against such antagonisms, thereby promoting changes in how things are produced: ‘Every thing which is *routine* today was originally a *project*...; and when new, it was the production of that *mischiefous* and bold race...of projectors!’ (Bentham 1825:326, in Sebestyen: 86). Precisely what are the inventions blazed upon the scene by Bentham’s projectors? ‘Among the objects of invention or discovery is method...’ (Bentham 1843:76, in Sebestyen: 39). Upgrading the method of production—‘the pursuit...to produce...in any respect to greater advantage than before’—is repeatedly included in Bentham’s discussions of the projector’s activities (Bentham 1843:226; and 1852:170, in Sebestyen: 226 and 81, respectively).

Yet even Adam Smith succumbed to the bias against the outwardly intemperate streak in the Benthamite projector. In his analysis of usury, Smith *endorsed* governmental ceilings on interest rates! He reasoned (quite logically) that during a period of higher rates, the absence of ceilings would disproportionately encourage bolder, more adventuresome investors to enter in pursuit of the larger quantity of funds being supplied, and thus the intensification of the adverse selection problem might result in the lending of ‘the greater part of the money...to prodigals and projectors, who alone would be willing to give this high interest’ (Smith 1937:339). Smith was unaware that the invisible hand in which he placed so much trust was also active here—leading bankers *not* to charge *uniformly* higher rates, despite an upward push in the market during buoyant macro periods. Instead, non-price rationing and price discrimination are employed during upswings to prevent a reduction in quantity demanded by the more cautious and hence

less risky firms whom the banks want to retain in their portfolios. Such actions ameliorate the hazard posed by the larger percentage of more perilous investment projects which otherwise would be washed in by an unmanaged, one-price rising tide in the interest rate. (See Stiglitz and Weiss: 162–3, including fn.2; also see Schreft and Villamil: 3–4, 7; and Jadlow: 243–6).

Smith's advocacy of government controls over interest rates is highly surprising, especially in light of his strong arguments against regulatory systems, both in his 1790 revision of *Theory of Moral Sentiments* (1976:231–4), and in a similar statement from an early lecture (delivered in 1749) in which he traced the affluence of a society to the willingness of public authorities 'to leave her alone ...in the pursuit of her ends that she may establish her own designs...'. He added that 'All governments which thwart this natural course, which force things into another channel,...are obliged to be oppressive and tyrannical' (from pp. 62–3 of John Rae's *Life of Adam Smith*, London: Macmillan, 1895, quoted in Viner 1991:87). Despite the unexpected political flavour of Smith's credit-market analysis, he *demonstrated his clear awareness that entrepreneurs and capitalists often were not the same agents*. Furthermore, Bentham's letters of criticism to Smith on the dampening effect of usury laws on projectors (in Mossner and Ross: 386–404) were described by J.S. Mill as a 'triumphant onslaught...which may still be...the best extant writing on the subject' (Mill 1864, vol. II: 540–1).

Smith's unflattering comments on 'prodigals and projectors' notwithstanding, his approving, detailed descriptions of the roles of retailers and speculators, plus the four instances (cited by Hollander) of businessmen and farmers who face uncertainty when introducing new methods and products, demonstrate the presence in *Wealth of Nations* of special praiseworthy individuals whose actions are instrumental in the commercial course of events. But these examples have been lost in Smith's otherwise casual portrayal of change as an apparently routine by-product of the division of labour. Schumpeter, for instance, wrote that the entrepreneur 'played a surprisingly small role' in *Wealth of Nations*, causing its readers to get the impression 'that this process runs on itself' (Schumpeter 1991:254–5). Schumpeter's general assessment in this instance is not overdrawn; a neoclassically-tuned economist would notice the absence in Smith of frequent illustrations of the entrepreneur at work. But six references is far from a null set. One

thing is certain: Smith did *not* see the market as a stationary system, as Schumpeter had contended. Grounded in the Smithian network of specialists are forces that promote change *from within*, but not necessarily by a special class of highly visible entrepreneurs as described in *Capitalism, Socialism and Democracy*. Rather, change is promulgated via an unending stream of anonymous entrepreneurial initiatives, such as the case of the young factory lad who, in the pursuit of more play time, found a way to rig his machine so as to free himself from the need to perpetually oversee its operation (Smith 1937:9–10, including fn. 22).

Nassau Senior

Senior is not only respected today; he was also highly respected in his own time, serving as a consultant to major corporations. From his classical perspective, the introduction of more efficient methods of production was an entrepreneurial act rooted in ‘the competition of rival producers’ (Senior 1928:238). Soon after an innovator implemented a new process, his rivals were forced to follow suit:

The instant...that any given class of manufacturers begin to feel that their competitors are outstripping them—the instant they find that commodities similar to their own meet them in the market at a lower price—that instant they ought to know that they are engaged in a contest which, if its elements continue the same, must terminate ruinously.... [I]f they are unable or unwilling to use [the new method of production], their relative inferiority must become more striking every year.

(Senior 1928, vol II:240)

In Senior, prices were *not* seen as parametric. Senior described the rise of oligopoly in manufacturing as being rooted in entrepreneurial alertness to advantages, but he did not view the emergence of megafirms (with downwardly sloping demand curves) as necessarily inimical to the process of competition:

In all the businesses which can be carried on in great establishments and with vast capitals there is a constant tendency toward the extinction of the smaller capitalists and the centralization of the production in the hands of the great producers. The *initiative* is generally taken by some

manufacturer of large capital who possesses, or *thinks that he possesses*, some peculiar advantages of skill or situation. *He lowers his prices* and attracts some of the customers of his rivals in trade. They try to recover themselves by following his example. Everyone tries to extend his sales *and to lower his cost of production*. What is called technically a fighting trade takes place. The smaller and weaker men withdraw; their place is taken by those who can stand the contest. The trade, after having been for some time unprofitable, becomes good. Further improvements take place—at first without any lowering of price. It is then unusually profitable. Fresh capitalists are attracted to it, they endeavor to obtain business by lowering prices; and there is another interval of contest and low profits to be followed by similar periods first of calm and then of prosperity.

(Senior 1928, vol. II:11–12; italics added)

Likewise, Mill concluded that the displacement of small dealers by ‘large capitalists’ will mean that consumers ‘will have to choose, not among innumerable individuals, but among a few groups’. Nevertheless, said Mill, ‘[competition will be as active as ever...’ (Mill 1977:136). Furthermore, said Senior, a large number of producers is not necessary to guarantee that price equals cost. An absence of entry barriers is sufficient to ensure this result. Employing a logic akin to the modern theory of contestable markets, Senior explained that if anyone can hire an agent to manufacture a given commodity *on equal terms* with existing producers, then competition will be *potentially* sufficient to prevent pure profit (see Bowley 1973:163–5).⁷

It should be noted here that Senior’s caveats are important, as are the caveats invoked by Baumol *et al.* in their theory of contestable markets (see Baumol and Willig: 9–33).⁸ During the late nineteenth century, the discipline’s specialists on industrial organization clearly understood and applied the *general* idea of contestability. *If a firm’s start-up capital can be sold later without suffering a loss, as in the costless-exit model of Baumol *et al.*, then pure profit will be minimized by the threat of entry*,⁹ an idea which is implied, but not explicitly captured, in the following sentence from an article in the *Political Science Quarterly* of September 1888:

[When] the gates for the admission of new competitive capital are always open, the economic effect is substantially the same

as if the new competitor were already there; the fact that he *may come* any day has essentially the same effect as if he *had come*, because to *keep him out* requires the same kind of influence that would be necessary to *drive him out*.

(In Hovencamp 1989:145; original writer's italics)

Similarly, in *The Control of Trusts* (1901:13), John Bates Clark had explained the role of incumbents' 'fear of...new mills': 'The mill that has never been built is already a power in the market; for if it will surely be built *under certain conditions*, the effect...is to keep prices down' (abridged from the extended quotation in Stigler 1968:20; my italics). The unspecified 'certain conditions' were later enumerated in Baumol, Panzar, and Willig (2-8, 303), the most important of which is the absence of sunk costs. Thus the key criterion for contestability—liquefiable capital requirements to enable the waging of guerilla war by hit-and-run firms—provided an answer to the question that had been posed by Stigler: 'How does one measure potential competition?' (Stigler 1968:22).

Turn-of-the-century economists, in the main, were not disturbed by the idea of supra-normal returns, as long as these profits were not rooted in government barriers. European economists in particular were not avid fans of trust busting to eliminate pure profit. For example, Robert Liefmann of Germany appreciated that competition often enables winning firms to acquire transitory monopoly profit. But this situation, he said in a 1915 article, should not be isolated from its process context so as to be interpreted as injurious to consumers. To do so is to open the door widely to damage suits under American antitrust law, which 'may lead to great uncertainty as regards the outcome of contracts ...' (Liefmann: 324). While not recognizing the importance Senior had attached to being able to compete on equal terms with established firms (which requires the ability of new entrants to costlessly liquefy their start-up capital), Liefmann did stress the price discipline exerted by capital markets that were unobstructed by protectionist legislation of any type: 'Competition, latent at least, is present as long as the appearance of a new seller in a branch of industry is not precluded.... [T]he more an acquired monopoly position is exploited, the sooner the competitive struggle is renewed' (Liefmann: 316, 317).

Finally, to round-out our coverage of the how-to-produce aspect of the market process, we shall turn from the contestable-market

idea of Senior to the outline of Marx, who is not only a classical economist, but who is, perhaps, 'the last great classical economist'. Marx's view of competition is classical in that it is disruptive of current equilibria, but it is unclassical in that it is truly entrepreneurless. (See the classifications of Marx as classical in Schumpeter 1954:383; A.Walker: 368; and Walsh and Gram: 102. For a dissenting voice, see Sowell 1974:4-7).

Karl Marx

[I]n Marx competition...cannot be considered only an equilibrating force but also a force producing disequilibria. ...Competition in the Marxian sense...aims at enlarging the market share and improving the conditions for the realization of [pure profit].

(Semmler: 741)

Before explaining how Marx saw the role of competition in changing the method of production, it will prove helpful to summarize briefly Marx's theory of labour exploitation, from which, in his eyes, all profit and interest are derived. Marx believed that all value has its genesis in either the efforts of workers or the bounty of Nature. The precise role of the former consumed Marx's writings. The key to Marxian economics lies in the fact that the costs of labour's maintenance and reproduction can be typically met by the revenue from selling, say, the output of eight hours of labour. Employees, however, worked twelve hours a day. So Marx saw the situation this way: a worker could be *used* for twelve hours, but the wages paid him could be recovered by the employer in eight hours; therefore, the surplus output attributed to the last four hours became unearned profit usurped by the employer. In Marxian terms, the use value of labour (the output of twelve hours of work) is greater than the exchange value or price of labour (the output of eight hours of work).

Marx never charged that workers in a capitalist system earn less than their *worth*. This statement at first may seem inconsistent with the concept of exploitation, but it is not. According to the labour theory of value, *every* commodity is worth only the total labour time applied to its production. In our illustration, it takes eight hours of labour per day to produce enough output to sustain a worker, that is, to train him and provide sufficient food, housing,

and clothing to enable him to reproduce. A worker who has eight labour hours embodied in his own production is worth, by the *labour theory of value*, eight hours' wages per day. It follows, therefore, *that if your income is equal to the value of the labour time required to produce you, then you are being paid a salary equal to your worth*. As a result of paying you what you are worth, the factory owner obtains the legal right to use your labour for twelve hours per day, during which time, said Marx, you will produce commodities with an exchange value perhaps 50 per cent higher than your own exchange value (i.e., 150 per cent of your own worth). It would be irrational for a businessman not to exploit such a situation. Thus profit comes from taking advantage of this peculiar institutional feature of capitalism: this is the distilled essence of Marxism (Marx 1952a: 93–4).¹⁰

Hence Marx saw the 50 per cent 'surplus-value' differential as the source of all profit in the classical sense, that is, the source of all returns to physical capital and financial capital (Marx 1967a: 168, 171, 173). He personally traced most of his ideas to early British writers (Marx 1952b:117–26). In the UK, the only explicit rejections of the labour theory of value were in Hobbes (151–2, 208)¹¹ and in Whately (252–3). Within Marx's labour-theory-of-value framework, a rise in the economy's capital-labour ratio will reduce the aggregate profit rate because living labour, the axiomatic source of all profit, will become a smaller portion of the average firm's total inputs. Yet the economy's capital-labour ratio *will* continue to rise, said Marx, because 'competition is... the inner nature of capital, its essential character' (Marx 1973:414). In other words, 'the capitalist who applies [a] new method...[to] contrive to double the productiveness of labour', will, *in the short run*, 'realize an extra surplus value...'. This extra profit, said Marx, is the 'motive for each individual capitalist' to update his process of production. (Marx 1952a:154–5). However, a more capital-intensive production process will yield supra-normal returns only to the first wave of innovators. Given time, 'the coercive law of competition' compels rivals to adopt the new method in an attempt to secure similar bonus profit for themselves, thereby eliminating in short order the advantage of the initiators (Marx 1952a:155; and 1967a:194, 231, 264–5). More important from Marx's perspective, the rise in K/L throughout the economy will reduce labour intensity (the presumed source of all profit) and hence must also reduce the average *rate* of profit on capital (Marx 1952a:308). Nevertheless,

the long-run movement in K/L is upward, because ‘the practical capitalist, blinded by competition...is...incapable of penetrating [this] phenomenon...’ (Marx 1967a:168). Hence in Marx there is a march toward a falling rate of profit, *but not toward an equilibrative rate in the modern sense*, because the unceasing advantage-seeking actions of businessmen make them unable to see that their illogical replacement of labour with capital is the very cause of their declining returns.

Marx failed to differentiate between capitalists and entrepreneurs (an atypical perspective in the classical era); moreover, he never accepted that decision-making under uncertainty was an activity deserving reward (via profit). ‘He must have thought...[that] there is an unlimited supply of people in a capitalist economy willing to take such risks’ (Blaug 1986a:222). Hence Marx missed a point whose cruciality has been bypassed in subsequent radical *and mainstream* literature, namely, ‘that capitalism is one way of ensuring that someone is willing to assume the ‘gamble’ of undertaking production under uncertainty’ (Blaug 1986a:225). An appreciation for how ignorance is overcome via the discovery process—the very process which is ‘the actual source of the acknowledged technical dynamism of capitalism’ (Blaug 1986a: 222)—was lost in both heterodox and orthodox economics. Marx never comprehended the pivotal role of discovery in the dynamics of capitalism. He saw the profit-reducing impact of capital widening and deepening as a hidden, organic, paradoxical force—one that would eventually destroy capitalism as businessmen were induced to intensify their exploitation of labour to compensate for the declining marginal returns on their investments. The discovery problem fared little better in orthodox theory, in which long-term profit is unjustified, for it has no functional role (said Walras). Consequently, complete domination by equilibrium modelling during the 1920s caused the entrepreneur (and pure profit) to vanish, except for the transitory pure profit introduced by exogenous vagaries.

The secular rise in K/L in the face of declining returns—fed by the firm’s unceasing quest for profit via new, labour-enhancing methods of production—was, in the eyes of Marx, ‘The fundamental law of capitalist competition, which political economy had not hitherto grasped...’ (Marx 1967a:37). In volume III of *Capital*, Marx said that the ultimate result of the rising capital-labour ratio would be an evolution from competitive capitalism to

monopoly capitalism, but his remarks on this point are sketchy (Marx 1967a:264, 438). His comments from an earlier essay, however, clearly suggest a process approach to the definition of competition and monopoly:

In practical life we find not only competition, monopoly, and the antagonism between them, but also the synthesis of the two, which is not a formula, but a movement. Monopoly produces competition, competition produces monopoly.... The synthesis is of such a character that monopoly can only maintain itself by continually entering into the struggle of competition.

(Marx 1967b:135)¹²

All that one can say for sure is that the movement toward an equilibrium in Marx was fleeting at best, for it was destined to be unsettled by the incessant quest for profit via innovations in method, as seen in *The Communist Manifesto*, where 'Marx and Engels wrote that "the bourgeoisie cannot live without constantly revolutionizing production" ...' (B.R.Williams: 83).

Thus in Marx, as in Mill, Bentham, Senior, and Smith, the entrepreneur is more than a reactor who promoted general equilibrium by setting his output gauge where $P=MC$ and by hiring inputs until factor prices equalled the value of their marginal products. The entrepreneur continually sought to create pure profit by lowering his average cost curve via pioneering reforms in how things are produced. This key aspect of the competitive process was lost in the modern neoclassical theory which followed (Das Gupta: 67). Two-thirds of the survey of the classical heritage is now complete. Next we shall examine the third avenue of profit-seeking behaviour: competition via widening the range of choice available to consumers.

NEW PRODUCTS

[T]he marginal principle only serves to show how much of each given commodity should be produced. It cannot throw light on the question what [to produce]....

(J.Robinson 1966:49)

Joseph Schumpeter, in his description of creative destruction, explained that the expectation of an abnormally high return on

investment was the ‘bait’ required to ‘lure capital on to untried trials’ (Schumpeter 1976:90; also see Marshall 1964:111). Likewise, Adam Smith recognized that the introduction of a new product entailed a high probability of loss and thereby required, as a spur to entrepreneurial initiative, the commensurate prospect of abnormally high returns to successful offerings: ‘The establishment ...of any new branch of commerce...is always a speculation, from which the projector promises himself extraordinary profits. Those profits sometimes are very great, and sometimes, more frequently, perhaps, they are quite otherwise...’ (Smith 1937:115).

Smith also noted that local merchants complain when the construction of new roads and canals enables the introduction of ‘rival commodities’ into formerly monopolized markets. But the resultant ‘cheapness of consumption and encouragement given to production [are] precisely the two effects which it is the great business of political economy to promote’ (Smith 1937:147, 706). Smith was emphatic on this point: ‘Consumption is the sole end and purpose of production; and the interests of the producer ought to be attended to only so far as necessary for promoting the interest of the consumer’ (Smith 1937:625). Nearly identical statements on consumer sovereignty appear in Steuart (1805, vol. II:214), McCulloch (1965:128–9), and Mill (1982:131). Furthermore, this is the way that literate non-economists perceived dynamic market systems, as evidenced by the observations of a Frenchman recorded during his sojourn throughout the United States in the early 1830s:

It would seem as if...every [American’s] power of invention was on the stretch to find new ways of increasing the wealth and *satisfying the needs of the public*. The best brains in every neighbourhood are constantly employed in searching for new secrets to increase the general prosperity....

(Tocqueville: 512; italics added)

Hence I disagree with the Marxian claim that neoclassical economics represents a Kuhnian revolution *because* the so called study of ‘accumulation as a product of class conflict’ was replaced by the study of production choices driven by consumer preferences (see DeVroey: 417, 426–7, and his Stigler quote on 433). Despite this caveat, I nonetheless believe that a Kuhnian revolution did, in fact, occur. Acceptance of the Robbinsian

definition of economics—with its exclusive emphasis on the allocation of *given* means—forced economists to divorce entrepreneurship from their social vision, which, in turn, altered the way we have cast our analyses of economic development, industrial organization, international trade, and comparative systems.

Adam Smith did not see tastes as given: ‘The desire of food is limited in every man by the narrow capacity of his stomach; but the desire of the conveniences and ornaments of building, dress, equipage, and household furniture, seems to have no limit or certain boundary’ (Smith, 1937:164). In parallel vein, Mises (and Marshall) wrote that a ‘special task’ of the entrepreneur is ‘to find out what formerly unsatisfied wants can now be provided for’ (Mises 1951:445; Marshall 1920:280–1). In classical economics, the discovery of unsatisfied wants was the animating spirit of the market. Wilhelm Roscher, a leading German economist who began writing in the 1840s and is considered to be a non-dogmatic member of the Historical School (Roll: 303–5), described the entrepreneur’s role in product creation: ‘The awakening of latent wants...is something which can enter into the mind of only a man endowed with the spirit of enterprise (an undertaker)’ (Roscher: 146). Furthermore, the agent known as the undertaker was assumed to be different from the financier. As Sismondi explained, a higher selling price—‘above the amount needed by producers to pay all advances’—induces an expansion of output. The entrepreneur responsively ‘calls new capital to his assistance, which he will easily obtain by offering higher interest...’. Thus the businessman’s profits rise, and ‘the capitalist who has lent him money gets...a much higher interest...’ (Sismondi: 261 and 269, fn. 2).

Continental economists did not possess a monopoly when it came to understanding the narrow but incisive role of the undertaker. Sir James Steuart¹³ and Thomas Malthus, for example, elaborated upon the importance of the what-to-produce decision. Nearly a century before Roscher, Steuart gave special praise, not to the capitalist, but to the ingenious product-designer who identifies the goods that will satisfy consumers:

[Refinements [in items for sale] seem more generally owing to the industry and invention of the manufacturers (who by their ingenuity daily contrive means of softening or relieving

inconveniences, which mankind seldom perceive to be such, till the way of removing them be contrived)....

* * * *

Let any man make an experiment..., by entering into the first shop [he encounters]. He will nowhere so quickly discover his wants as there. Every thing he sees appears either necessary, or at least highly convenient; and he begins to wonder (especially if he be rich) how he could have been so long without that which the ingenuity of the workman alone had invented....

(Steuart 1966, vol. I:157)

Malthus expressly implied that the entrepreneur is responsible both for conceiving the new product and for assessing the risks inherent in its marketing. A new product was ‘thrown into the market’ because the entrepreneur had ‘precisely calculated’ its promise as ‘an increase in value owing to a better adaptation...to the tastes, wants and consumption of the society’ (Malthus: 318). Product innovations designed to lure customers, said Malthus, were not part of the assemblage of capital nor the routine mechanics of production: ‘...to fabricate or produce commodities of this kind is the grand difficulty; *and they certainly do not naturally and necessarily follow an accumulation of capital...*’ (Malthus: 318; italics added).¹⁴ Michael Porter’s recent books on international competitive strategy have focused on the issues raised by Malthus and other classicals on gaining advantage by revolutionizing method or product. (Porter’s arguments have been admirably summarized in Arthur Thompson: 440–58; also see Raymond Vernon’s Product Life-Cycle Hypothesis, put forward in 1966 and updated in 1979, as described in Lindert: 110–12 and R11).

The entrepreneur’s unique contribution was also recognized by Senior: ‘the *advantage* derived from any given business depends so much upon the dexterity *and judgment* with which is it managed...’ (Senior 1938:102; italics added). And John Ramsey McCulloch, ‘the most prolific writer on political economy in Britain’ from 1815 to 1825 (Langer: 40), stated unequivocally that the facet of entrepreneurial dexterity known today as marketing (or middleman activity) ranks equal in importance to primary activities like manufacturing and agriculture (McCulloch 1965:124). Moreover, ‘Bentham’s concern with the extent and freedom of the capital market’—evidenced by his complaints over usury laws as the source

of bankers' unwillingness to lend to pathbreaking firms—‘indicates that [Bentham's] projector is not necessarily an owner of capital...’ (Sebestyen: 132, 174). As previously noted, Bentham's views on the impact of usury laws were praised by J.S. Mill (1864, vol. II:540–1, 544–5). Furthermore, in testimony to Parliament, Mill endorsed limited liability for shareholders who were not corporate officers (as in the USA and France), a change that would create funds from small investors and thereby increase the number of entrepreneurs with access to capital:

[The proposed new law] would enable...persons of recognized integrity and capacity for business to obtain credit, and to share more freely in the advantages which are now confined in a great degree to those who have capital of their own.

I do not think anybody can now appreciate the degree in which the existence of restrictions on partnerships may prevent persons of capacity for business from obtaining credit and the uses of capital which would be advantageous to the public and to them.

(Mill 1967b:422–3)

The entrepreneur, therefore, was clearly assigned a distinctive role by at least seven English political economists: Steuart, Smith, Bentham, Mill, Senior, Malthus, and McCulloch. Their treatments were not as pronounced as those on the Continent, but, contrary to the claim made by most neoclassical economists (including Schumpeter), they were not guilty of a ‘failure to isolate the entrepreneurial function from that of pure ownership of capital ...’ (Blaug 1986a:220).

Of course, the more detailed Continental analyses of entrepreneurship have long been recognized (see Blaug 1986a:220–2). The treatments of Say and Mangoldt, in particular, are meritorious. J.B. Say noted that the recombination of existing goods by the entrepreneur does not miraculously create new matter; nonetheless, such entrepreneurial acts *do* create new utility, and hence the entrepreneur does, in fact, produce new wealth (Say: 62). The most penetrating discussion of the entrepreneur's role is in Hans von Mangoldt, whom Schumpeter classified as one of the nineteenth century's ‘most significant’ economists (Schumpeter 1954:503). Mangoldt explained that economic profit is rooted in the entrepreneur's recognition, ahead of others, that a new product, C, composed of inputs A and B, will likely fetch a price that exceeds the

current values of A plus B. The discovery of this heretofore undetected opportunity cost, said Mangoldt, in effect makes the production of C a reality. Pure profit is derived from this unique contribution of the entrepreneur: his reallocation of A and B, an act which subsequently *reveals* that $P_C > P_A + P_B$. Of course, as a result of this revelation, consumers indirectly hire agents (newly-informed Walrasian capital managers), to acquire A and B and produce C ‘as perfectly and cheaply as the original firm itself’, thereby eliminating economic profit via an outward shift in the supply curve (Mangoldt: 51–2).¹⁵ Of course, this replication process *takes time*, during the course of which the first mover will earn supra-normal returns. Mangoldt saw profit as a justifiable reward for finding a heretofore unrecognized source of potential utility, namely, that the value of combination (A+B) may exceed the separate values of A and B.¹⁶

Additional aspects of the discovery process relating to the introduction of new commodities were addressed by Say and four British economists (McCulloch, Bentham, Senior, and Malthus). Say alluded to product differentiation via trademarked goods and saw advertising as a tool to inform consumers of quality differences (Say: 181–2). From Say’s treatment we can also infer that commonplace and therefore presumably homogeneous commodities were, in fact, already highly differentiated to draw the variety-seeking consumer:

At Paris, London, and Amsterdam, there are shops where nothing else is sold but the single article tea, oil or vinegar; and it is natural to suppose that such shops have a much better assortment of the single article, than those dealing in many different commodities at once.

(Say: 95)

‘[I]t is usually in the course of a regular trade’, said J.B. Say, ‘that a merchant hazards the introduction of a virgin commodity...into an untried market...’ (Say: 84). As a result of the entrepreneur’s experiments in marketing (which Say described as a process of trial and error), ‘society at large receives the accession of a new product ...’ (Say: 83).¹⁷ High risk means high rewards, but only to those few in the industry who succeed in catching the consumer’s attention; for the rest, the return on investment is ‘scanty’ at best (Say: 332). Nevertheless, as in a lottery, it is the lure, not of a fair return, but of a gargantuan payoff which yields an incessant stream of creative

initiative in the markets for human and physical capital (Mill 1864, vol. I:475–6; and Smith 1937:106–11).

Incidentally, in a striking anticipation of Veblen's observations (as resurrected by Galbraith in the 1950s), Say discussed conspicuous-consumption items which 'may sometimes very liberally reward the labor and capital devoted to their production' (Say: 332 and 396–411, especially 406; also see McCulloch 1965:493–6). But Say and McCulloch never suggested that the state should override consumers' desires for conspicuous consumption; in fact, J.B. Say inveighed against all state intervention except steps to eliminate fraudulent advertising and copyright counterfeiting.

Another figure who recognized competition via changes in what to produce was McCulloch, who mentioned differentiated products, the growth of retail credit, and quality improvements. McCulloch explained, for example, the insurance (information) value embodied in non-counterfeit trademarked goods: 'certain marks...impressed on goods...give the public a guarantee for their being genuine, that is, for their being made or supplied by the parties whose names they bear' (McCulloch 1965:230). He also noted the wide use of retail credit to attract custom: 'a very large amount is lent under what may be called 'shop credits', or by selling goods to customers, to be paid for at their convenience ...' (McCulloch 1965:75). More significantly, McCulloch believed that quality enhancements were an inherent part of the competitive process: Wherever industry is emancipated from all sorts of restraints, those who carry it on endeavor, by lessening the cost or by improving the fabric of their goods, or both, to extend their business;...' (McCulloch 1859:485). Bentham agreed: 'in the pursuit of wealth,...projectors aim at any thing that can be called an *improvement*, whether it consists in the production of any new article adapted to man's use, or in meliorating the quality ...of those which are already known to us' (Bentham 1952:170, in Sebestyen: 81).

Steuart's discussion of shop credits was more insightful than McCulloch's, for Steuart understood that, while money overcomes the double-coincidence-of-wants problem of barter, money alone cannot overcome the double-coincidence-of-timing problem faced by agents whose demands arise *before* their supply receipts are in hand (as elaborated in Clower: 5–8, and in Clower and Howitt: 463–4). The quid-pro-quo requirement of barter cannot be obviated by money alone, whereas money *plus* credit solves the timing synchronization problem facing many traders, a point which

Steuart apparently understood: '[A]s...money was invented to facilitate barter, so the merchant with his credit is a new refinement on the use of money. The merchant, I say, renders money still more effectual in performing the operations of buying and selling' (Steuart 1966, vol. I:156).

People's longing for variety and their desire to assert their individuality through their possessions were underscored as the source of product differentiation by Senior, McCulloch, and Malthus. Senior explained that the principle of diminishing marginal utility propelled consumers' search for variety (Senior 1928, vol. I:93; and Bowley 1937:95–6). '[T]he desire for distinction', wrote Senior in 1836, 'may be pronounced to be the most powerful of human passions' (Senior 1938:12).¹⁸ Unless one attributes to Senior a belief in a magical machine that spontaneously generates product variants, the deliberate introduction of new offerings by entrepreneurs is clearly implicit in his references to utility maximization through variety-seeking. The consumer's quest for untasted sources of physical and spiritual sensation, stressed by Senior, is a phenomenon whose importance was likewise appreciated by Malthus:

It is unquestionably true that wealth produces wants; but it is a still more important truth that wants produce wealth. Each cause acts and re-acts upon the other, but the order, both of precedence and of importance, is with the wants which stimulate to industry;...One of the greatest benefits which foreign commerce confers...is its tendency to inspire new wants, to form new tastes and to furnish fresh motives for industry.

(Malthus: 403)¹⁹

McCulloch, meanwhile, explained precisely how the market responds to the consumer's desire for diversity and distinction:

[Certain new retailers] are in some measure emancipated from the influence of that competition which beats down the prices and profits of their neighbors to the common level. There is a *je ne sais quoi* about their shops, which has a powerful attraction for certain classes of customers, and induces them to buy articles there, which they might buy elsewhere at a cheaper rate.

(McCulloch 1832:4)

Elsewhere, McCulloch described markets in which producers seem to be facing infinitely elastic demand curves: 'everyone knows beforehand where he may dispose to the best advantage all he has to sell...'. Firms, said McCulloch, 'have no difficulty... finding merchants for their produce...'. Nevertheless, in the same paragraph McCulloch added that businessmen are preoccupied with 'how they may improve and perfect' their enterprises (McCulloch 1965:124). The former condition, standing in isolation, would tend to support the claim that our forefathers thought in terms akin to ourselves. But the latter condition reaffirms that, despite the existence of infinitely elastic demand curves at any given moment, the classicals saw the market as a continual process of entrepreneurially-inspired change in method and products aimed at profit creation. So again, prices were not seen as immutably parametric; consequently, the idea of a general movement toward a determinate equilibrium was not a reflexive part of their thought patterns.

My review of the early literature will conclude with a set of J.S. Mill's thoughts that are not congenial to my thesis. First, it may be helpful to restate the purpose of this chapter. A thorough examination of the writings of the classical economists supports my contention that the classicists did not see firms as passive reactors whose primary purpose was to restore equilibrium following some disturbance. The market as portrayed in neoclassical (Walrasian) economics would have appeared incongruous to most economists from Smith to Marshall, for they saw competition as a process of change which improved welfare. In equilibrium theory, on the other hand, initiatives launched to alter methods or products yield perverse (yet mathematically consistent) reductions in static welfare via movements away from the utility-maximizing state of affairs (i.e., the tripartite equality between price, marginal cost, and minimum average cost). Thus far, the classicals' approach to intertemporal trade, how to produce, and what to produce has been consistent with my thesis; however, the following writings of Mill on products and pricing are unsupportive.

POSTSCRIPT ON J.S.MILL: The pea in the mattress

Mill distinguished between constant-cost industries (caused by the combination of constant returns to scale and infinitely elastic supply curves for inputs) versus increasing-cost industries (caused

by the rents accruing to inputs whose supply curves slope upward). He reasoned in modern fashion, explaining that, although constant costs are uncommon, ‘it is not the less necessary to conceive distinctly and grasp firmly the theory of this exceptional case...[for it] will be...of great assistance in rendering the more common case intelligible’ (Mill 1864, vol. I:547–8, 552).

Curiously, Mill had little to say on new products. Of pricing in general, his discussion was cast in terms that would be strikingly familiar to an equilibrium-trained theorist, for he wrote that price uniformity within a market will occur only when ‘unimpeded competition’ reaches its zenith (Mill 1864, vol. I:310, 313). Yet he recognized that this was not the prevailing case: ‘...there [are] in every large town, and in almost every trade, cheap shops and dear shops...and, as a general rule, each retailor adapts his scale of prices to the class of customers whom he expects’ (Mill 1864, vol. I:311).

Mill said that ‘competition falls short of the maximum’ *not* because of monopolies; but rather, Mill ascribed the existence of ‘cheap shops and dear shops’ to inertia rooted in time-honoured traditions between retail dealers and their customers (Mill 1864, vol. I:307, 312, 313). Note the sharp contrast in Mill vs Say and McCulloch, who ascribed dear shops to the experimental process of competition, i.e., to the deliberate differentiation of products, showrooms, and customer service to better satisfy consumers’ Veblenian tendencies. Mill added, however, that as markets widen and the number of outlets grows, the effect of custom evaporates as retailers vie for the consumer’s dollar by underselling each other. Mill believed that in large, concentrated commercial centres, custom is simply a minor source of friction, whereas, in pre-industrial times, custom prevailed over competition: ‘there is always a master who throws his sword into the scale, and the terms are such as he imposes’. Only with the dawning of the nineteenth century, claimed Mill, did competition ‘become in any considerable degree the governing principle of contracts’ (Mill 1864, vol. I:307, 311–13). In 1890, John Neville Keynes countered Mill’s claim by citing several notable examples from the Middle Ages, such as the black death plagues, when competition, not custom, determined market prices. (J.N.Keynes: 273–6).

Finally, Mill’s discussion of a too-many-sellers case is evocative of the modern-day ‘waste theorem’ of sub-optimum equilibrium under monopolistic competition (Mill 1864, vol. I:311). His position on middlemen, in fact, was couched in waste terms: ‘there

is no function in the economy of society which supports a number of persons so disproportionate to the amount of work to be performed' (Mill 1864, vol. I:508). Mill's disciple, John Cairnes, echoed Mill's view, citing 'the excessive amount of capital which ...has found its way into the business of mere distribution. The inevitable consequence is that...those who have embarked in retail business are compelled...to charge higher prices for their goods than would be necessary if the total amount of capital in [middleman activities] were less' (Cairnes: 114–15). Mill and Cairnes seemed to have in mind an improvement in static welfare via a reduction in the number of middlemen, with a simultaneous enlargement of each dealer's output, thereby reducing the total volume of middleman capital (See Figure 4.1). Their complaint, therefore, appears equivalent to the waste theorem of equilibrium theory: sub-optimal societal utility due to too many sellers charging prices higher than if perfect competition prevailed.

Mill and Cairnes had a blind spot when it came to applying the leading principle of *Wealth of Nations* to the activities of middlemen. In 1752 David Hume had explained why the widening of the market would deepen the specialization of middlemen: 'As the people increase in numbers and industry, the difficulty of their intercourse increases: The business of the agency or merchandize becomes more intricate; and divides, subdivides, compounds, and mixes to a greater variety' (Hume: 300).

Mill's bottom lines are frequently marked with an unmistakably neoclassical equilibrium flavour, yet at the same time are often tempered by distinctly classical caveats that reflect his process perspective. He explained that the 'natural [average cost] values' to which prices are 'constantly gravitating' are themselves subject to incessant *endogenous* forces, such as entrepreneurially-induced changes in method, and 'miscalculation', presumably of consumers' preferences. In a competitive economy, said Mill, positive or negative deviations in the return on capital 'cannot long continue to be the case'; nevertheless, 'fresh disturbing influences [are] continually arising to make it again deviate' (Mill 1864, vol. I:556–7, 560–1).

Mill's lessons on speculation, new methods of production, competitive alternatives for discovering improved solutions to social organization, and institutional factors restricting the entrepreneur's access to capital (all covered in earlier sections) reflect his process perspective, but his equilibrium-based discussions of price and excess middlemen certainly sound familiar

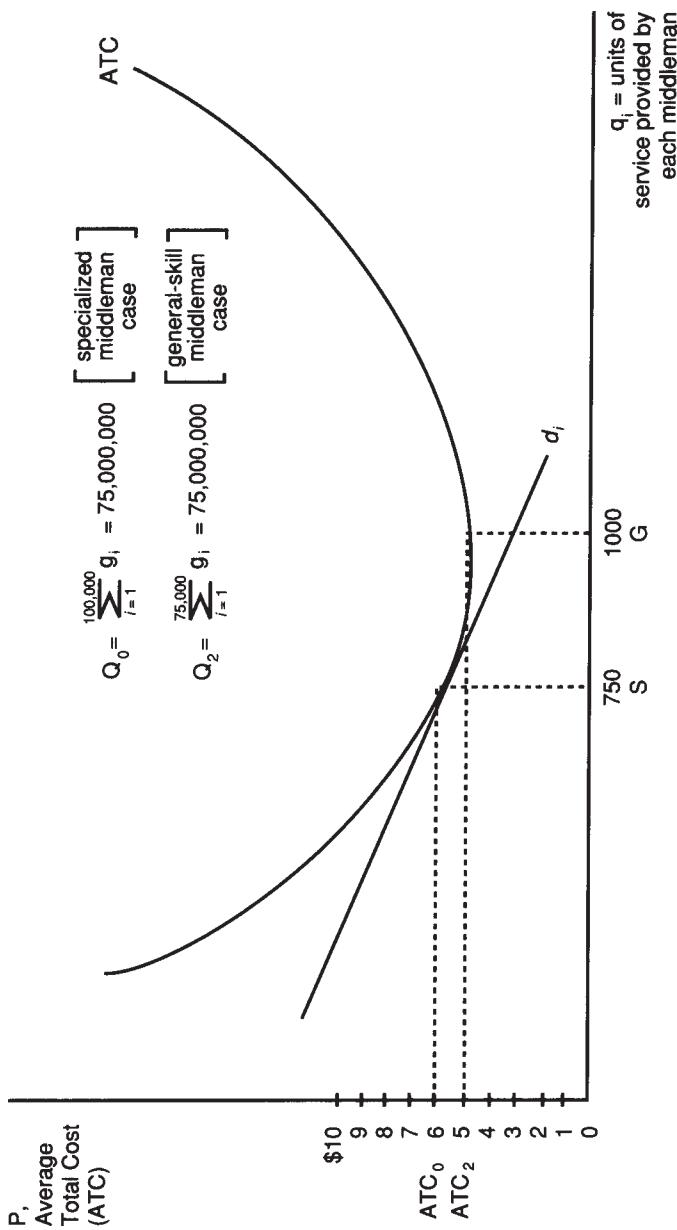


Figure 4.1 Mill's complaint about excessive middlemen can be recast in static terms as follows: The inefficiency of too many sellers is due to the existence of unexploited capacity (waste) at equilibrium. Suppose we begin with 100,000 middlemen (Q_0), each with one unit of capital, and each providing 750 units of highly specialized service (point S). This means that each average cost (point G). By partially despecializing and using more capital to enlarge the middleman's scope, 75,000 agents (Q_2) specialized middleman is actually using his capital at only three-fourths of its optimum capacity, i.e., its capacity at minimum could each provide 1000 units of more generalized service. Thus unit cost could be cut by 16% (from \$6 at ATC0 to \$5 at ATC2), simply by having a smaller number of middlemen, each using his capital more intensively to serve a broader number of trades. In other words, aggregate production would remain at 75 million units of service, but it would be of a more homogenized character, thereby enabling each remaining agent to exploit the untapped scale economies previously forfeited (at point S) under the initial 'overspecialized' and 'overstaffed' regime. This, in turn, would reduce by 25% the total capital required for middleman services; that is, instead of each middleman tying up a unit of capital to provide 750 units of specialised service (while letting the equivalent of one-fourth of that unit of capital effectively stand idle due to the excess-capacity phenomenon), the provision of more generalized services will mean that *each* of the remaining middlemen can *fully-employ* his *entire unit* of capital. This will enable the 75,000 remaining middlemen to produce 1000 units of service each (at point G), thereby releasing 25,000 units of formerly underemployed capital for other uses. (See the excellent treatments of the mainstream position on excess capacity as it evolved in the postwar era, in Hyman: 412-14, and in Reddall and Miller: 164.)

to modern-day writers. Yet, if one seeks the common themes marking the habits of thought of the overwhelming majority of major and minor classical writers, including Mill, one is struck by their emphasis on entrepreneurial profit-seeking as the engine of exchange. Granted, these impressions are more prominent and better developed in the Continental texts, but they were not absent from the works of the British, most of whom included either straightforward or implicit acknowledgements of the unique contributions of the entrepreneur. In short, the classical conception of competition, with few exceptions, was moulded by a sense of the market as a process of discovery, not by some embryonic form of modern-day equilibrium thinking.

SUMMARY AND CONCLUSION

This in-depth probe of the classical literature has revealed that the founders of the discipline viewed competition as a tapestry of aggressive commercial behaviours which created pure profit by speculating on price futures, engineering new methods of production, and inspiring new product lines to better serve consumers. Deciding precisely which bold profit-seeking action to pursue was the responsibility of the entrepreneur, on whose judgment and information-gathering skills rested the entire capital of the firm. His expertise was recognized as instrumental in tackling the uncertainty which, among other things, shrouds contracts in forward markets, threatens the adoption of new production methods, and imperils the launching of new commodities. The speculation in Smith and Longfield; the drive to revolutionize manufacturing techniques (described so well in Mill, Bentham, Rae, and Marx); and the product-innovation roles in Roscher,

McCulloch, Say, Steuart, Senior, and Malthus, all require initiative and foresight. None of these three cornerstones of classical market activity is consistent with a regime of neoclassical perfect competition. Consequently, the primary-source literature provides compelling evidence that the classical view of competition and monopoly was rooted in a notion of process, not equilibrium. McNulty reminded us that the decades preceding publication of *Wealth of Nations* were punctuated by 'the gradual emergence of a body of literature in which price determination through the principle of competition was coming to replace ethically and

politically oriented price administration...' (McNulty 1967:396). The author of a study on pre-Smithian value theory, commissioned at the turn of this century by the American Economics Association, concluded that late in the mercantilist era, '[t]he medieval [canonist] notion that if in trading one party gained more than his legitimate wages he did so at the expense of others, still held sway over ordinary minds and influenced the policy of legislators' (Sewall: 588). And, as was noted above in the subsection on Bentham, Adam Smith was fully cognizant of the dangers that arise if the mass of people attribute their poverty to the profits that have enriched the business class. Given this historical context, the emphasis of classical writers on the equality between price and cost should not be narrowly interpreted as evidence of an equilibrium frame of mind in the modern sense; the overarching focus of their treatments was on *the wisdom of the competitive process itself*, of which the state of affairs that characterize its theoretical consummation was a major part. The earlier classicals, in particular, were concerned foremost with supplanting privilege with the sociopolitical institutions needed to elicit and harness the entrepreneurship through which consumer demand would fuel production and exchange. They and their immediate successors, therefore, did not reason implicitly by way of an unsophisticated version of the model of perfect competition that came to be the taproot of neoclassical analysis. Yet, by studying the classical era through equilibrium lenses, Ricardo's atypical, exclusive focus on endstates was incorrectly attributed to his contemporaries and successors. Hence we have Samuelson's claim that 'Inside every classical economist is a modern economist trying to get out' (Samuelson 1977:42). An eminent legion of post-Marshallian theorists has interpreted the past in terms of the warmly-embraced Walrasian model of the present, a misinterpretation which has affected the history of economic thought and a host of other fields in the discipline.

The purpose of the present survey has been to establish that neoclassical economists have come to see things differently than their forefathers. The founders did not see market activity as we do today (that is, simply as a set of parametric reactions which inexorably move the economy toward equilibrium), for such a vision requires a field of emasculated firms, unable to conduct intertemporal trade or to alter methods or product. Classical economists were certainly interested in the notion of comparative

statics, but they were *more* interested in the sociopolitical womb that nourished the entrepreneurial forces by which the economy was being perpetually propelled. In short, our progenitors were mainly concerned with the forces creating diversity; the reactive behavioural consistency required for general equilibrium was of secondary importance. Therefore, the notion of defining competition as the state of affairs yielded by perfect knowledge—which induces entrepreneurial impotence—would have been totally foreign to the classical mind.

A thorough sifting of the classical heritage is a necessary first step in my research programme, which is designed to demonstrate that a sharp intellectual break occurred when the behaviour of the passive firms of Walras became the standard for categorizing agents' actions as either pro-social or anti-social. By supplementing this survey with a detailed recounting (in Chapter 10) of the early neoclassical transition period and beyond, the reinterpreted historical portrait will be complete, and the conclusions will be unambiguous: the advent of the perfectly competitive model was purely a neoclassical phenomenon whose effects on our habits of thought were far reaching, for it not only contributed to a uni-dimensional focus in the theory of the source of international trade, but it also led to a redefinition of the norm of competition and thereby revolutionized prescriptive economics in the areas of industrial organization and economic development.

My survey of how the classical economists treated the three profit-seeking activities of entrepreneurs is now complete. A distinctive component of the classicals' understanding of competition was their unfailing recognition of the problems of operating in an environment in which information is not only incomplete but also disparate; this special aspect of the competitive process will be further examined in the next chapter.

UNCERTAINTY AND ENTREPRENEURSHIP IN CLASSICAL POLITICAL ECONOMY

The individual who buys raw cotton or raw silk, with the intention of manufacturing it into articles of dress or furniture, supposes that the article, when manufactured, will sell for a price sufficient to indemnify him for his expenses, and to leave him the customary profits on his capital. There is, however, a good deal of risk in an adventure of this sort: were the fashion to change while the articles are in preparation...; or, were new facilities given to the commerce with countries whence similar articles may be procured, or any discovery made which facilitated their production, their price would certainly fall....

(McCulloch 1832:72)

Thomas Mun explained that merchants must strive to achieve the impossible: ‘perfect knowledge’ (Mun: 2, 7). The absence of complete information creates an opportunity for he or she who can combine data and experience so as to detect incipient trends in markets. Appropriately, the classical economists made uncertainty an integral part of their writings. It was the ubiquitous, haunting presence of uncertainty, particularly demand uncertainty, which provided the *raison d'être* for entrepreneurship. J.B.Say said it best: ‘one of the talents of a producer, and a talent his own interest obliges him assiduously to cultivate, is not the mere knowledge, *but the foreknowledge*, of human wants’ (Say: 145; italics added). Successfully betting on this foreknowledge, emphasized Mangoldt, is the sole source of entrepreneurial income. Mangoldt explicitly questioned theoretical analyses which abstract away from time and uncertainty, for such an approach makes it impossible to account for the *persistence* of pure profit, ‘[which] can be explained only in

this way: the undertaking of production entails cost/ revenue data which cannot be known in advance' (Mangoldt: 51–2). Irving Fisher agreed. He described the entrepreneur as the 'leading figure in modern industry' because his 'foresight' is an 'exceptional ability' that is needed to cope with uncertainty. Hence the residual (pure profit) retained by entrepreneurs is 'a well-deserved reward for the general good their sagacity brings to the public' (I. Fisher: 457, 459, 460, in Barreto: 56). Nearly identical comments were made by another prominent American economist, Frederick Bernard Hawley, in the July 1890 and November 1900 issues of the *Quarterly Journal of Economics* (see Barreto: 36–8).¹

There was a broad consensus among the classicals on this issue. The undertaker, declared Roscher, is responsible for 'calculating the changes of the whole enterprise.... It should not be forgotten that the persons most expert, far-seeing, active and expeditious in things economic, belong to the undertaking class' (Roscher: 147, 153). Nearly a century ahead of Roscher, Cantillon had highlighted the hazards which precipitous changes in demand and supply impose on primary producers, middlemen, and retailers, who must 'bind themselves to pay...[the] fixed...market price of the day, to get...an uncertain [future] price....'² (Cantillon: 49, 51, 53; Hoselitz: 235 credits Cantillon with being the father of entrepreneurial theory). To combat uncertainty, the entrepreneur must be forever vigilant in search of information. J.B.Say's comments echo Mun's 'perfect knowledge' ideal:

It is necessary to be well versed, not only in the nature and quality of the merchandise in which the adventure is made, but likewise to have some notion of the extent of demand, and of the markets whither it is consigned for sale. For this purpose, the trader must be constantly informed of the price-current of every commodity in different parts of the world.

(Say: 331)

McCulloch added that the shopkeeper should always be on his premises so that his alert antennae may sense shifts in his customers' 'wants and their circumstances' (McCulloch 1832:3). Changes in fashion, for instance, can be especially injurious to both manufacturers and merchants. Firms must also contend with the threat of unanticipated new entrants from abroad and from the introduction by competitors of new production methods, both of which drive down price (McCulloch 1832:72; and Smith

1937:114). Also, recall that Malthus had singled out the identification of consumer wants as ‘the grand difficulty’ facing not the capitalist, but the entrepreneur, whose advantage lies in his ability to assess the ability of a new product to better satisfy ‘the tastes...of society’ (Malthus: 318). Likewise, recall that the ‘speculation’ involved in successfully identifying ‘any new branch of commerce’, said Smith, is the source of the entrepreneur’s ‘extraordinary profits’ (Smith 1937:115).

THE SEARCH FOR THE EQUILIBRIUM PRICE

Arrow has explained that neoclassical economics provides no rationale for its assumption of a unique price which fulfills the condition that $S(p)=D(p)$: ‘there is no reason for [profit-maximizing] behavior to lead to a unique price except...under conditions of perfect knowledge’ (Arrow 1959:42, 43, 46). For industries in which inventory accumulations are carried, a sudden rise in stocks is a reliable signal that demand is falling (Arrow 1959:48).³ However, the presence of unplanned and hence unwanted inventory accumulations is incompatible with the perfect-knowledge postulate of perfect competition (Gogerty and Winston: 122–3). The existence of excess inventories is a disequilibrium phenomenon caused by imperfect information. And without perfect knowledge, exchanges will occur at non-equilibrium prices as firms search for the loss-minimizing price under the new, reduced-demand regime.

By this standard of analysis, Longfield’s treatment, circa 1834, was insightful. He not only assumed imperfect information, but he also provided a rationale for why firms do not conduct so called ‘fire sales’ to quickly reduce unintended inventory accumulations: namely, the expected replacement cost is the producer’s reserve price (which explains downward price stickiness):

[The] manufacturer, when he finds difficulty in disposing of his goods, will keep some of them rather than sell them at a lower price than it will cost him to replace them by manufacturing. In this manner a temporary derangement of the usual proportion between the demand and the supply is prevented from exercising any considerable influence over the price of manufactured articles, and any such derangement can be only temporary as manufacturers will not continue to

produce goods which they are unable to dispose of, or can only dispose of at a loss. This prevents any considerable fall of price;... (Longfield: 50)⁴

Implicit in Longfield's analysis is a series of adjustments in price and output as new information becomes available. But new information is continually forthcoming; therefore, it is reasonable to infer that, in the classical mind, adjustments in price and output were part of an incessant Hayekian discovery process. One of the factors that must be discovered is the ephemeral wants of consumers—a problem which is compounded by the fact that, at any point in time, men and women are mentally groping toward the configuration of their most desired bundle of goods (by pre-balancing, in their own minds, the expected utilities from the affordable alternatives that are available). Entrepreneurs, therefore, must offer menus and then respond to the preferences revealed by consumers' selections. Dr. Samuel Johnson, the famous eighteenth-century English essayist and lexicographer, understood this particular aspect of the human condition:

What, [asked Prince Rasselas], makes the difference between man and all the rest of the animal creation? Every beast that strays beside me has the same corporal necessities with myself. ...I am hungry and thirsty like him, but when thirst and hunger cease I am not at rest; I am, like him, pained with want, but am not, like him, satisfied with fullness.... [T]he sounds that pleased me yesterday weary me today, and will grow more wearisome tomorrow.... *[T]hat I know not what I want is the cause of my complaint....*

(S.Johnson: 220–1; italics added)

Tocqueville also described 'this strange unrest of so many happy men, restless in the midst of abundance'. Our mortality 'is a constant spur' that causes people 'continually to change their track for fear of missing the shortest cut to happiness'. The thought that death will come before all of a man's 'fancies' can be realized 'fills him with anxiety...and keeps his mind in ceaseless trepidation, which leads him perpetually to change his plans and his abode'. Death, of course, ends 'his bootless chase of that complete felicity which forever escapes him' (Tocqueville, vol. II:137).

The classical perspective can be seen most strikingly in the writings of Steuart and Dupuit. Steuart highlighted the special role

of middlemen—‘wholesalers and retailers’—in revealing consumers’ wants: ‘merchants come at the knowledge of the quantity of work in the market, as on the other hand the manufacturers learn, by the sale of goods, the extent of the demand for them’ (Steuart 1805, vol. I:243). ‘Trade brings to light many things highly important for individuals to know, who live by relieving the wants of others...’ (Steuart 1805, vol. II:216). Furthermore, retailers and manufacturers are not the only agents who glean information from the act of trading. Consumers must also gather information on sellers’ reservation prices, which are ultimately ‘betrayed’ through competition. The consumer, said Steuart, ‘often measures the value of what he is about to purchase by the weight of his purse...’ (Steuart 1966, vol. I:178). The merchant gauges not only the pattern of consumer demand, but also its intensity at any given moment, and benefits accordingly. Steuart noted, for example, that ordinary books and fish ‘are often sold for considerable sums’ to inexperienced consumers (Steuart 1966, vol. II:177). But the market process, said Steuart precisely, fosters ‘discovery’ amongst consumers, and thereby narrows the initial asymmetry of information between buyers and sellers: ‘merchants profit at first at the ignorance of their correspondents;...the competition between themselves, when profits are high, make them betray one another;...’ (Steuart 1805, vol. II:217).

In the area of what to produce, the thoughts of Jules Dupuit resemble those of Steuart, Malthus, and Roscher. He examined specific scenarios in which the entrepreneur, writes Ekelund and Hébert, had ‘to discover combinations of attributes and characteristics that consumers value, *and* to price them so as to maximize profits’ (Ekelund and Hébert: 28). For instance, Dupuit described the theatre industry. ‘[Entrepreneurs]’, wrote Dupuit, must ‘adapt their prices to all the whims of the spectators, those that go to see, those that go to be seen, and those that go for every other reason’. Consequently, through experimental pricing, information is discovered on the utilities reaped by various groups: ‘Customers are made to pay according to the sacrifice they are prepared to make to satisfy their whims...’ (Dupuit, in Ekelund and Hébert: 25).

In the spirit of Dupuit’s example, suppose the entrepreneur develops—through hunch, observation, or experimentation—*two*

additional theater products: box seats and balcony seats. By devising a scheme of differentiated products and prices, the entrepreneur thus attempts to segment both the high end and the low end of the demand curve, and to sell in both regions.

(Ekelund and Hébert: 25)⁵

Marshall's position reflected that of his predecessors. He wrote that industrial competition generates 'restlessness and inventive power, which leads to the striking out of new paths' (Marshall 1964:111). Moreover, he agreed with Roscher's assessment: 'a characteristic task of the modern manufacturer [is] that of creating new wants by showing people something which they never thought of having before; but which they want to have as soon as the notion is suggested to them' (Marshall 1920:280-1, in Loasby 1982:236). Thus in classical economics, the product was not given and the price facing the firm was not always known, as in the parametric models of neoclassical theory. In Steuart, Smith, Longfield, Malthus, McCulloch, Dupuit, Mangoldt, and Marshall, the uncertainty shrouding product selection (and hence price) was the great devil (and source of great opportunity) facing the entrepreneur.

INSTITUTIONS AND INFORMATION

[A] very considerable degree of inequality, it appears I believe, from the experience of all nations, is not so great an evil as a very small degree of uncertainty.

(Smith, 1937:778)

The classical economists saw information as the lifeblood of the market. And since merchants receive essential updates through their correspondence, the 'speedy conveyance of letters', said McCulloch, reduces uncertainty. On the other hand, delayed mail delivery puts the merchant at an informational disadvantage and is thereby 'hostile in the extreme to [the] interests [of commerce]' (McCulloch 1832:25). More importantly, Mill urged the government to refrain from any tax which inhibits the flow of information:

Nearly allied to the taxes on contracts are those on communication. The principal of these is the postage tax; to which may be added taxes on advertisements, and on newspapers, which are taxes on the communication of information.

[I]n whatever degree advertisements are useful to business, by facilitating the coming together of the dealer or producer and the consumer, in that same degree, if the tax be high enough to be a serious discouragement of advertising, it prolongs the period during which goods remain unsold, and capital locked up in idleness.

(Mill 1864, vol. II:463–4)

As an historic classical, it should be noted that government postal services responded to the demand by merchants for expeditious lines of communication. In the United States, for example,

the number of post offices increased from 90 in 1791 to 4,500 in 1820 and 13,500 in 1840; the cost of a two-sheet letter fell from 50 cents in 1816...to a flat rate of 3 cents in 1850. Transmitting an order between Philadelphia and Boston [500 km] required two weeks in 1790, but only 36 hours in 1836.

(Du Boff: 15)

Mill also urged the adoption of strict monetary expansion rules to offset the inherent pressure on governments to overissue ‘the medium in which their own debts are computed’ (Mill 1864, vol. II:91, in Humphrey: 189). Mill explained that *unexpected* inflation heightens uncertainty by creating ‘a *false opinion* of an increase of demand; which false opinion leads, as the reality would do, to an increase of production’ (Mill 1833, in Humphrey: 188; Mill’s italics). And, in a striking anticipation of the monetarist and rational-expectation doctrines of the 1970s, (designed to explain the upward-sloping portion of aggregate supply in the short run), Mill stressed that the additional production from ‘false opinions’ can be repeatedly induced only by a perpetual ‘delusion’, namely, by keeping actual inflation greater than expected inflation via ‘a *progressive* rise of money prices’ (Mill 1864, vol. II:97, in Humphrey: 188; italics added by present writer). Mill’s highlighting of this point is particularly relevant to modern-day underdeveloped countries in which inflation occurs in yo-yo fashion:

[E]conomies with unstable macroeconomic policies will induce entrepreneurs to spend most of their time trying to keep informed about the variables relevant for decision making. ...Many firms realize that they have much more to

gain or lose by correctly anticipating economic policy than by increasing the efficiency of their operations.

(Sturzenegger and Tommasi: 245)

At the end of the nineteenth century, the asymmetry of information remained a key stumbling block to price uniformity. '[I]gnorance may act as a drag for a long time', wrote Alfred and Mary Paley Marshall in 1884: 'One of the most important of the unwritten chapters of economics is that on the time that elapses between economic causes and their effects in consequence of the slowness with which knowledge diffuses itself (Marshall and Marshall: viii)

ADAM SMITH AND SOCIAL JUSTICE⁶

What is the use of discussing a man's abstract right to food or to medicine? The question is upon the method of procuring and administering them.

(Burke: 151-2)⁷

In the mid 1700s, the poor were supported through state-directed church levies collected locally from parishioners and distributed locally to the village needy. Thus the establishment and maintenance of residency in a parish was vital for welfare eligibility, a fact which had inhibited labour mobility in Britain, particularly during the 1600s (Smith 1937:135-40). As work in the cities became more common, additional sources of assistance became available, such as the precursor of modern-day social-security programmes (like workmans' injury compensation, financed via premiums paid by employers), as evidenced by Smith's mention of the existence of a 'regulation which enables those of the same trade to tax themselves in order to provide for their poor, their widows, and orphans...' (Smith 1937:129). But Smith believed that, in the industrial age that was dawning, private sources of charity had to be supplemented by the commonwealth through government payments to the needy.

Smith's support of publicly-funded beneficence was rooted, not in some endorsement of the need for redistribution, *per se*, but in his recognition of a cogent new justification for a socially-funded safety net. Smith believed that competitive one-upsmanship was the engine of creativity (1937:717, 732), hence he frowned on the idea of promoting egalitarian outcomes through state action. On this subject, he approvingly paraphrased an author of a book on the

history of English poor laws: '[I]f all persons in the same kind of work were to receive equal wages, there would be no emulation, and no room left for industry and ingenuity' (Smith 1937:141). Smith's call for state-supported charity was prompted, therefore, not by a desire to artificially reduce inequality, but rather by the individual's growing lack of dependence on the extended family, a change that occurs in a society that offers new opportunities to those who are mobile: 'A man of low condition,...as soon as he comes into a great city,...is sunk in obscurity and darkness' (Smith 1937:747). In medieval times, protection was rooted in the support one could expect from one's clan. But in an impersonal society where one's person and property are protected by laws which reflect the widespread, grass-roots acceptance of the right to accumulate wealth, there will ensue a rise in individual autonomy and hence a decline in the reciprocal obligations that had provided material insurance to members of pastoral clans (such as today's American Amish):

In commercial countries, where the authority of law is always perfectly sufficient to protect the meanest man in the state, the descendants of the same family, having no such motive for keeping together, naturally separate and disperse, as interest or inclination may direct. They soon cease to be of importance to one another; and, in a few generations, not only lose all care about one another, but all remembrance of their common origin, and of the connection which took place among their ancestors. Regard for remote relations becomes, in every country, less and less, according as this state of civilization has been longer and more completely established.

(Smith 1976:223)

Smith accepted the Laffer-Curve phenomenon, which he credited to Jonathan Swift; hence he opposed taxes which would 'obstruct the industry of the people...' (Smith 1937:778, 832-3).⁸ Also, he did not invoke the principle of short-run diminishing marginal utility of income to justify wholesale redistribution: 'The poor man must [not] steal from the rich, though the acquisition might be much more beneficial to the one than the loss could be hurtful to the other' (Smith 1976:138). Nonetheless, Smith *did* advocate taxation of the general public to support the poor, progressive in some cases (Smith 1937:794), for he conceded that private charity alone would be insufficient. However, Smith signalled that he was keenly aware

of the ominous threat posed by those who promise, seductively and deceptively, an end to misery via redistribution⁹—a threat which, at any time, could lead to the harnessing of the taxing powers of the state to transform the safety net into an instrument of outright egalitarianism, a step that would ultimately destroy civil society and thereby usher-in the dreaded Hobbesian state of ‘warre of every man against every other man’ (Hobbes: 185).

The laws of all civilized nations oblige parents to maintain their children, and children to maintain their parents, and impose upon men many other duties of beneficence.... Of all the duties of a law-giver, however, this, perhaps, is that which requires the greatest delicacy and reserve to execute with propriety and judgment. To neglect it altogether exposes the commonwealth to many gross disorders and shocking enormities, *and to push it too far is destructive of all liberty, security, and Justice.*

(Smith 1976:81; italics added)

According to Smith, ‘we are said to do justice to our neighbour when we abstain from doing him any positive harm, and do not directly hurt him, either in his person, or in his [property], or in his reputation’ (Smith 1976:269). Rabbi Hillel, when asked in the first century AD to briefly summarize all the lessons of Hebrew scripture, answered in a Smithian vein: What is hateful to you, do not do to your fellow man. That is the whole Torah; the rest is commentary’ (Elide: 323). In Smith, as in Hillel, the golden rule of life is not an exhortation to intentionally ‘do good’ for your neighbour; rather, it is a warning to do him or her no intentional harm.

By ‘justice’, therefore Smith did not mean the promotion of equal outcomes; rather, he meant more generally the existence of a competitive process of production and exchange governed by the rules required to ensure free entry in labour and capital markets (Smith 1937:134–5, 140, 420–39, 460–1). These rules, such as guaranteeing the ‘promises of others’ via state enforcement of contracts, ‘admit of no exceptions or modifications’, for they have evolved through social consensus to protect life and property and to encourage initiative. Violations of these principles ‘call loudest for...punishment...’ (Smith 1976:84, 175). Smith explained the unequivocal nature of his philosophy in plain English: ‘beneficence...is the ornament which embellishes, not the foundation which supports the building.... Justice, on the contrary,

is the main pillar that upholds the whole edifice' (Smith 1976:86; also see Burke: 265). Therefore, '[t]he peace and order of society is of more importance than even the relief of the miserable' (Smith 1976:226).

Smith's uncompromising position was rooted in prudence and compassion, not callousness. 'Universal poverty', he wrote, 'establishes...universal equality...' (1937:672). Furthermore, if the mass of people are miserable, and redistribution is employed, let's say, 'to assure social justice' (via levelling), then production will be choked off and the mass of people will remain *interminably* miserable. If, on the other hand, a Smithian system of *process justice* is employed—whereby fairness is determined by the *non-privileged* nature (Smith 1937:618) of the rules governing entry and participation (versus equality of results)—then wealth-creating institutions will evolve and the means of mass production will emerge (via the division of labour), which will relieve the misery of the masses within a few generations. Smith wisely advocated the latter course. (See additional quotes from Smith and their analysis in Campbell: 187–8.) Smith warned that the chief cause of systemic poverty is not the unequal distribution of current production, but rather the uncertainty over taxes that retards future production. He believed that confiscatory or other 'injudicious' taxes would 'discourage [investors] from applying [their capital] to branches of business which might give maintenance and employment to great multitudes' (Smith 1937:778). Fifty years later, Sismondi described the practical relevance of the explosive growth in pin production engendered by the division of labour that was nurtured by a Smithian system of process justice:

[Consumers] will have a much larger number of suits for the same money, or better suits;...In this way we have seen certain pleasures that were once considered luxuries, descend step by step to classes who did not have them. Glass windows, before reserved to palaces, are found today [1826] in the meanest cottages.

(Sismondi: 266–7; also see Smith 1937:4–5, 12)

Yet most intellectuals, of yesteryear and today, seem much more concerned with the equality of any given year's outcome than with either the nature of the constitution responsible for the outcome, or the general welfare-enhancing aspects of a less-equal outcome (the widespread and substantive relief of the miserable through the

elimination of malnutrition and other poverty-related diseases that plague most of mankind). Engels, for example, complained in 1844 of the ‘very bad condition’ of the clothing of the majority of workers: Wool and linen have almost vanished from [their] wardrobes and cotton has taken their place’ (quoted in Ashton: 47). It probably never occurred to him that *very* few working people had *any* type of ‘wardrobe’ prior to the industrial revolution, a point that was featured prominently in *The Results of Machinery*, published in 1831: ‘[O]ne century ago not one person in five hundred wore stockings; now, not one person in a thousand is without them’ (quoted in Hammond and Hammond: 53). Smith’s comments on this matter (which contain a word that is politically incorrect by today’s standards) clearly reflect his belief that inequality was a small price to pay to ensure that the masses were ‘tolerably well fed, clothed, and lodged’,—for ‘[n]o society can surely be... happy, of which the far greater part of the members are poor and miserable’ (Smith 1937:78–9). A free-market economy produces great inequality, in which capital owners ‘frequently [earn] a hundred times more...than the greater part of those who work’;¹⁰ nonetheless, the ‘abundance’ generated by the invisible-hand system ‘is so great, that...a workman, even of the lowest and poorest order,...may enjoy [more] of the necessities and conveniences of life than it is possible for any savage to acquire’ (Smith 1937:lviii). Smith prudently opted for inequality over mass misery, while today’s social-justice intellectuals cling to utopian visions which circumvent the trade-offs necessitated by the distasteful reality of self-interest as the prime regulator of human affairs.

J.S. MILL AND REDISTRIBUTION

Harry S. Truman, US President from 1945 to 1952, reportedly quipped that what he wanted was ‘a one-handed economist’—because his queries directed to the Council of Economic Advisors invariably generated ambiguous responses in the following format: ‘On the one hand..., but on the other hand...’ (Wagnon: 261). John Stuart Mill is strikingly guilty of this charge. In any given essay, his initial position on a particular subject should never be quoted in isolation, for it is likely to be highly circumscribed or completely neutralized in a subsequent paragraph of the same essay (or in another work). Consequently, culling out his bottom lines is a

ticklish task. The discussion below is based on a carefully balanced distillation of Mill's 'on the one hand/other hand' analyses of redistribution; it complements the earlier coverage of Mill's approach to socialism.

Although Mill's instincts were unabashedly egalitarian, his process perspective compelled him to stress the critical impact of uncertain property rights on the will to produce. Mill yearned for a less unequal distribution of income and a slower, noncompetitive pace of life, but usually he did not let his normative vision overcome reason and experience. 'We have...to consider', said Mill, not the institutions contrived by men to transfer income from one person to another, but rather, we must consider 'the consequences' of such policies: 'Society can subject the distribution of wealth to whatever rules it thinks best; but what practical results will flow...must be discovered...' (Mill, 1864, vol. I: 258–9).

In his autobiography, completed just before his death, Mill declared that he was at heart a socialist driven by two philosophical tenets. First, his mission in life was 'to be a reformer of the world'. Second, justice required 'common ownership' of resources *and* equal dividends therefrom to all members of society. However, Mill believed that his egalitarian vision could not be accomplished until man had been, in some 'distant...period', remoulded to breed out the selfishness that had been inculcated by 'the whole course of existing institutions...'. Like Marx, Mill naively believed that self-interest was cultural, not natural, and hence that people could be transformed to become other-directed. He credited his wife's persuasive influence in this area with changing his opinions over time (Mill 1924:93, 161–4, and 175–6).

It is clear that Mill believed that the reconstitution of man *could* be accomplished, but it is unclear whether he believed that it ever *would* be accomplished, hence we do not know whether or not he accepted Marx's position on the historical certainty of communism as the final system of production.¹¹ We do know, however, that Mill believed that nineteenth-century capitalism was giving way, through peaceful evolution, to competitive syndicalism (see the discussion on pp. 30–1 of Chapter 2). I suspect that Mill resigned himself to the idea that collective ownership alone (without the 'new man') could not generate the Nirvana of which he dreamed, and hence he repeatedly warned his readers of the counterproductive impact of premature utopian policies aimed at massive redistribution. Unknown to Mill, Marx had also roundly

condemned, in an essay suppressed by rival socialist adversaries, the advocacy of collective ownership *as an easy road to equality*. Redistribution was not a substitute for the long period of reeducation needed to cleanse human beings of the foul motivations attributable to the capitalist womb (see Marx, in Tucker: 525–31). Salvation could come, said Marx, only *after* men and women were born again into full communism via many generations of socialist tutoring and conditioning, at which time they could finally institute the ‘primordial condition of liberty’ invoked by Mikhail Bakunin, the Russian anarchist (and disciple of Proudhon) who had led an uprising in Lyons, France, in 1870: ‘From each according to his faculties; to each according to his needs...’ (see Davidson: 131–2)¹² In the meantime, concluded Marx, inequality will be needed to provide incentives to ensure productivity. To promise otherwise is to practice ‘vulgar socialism’ (Marx, in Tucker: 532).

This pragmatic judgment was shared, I believe, by Mill, whose works indicate that he independently reached the same conclusion. Mill carefully and repeatedly caveated his personal preference for equality by stressing that if human nature cannot be changed to enable the ‘principle of property’ to be replaced by a principle *genuinely* rooted in ‘community’ (not state force), then he would oppose equality (see Mill, 1988a:337; 1972:50–1; 1967b:736–7, 740, 748–9; and 1864, vol. II:336–7). Mill’s bottom line was based on his belief that, given people’s adamant desire to keep their income *and to make bequests to whomever they please*, government policy, as a pragmatic matter, must guarantee its citizens ‘the full and unmolested enjoyment’ of the fruits of their capital and labour (Mill 1988a:336). However, Mill disliked the ‘overenriching’ of a select few via ‘unearned’ inheritance instead of through personal exertion; consequently, he preferred, not a confiscatory estate tax, but a law that would encourage the spreading of bequests over large numbers of beneficiaries (private and public) through a tax to be levied on any recipient who is bequeathed more than the amount required ‘to afford the means of comfortable independence’. He admitted that the desired effect of his ideal law could be easily circumvented, either by increasing the current consumption of one’s children, or by sending capital abroad (Mill 1864, vol. I: 268–9, 287–90, and vol. II:492). Therefore, Mill in effect conceded that his normative scheme was ‘unavailing’ because it amounted to an artificial intellectual construction designed to nullify the compelling desire of people to

dispose of their assets as *they* see fit, as recognized in his own introduction to the issue of inheritance: ‘the ownership of a thing cannot be looked upon as complete without the power of bestowing it, at death or during life, at the owner’s pleasure: and all the reasons, which recommend that private property should exist, recommend...this extension of it’ (Mill 1864, vol. I:287). Although he acknowledged the impracticality of his wishful proposal to limit the bequest received by any individual, Mill’s endorsement of this idea has proven inimical to free enterprise, for it has inspired radical levelling schemes by latter-day egalitarians (J.Gray: 4–5).

Mill did not see an inheritance tax in particular, nor state spending in general, as primary vehicles for alleviating poverty. His aversion to such a strategy had three bases. First, he objected, on ethical grounds, to violating the common-law rules governing work and income. In Mill’s eyes (as in Aristotle’s), unequal is not necessarily inequitable. To divorce ‘energy’ and ‘prudence’ from reward via steeply graduated taxes was termed an ‘injustice’ (Mill, in Kurer: 720–1). Given man’s current state of nature, Mill saw the social-justice issue in terms of a rules process (such as assuring free entry and uniform treatment, etc), rather than in terms of promoting equality of final outcomes to redress the inequality of inherited and acquired human capital. (An excellent comparison of the conflicting philosophical visions of social justice can be found in Sowell 1987:67–94 and 121–40). Therefore, it seems that both Smith and Mill appreciated what a modern-day political theorist has called ‘the vital distinction’ between safety-net programmes vs schemes expressly designed to reduce inequality via soak-the-rich taxes:

Social insurance and assistance to the needy can be regarded as legitimate functions of the public sphere, properly supported by public revenues. The obligation of citizens to pay taxes to finance the legitimate expenses of government has never been doubted by the liberal tradition. Financing public-welfare expenditures with tax dollars in no way conflicts with the notion that people have a right to what they earn, and that their own property is genuinely private. But as social programs grow larger and more complex, it is all too easy to make the mistake of regarding redistribution as a logical extension of—or even simply a way of rationalizing—the welfare spending of the liberal state. This is an error to

which [neoclassical] economists are particularly prone, given their penchant for focusing on economic effects (i.e., how much is being transferred to whom) rather than political principles (i.e., on what grounds the money is being transferred) [results vs. process]. Yet there is an immense gulf of principle between the welfare state and the redistributive state, which can be crossed only at the gravest peril to a liberal political order.

(Plattner: 47–8)

Mill's second basis for rejecting widespread intervention by the state was purely practical: He feared that tax progressivity would grow in steepness and thereby cripple the incentives to save and invest, and thus would retard progress (Mill, in Kurer: 721). In a stationary state, however, Mill was willing to tax inherited wealth more heavily (Mill 1864, vol. II:338–9).

The third and final basis for Mill's opposition to egalitarian schemes is his implicit rejection of the static neoclassical position that the existence of diminishing marginal utility of income affords an opportunity to boost societal welfare via redistribution. Mill reasoned in *cardinal*, not ordinal terms, and he believed that, as people grow in experience, they derive heightened satisfaction from their incomes. In other words, 'Mill believed that...tastes vary with the level of income; people acquire expensive tastes, so to speak...' (Kurer: 720). Consequently, for any given person, the numerical measures of each dollar's utility are certainly declining at any given point in time, but *over time* the height (in the cardinal plane) of the descending staircase is ratcheting upward as people mature, culturally and otherwise. In Mill, therefore, diminishing marginal utility does not justify progressive taxation, because the non-uniformity of tastes means that 'people do *not* get similar utility from similar income' (Kurer: 720, including fn. 19).

Mill understood that redistributive policies could not eradicate poverty. Robin Hood institutions 'may lower the heights of society, but they cannot...permanently raise the depths' (Mill 1864, vol. II:338). Therefore, we may reasonably conclude that, despite his own egalitarian predilections, Mill consistently opposed activist, state-led measures to promote equality:

Mill of course did advocate a social program that serves the poor [such as public relief for the destitute, programs to assist ownership among the landless, and a tax-subsidized,

compulsory education system], and it is redistributive. However, he refused to go beyond a minimalist welfare program.

His outlook, when all is said, was fundamentally hostile to the [idea of a levelling-oriented] welfare state. He wanted to nurture economic growth and individual responsibility and believed that this was being undermined by a system of redistribution and social security.

(Kurer: 713, 716, 723, 725, 728)¹³

Mill appears to have equivocated at one point. He suggested that property originally acquired without personal, sweat-of-thy-brow effort of some kind should not be protected, for it was not subject 'to that equitable principle, of proportion between remuneration and exertion, on which...every vindication...is assumed to be grounded'. He seemed to have in mind property arrangements forged in 'conquest and violence', as compared to those based on 'acquisition by industry' (Mill 1864, vol. I:268–9). This interpretation is strengthened by Mill's other comments on the same general subject: 'capital may not have been, and in most cases was not, created by the labor and abstinence of the present possessor; but it was created by the labor and abstinence of some former person, who [in the medieval era] may indeed have been wrongfully dispossessed of it, but who, in the present age of the world, much more probably transferred his claims to the present capitalist by gift or voluntary contract...' (Mill 1864, vol. I: 279).¹⁴ Hence Mill's views on the acquisition of property fully conform to Nozick's principles of distributive justice (see Nozick 1974:150–3 and 231).

In general, therefore, Mill's position on protecting the returns to physical capital, entrepreneurship, and other human capital was unambiguous. He feared 'the high degree of uncertainty' that would be fuelled by the unbridled quest for equality, hence the tax code must not be confiscatory nor should the social ethos contain the threat of future confiscation (Mill 1864, vol. II:274). Mill emphasized both 'the nature and consequences' of the market process (Mill, 1864, vol. II:272), and his plentiful writings on the former displayed a keen Smithian concern over the potentially 'fatal' impact of taxation on entrepreneurial incentive:

Insecurity paralyses.... And this is a main reason why

oppression by the government, whose power is generally irresistible by any efforts that can be made by individuals, has so much more baneful an effect on the springs of national prosperity, than almost any degree of...turbulence under free institutions.

[I]n the barbarous despotisms of many countries of the East, where taxation consists in fastening upon those who have succeeded in acquiring something in order to confiscate it, unless the possessor buys its release by submitting to give some large sum as a compromise, we cannot expect to find voluntary industry, or wealth derived from any source but plunder.

(Mill 1864, vol. II:491–2)

Mill believed that the principles of a free society grounded in the rule of law must be fostered, because, contrary to the cause-and-effect ordering of Karl Marx, the mode of wealth-creation is the result, not the cause, of a nation's sociopolitical constitution: 'The progress...in the physical sciences and arts, combined with the greater security of property, and greater freedom in disposing of it, which afford space and scope for an indefinite increase of capital and production', are *the dividends* of the modern liberal order of Locke, Hume, Smith, Jefferson, Madison, etc. The Scottish Enlightenment promoted freedom not only of property but also of conscience, resulting in a synergistic 'diversity of tastes and talents, and variety of intellectual points of view...'. Mill was uncompromising on this point, for he believed that 'the mainspring of moral progression' is the creative turbulence wrought 'by bringing intellects into stimulating collision, and by presenting to each innumerable notions that he would not have conceived of himself ...' (Mill 1864, vol. II:276 and 271, respectively; and Mill 1987:71, 136). Yet Mill also subscribed to the Marxian anthropological notion that human beings are not pre-disposed toward self-interest. Mill came to believe that modes of production fuelled by private profit had caused people to become selfish, and a replacement by a collectively-owned, altruistically driven system would gradually alter the nasty behaviour that had been implanted by modern, free-market arrangements (Mill 1924:163). History has demonstrated that Mill's conversion by his wife on this matter proved to be a

mistake, albeit a harmless one, for the combined weight of all his earlier writings has served to counteract this error.

Smith and Mill shared a process theory of social justice; that is, they defined justice as the enforcement of the free-entry rules that society had adopted (through many centuries of trial and error) to facilitate individual autonomy and self-improvement via specialization and trade. They feared the debilitating cloud that an entitlements theory of justice would cast over the entrepreneurial spirit that permeates and enriches every aspect of life in a market economy. By an entitlements theory of justice, I mean a belief that society should indemnify its members for all the inconveniences created by the vagaries of an imperfect world. This belief is the bedrock of the modern-day culture of victimization, by which the public purse is held hostage by those who demand three things from government: First, redress for every disadvantage, real and imagined, that has either afflicted one's ancestors or is encountered during one's own temporal existence; second, the provision of virtually unlimited therapeutic services to cope with the stress of daily life; and third, social insurance against every contingency that may arise from womb to tomb.

SUMMARY

The classical framework addressed both the transparent and the subtle sources of uncertainty. Information on demand and supply, for example, was obviously a scarce commodity, and the job of the entrepreneur was to gather and employ it so as to earn supernormal returns on the capital at his command:

[Entrepreneurship] requires...[j]udgments, perseverance, and a knowledge of the world as well as a business. [The entrepreneur] is called upon to estimate with tolerable accuracy the importance of the specific product, the probable amount of demand, and the means of its production.... He must have a ready knack of calculation, to compare the changes of production to the probable value of the product when completed and brought to market.... Those who are not possessed of a combination of these necessary qualities are unsuccessful in their undertakings....

(Say: 330-1)

Say's recognition of the role played by asymmetric information was

shared not only by his colleagues on the Continent, but also by Steuart, Longfield, Malthus, McCulloch, and Marshall. Moreover, recall that Senior had highlighted the pivotal role of those who must confront uncertainty, make judgments, and then bet the firm's capital on their resultant managerial actions (Senior 1938:102). Marshall made a nearly identical observation in his *Principles* (1920:491). Finally, J.S. Mill, the premier economist of his age, emphasized the impact of various subtle sources of uncertainty on the producing agents of society, such as sluggish flows of information that inhibit exchange, the impermanence of output tricked forth by unexpected changes in the money supply, and the undermining effect on initiative of confiscatory taxes. Uncertainty and entrepreneurship, therefore, were central to the classicals' understanding of the market process—a centrality that is irreconcilable with the equilibrium vision which succeeded it.

THE PERFECTLY COMPETITIVE MODEL: EVOLUTION OR REVOLUTION?

[In] the textbook-derived tradition...[,] scientists of earlier ages are implicitly represented as having worked...with the same set of fixed canons that the most recent revolution in scientific theory and method has made seem scientific.

(Kuhn: 138)

A Kuhnian revolution—that is, a distinct change in concept and analytical apparatus—occurred in economics during the 1920s as the model of perfect competition became the keystone of analysis. More importantly, the desire to build a new science dedicated to evaluating comparative positions of static general equilibrium led neoclassical economists to adopt the perfectly competitive endstate as a normative ‘benchmark’ (Hahn 1970:5; and Roberts 1987:837). An inferior welfare outcome was assigned to any state of affairs which deviated from the zero-profit, minimum-cost output of the perfectly competitive firm (Stigler 1937:717). This development profoundly transformed how economists reasoned and hence was a sharp break with the classical tradition.

The way economists think about competition invariably affects public policy. As Derek Bok has noted, ‘[the] troublesome field [of antitrust] cannot be fully understood apart from the prevailing theories and discoveries, attitudes and prejudices that have to do with the phenomenon of competition’ (Bok: 267, 286). Therefore, strong reasons exist to provoke an assessment of how economists’ thinking on competition changed, when it changed, why it changed, and the impact of the change.

To establish the veracity of my position, two areas will be addressed. First, the propriety of invoking the term revolution will be evaluated. Second, three specific cases will be examined to

illustrate how the thinking of modern economists has been shaped by the model of perfect competition. The general theme of this chapter will be carried into the next four chapters; a plethora of historical evidence will be catalogued to establish my case that the triumph of the perfectly competitive model as the norm of economics was not an evolutionary development but rather was a radical break with past habits of thought.

PARADIGMATIC REVOLUTIONS

Knut Wicksell and Martin Bronfenbrenner have charged that no genuine Kuhnian revolution has ever really occurred in economics. Wicksell cited, among other examples, the incessant debate among economists over free trade, 'a dispute which had apparently been settled finally [by Ricardo]' (in Myrdal 1971:xiv–xv).¹ Echoing Wicksell's position, Bronfenbrenner believes that Kuhn's claim is too strong; that is, overthrown paradigms are never 'displaced definitely and relegated to the antiquarian's dustbin'. Usually, says Bronfenbrenner, 'antitheses are ignored or neglected', but they often survive, 'hibernating in a kind of intellectual underworld, and remain antithetical until the next revolution' (Bronfenbrenner 1971:137, 141).

I readily concede that 'in economics,...all doctrines live on persistently' (Myrdal: xv). However, this fact in no way detracts from the more general idea evoked by the term 'Kuhnian revolution'. The perfectly competitive model remoulded the theory of the firm and the role of the entrepreneur, thereby inspiring new lines of inquiry *within an equilibrium framework*, specifically, it set the stage for and sparked the ensuing (unsuccessful) attempt by Sraffa to establish monopoly as the norm of economics. Therefore, Kuhn's controversial term has been deliberately employed because the eventual adoption of the perfectly competitive model constituted much more than a new research programme or package of technical refinements of earlier thinking. The end result has been that neoclassical economics was forced by the imperative of its new operational matrix to see the market as a continuum of remedial imperfections causing deviations from the welfare maximum attainable in a world of perfect competitors. The impact of the perfectly competitive model, therefore, was far reaching.

IMPLICATIONS OF THE NEOCLASSICAL CONCEPT OF COMPETITION: THREE CASES

The equilibrium paradigm changed how economists were taught to think about the market in general and competition in particular, which, in turn, fundamentally altered the conceptual framework in three key areas: price formation, the predictability of the equilibrium price vector, and the effects of monopoly. By way of a capsulized overview of ensuing analysis, consider the following points:

Price formation—The virtual immutability and parametric nature of prices at equilibrium, versus entrepreneurship and unforeseeable price movements due to continuous discoveries of higher-utility employments.

Modelling and predictability—Parametric prices as the precondition for the determination of the neoclassical equilibrium production vector, versus imperfect information as the genesis of a process whose culmination would be a set of equilibrium prices and quantities *different* from those forecast under the perfect-knowledge assumption in Walras' *Elements*.

Redefinition of monopoly—Behaviours considered beneficial to consumers under classical economics were redefined as harmful under the static models of neoclassical economics.

‘Before we attempt any investigation of facts’, said Jevons, ‘we must have correct theoretical notions...’ (Jevons: 22). Chapters 2, 4, and 5 presented detailed descriptions of the entrepreneurial market process; this survey of classical thought was an integral component of my research on the revolutionary nature of the perfectly competitive model. Let us now turn to the neoclassical conception of competition. We shall preface our discussions of the three areas enumerated above with a definition of the exact state of affairs that comprise the neoclassical notion of competition and a review of the vision of the market thereby created.

In Cournot, if q_i is the production of a typical firm and $Q = \sum_{i=1}^n q_i$ is the market’s total output, then ‘the effects of competition have reached their limit’ when the change in Q from adding one more firm ‘is *inappreciable*’; i.e., for all practical purposes, q_i/Q equals zero (Cournot: 79). This condition implies that the firm’s marginal revenue curve is horizontal at the market price, and this is how

Joan Robinson chose to define perfect competition: 'By perfect competition I propose to mean a state of affairs in which the demand for the output of an individual seller is perfectly elastic. (J. Robinson 1971:197). The classicals, of course, often portrayed sellers as facing infinitely elastic demand curves. Robinson noted, however, that the Knightian definition of perfect competition is far more restrictive, for it entails, among other things, perfect knowledge. (J. Robinson 1971:197).

This essay will adopt the Knightian portrait because it is easily reconciled with the conception of competition found in Walras (upon which his model of general equilibrium was built). Therefore, a horizontal marginal revenue curve is only one part of the definition of perfect competition. And for the purposes of this paper, it is not the critical part, for it is not the price-taking status of a firm at any given instant (nor factor mobility) which will concern us; rather, we must understand how the perfect knowledge assumption emasculates the entrepreneur and thereby eliminates the *process* of competition.

Under a perfect-knowledge regime, firms facing downwardly sloping demand curves are seen as monopolistic price-makers; whereas, for firms navigating in an uncertain environment—that is, for those who must make an irrevocable production decision *before* its consequences are known—demand uncertainty generates behaviour in 'otherwise competitive firms' that yields the tangency-at-equilibrium condition of the perfect-knowledge monopolistic competitor of Robinson and Chamberlin. (See the results of the models developed independently by Manger: 2–4, 73, 76, 112, 114–15, 119; and by Tressler: 25–70, 209.) Knight would no doubt have been pleased with this line of research; his exhaustive analysis of atomistic competition (with perfect foresight) was meant, said Stigler, to be 'a preliminary step in the analysis of the impact of uncertainty' (Stigler 1957:11; also see Knight 1964:199). The process of competition can be understood *only* through the impact of uncertainty. As Coase explained in his seminal article on the nature of a firm, entrepreneurs exist, not to manage, but to contend with a climate in which far more is unknown than known.

The difference between enterprise and management, wrote Coase, is that the former is rooted in 'initiative [and] forecasting', whereas '[management proper merely reacts to price changes, rearranging the factors of production under its control'. (Coase 1937:405).² In a world of *imperfect* knowledge, judgmental choices

must be made by entrepreneurs regarding inter-industry capital movements in the face of, say, an exogenous shock to a system initially at equilibrium. Whereas, if perfect knowledge is assumed, the entrepreneur is really not an entrepreneur at all; that is, he becomes an operator of control levers, reacting solely to a rule based on price vs. marginal cost until the outputs of all producers are perfectly harmonized: 'It is the impersonal mechanism of [perfect] competition..., "ever unconscious, an automatic sense, unweeting of why or whence", which imposes, as Walras saw it, the self-same solution which only a computer-like intellectus angelicus knowing all the parameters could arrive at algebraically' (Jaffé 1983:222). Indeed, according to Walras a solitary master robot-entrepreneur would be sufficient to ensure general equilibrium. In the following sentence, the seed of Lange's model of market socialism was planted:

Although the multiplicity of firms conduces to equilibrium in production,³ such multiplicity is not absolutely necessary in order to bring about this equilibrium, for, theoretically, one entrepreneur alone might do so, if he bought his services and sold his products by auction, and if, in addition, he always decreased his output in case of loss and always increased it in case of profit.

(Walras 1954:255)

Knight had emphasized the subtle yet dramatic implications of the perfect-knowledge assumption. In a world of complete information, the entrepreneur would be reduced to a technician who cranked on his Lagrangian optimization function to calculate the best productive technique, etc. No decisions would be required; that is, no judgments would be made because no thinking would take place. 'With uncertainty absent', said Knight, 'it seems likely that all organic adjustments would become mechanical, all organisms automata'. Whereas, '[w]ith uncertainty present, doing things, the actual execution of activity, becomes in a real sense a secondary part of life; *the primary problem or function is deciding what to do and how to do it*' (Knight 1964:153).

If unpredictable exogenous shocks (such as a precipitous cut-off of foreign supply or a weather catastrophe) are ruled out by assumption, a perfectly competitive economy at equilibrium would remain at equilibrium forever, because '[e]ach seller is so downtrodden, so shorn of power, that he does nothing about his

rivals' (Baumol 1964:153).⁴ Hence the economy's equilibrium is not due to each firm's facing a horizontal demand curve and zero profit at any given instant, but rather is traceable to the fact that perfect knowledge eliminates the information asymmetries that spark entrepreneurial initiative. As Sir John Hicks explained in 1932, 'The condition for equilibrium is perfect foresight;... Disequilibrium is the disappointment of expectations' (in Ingrao and Israel: 235).⁵ In neoclassical economics, pure profit accrues to competitive firms only in the face of some fortuitous stochastic event. From the classical perspective, on the other hand, most pure profit is *not* the result of favourable random shocks; profit is largely rooted in pluck, not luck. Moreover, one of the key implications of entrepreneurial pluck is that prices are altered more frequently by endogenous forces than by exogenous forces.

With the completion of our definitional groundwork, we will now examine the three areas (sketched on p. 161) in which dramatic changes in mental casting were prompted by the Walrasian system, namely, price formation, price predictability, and the meaning of monopoly. For the latter topic, separate discussions of the collateral themes of product differentiation, advertising, and antitrust policy will be included.

How prices change

The market [of Walrasian economics] is a [relatively] ethereal construct. Who exactly is it that is achieving the balancing of supply and demand? Where in fact is the information on bids and offers needed for equilibration actually collected and stored?

(Arrow 1974:3)

Entrepreneurial profit results primarily from inventing new techniques, developing new products, or redirecting resources to higher utility uses unsuspected by others. The first two sources of profit are linked to Schumpeter's 1942 updating of the distinctly classical theme of creative destruction in his *Capitalism, Socialism and Democracy*. The third source of profit, described in Chapter 2 and emphasized by Kirzner, is rooted in a more subtle but equally important function of the entrepreneur: the reallocation of already-existing products to higher-value employments not generally recognized. Like 'The Purloined Letter' of Edgar Allan Poe, these

opportunities are in plain view every day, but until the entrepreneur ‘sees’ them and acts to redeploy the resource, prices remain unchanged. This third role of the entrepreneur—seeing what others have failed to see—accounts for much day-to-day entrepreneurial activity and provides a solution to the vexing problem of how prices are changed. As Arrow and Hahn have explained, in a perfectly competitive economy, ‘no one can affect the terms on which he may transact’; therefore, ‘it is hard to see without the “as if” auctioneer how these terms ever come to be different’. (Arrow and Hahn 1971:226, 324–5). Arrow has added that,

if we depart from the analysis of stationary states..., the firm must serve as a forecaster and bearer of uncertainty. Further, from a general equilibrium view, the forecasts of others... possibly [affect] the firm’s behavior. The general equilibrium to be analyzed [becomes, therefore,...the equilibrium of a moment, *temporary equilibrium* in the terminology of Hicks.

(Arrow 1971:72)

In the *Elements*, equilibrium values are gleaned from the crying-out by individual consumers and producers of bid and offer prices in successive trial rounds until new, make-believe production targets (and revised bid prices) achieve equality between the quantities demanded and supplied in every market. *Only at this point does production actually occur*. As Lord Kaldor correctly observed, ‘The formation of [equilibrium prices in Walras] must precede the process of exchange and not be the result of it’ (Kaldor 1934:127). Walras himself did not introduce a hypothetical auctioneer to facilitate *tâtonnement*, but later discussions are usually framed as if an auctioneer were present to oversee and reconcile the bidding by dispersing information to all agents.

The intermediate bids at any given iteration in Walras are recorded on contingent ‘tickets’, which guarantee a consumer’s right to buy a specified quantity at the bid price *only if that price turns out to be the equilibrium price*. However, these commitments by producers to deliver a specified quantity are not matched by promises binding consumers to buy this quantity. In other words, the tickets represent a privileged contract scheme: The consumer is not explicitly required by Walras to purchase the specified quantity, even if the offer price is at equilibrium, but the producer must deliver the specified goods if the consumer invokes his right to buy at the equilibrium price (see Walras: 40–1, 242, 248–9, 282, plus

Jaffé's helpful editorial commentary in footnotes 5 and 6 on 528–9). Edgeworth proposed an alternative to the ticket scheme of Walras, but Edgeworth's mechanism was not fundamentally different in its purpose: Both were 'designed to prevent disequilibrium transactions' (D.Walker 1970:692–4). I owe my awareness of this topic to Walker's book reviews of 1990 and 1991, which warned against relying on secondary-literature portrayals of the so-called Walrasian auctioneer.

The transitory nature of the general equilibrium toward which the real-world economy is converging at any moment is attributable to the incessant quest of each entrepreneur to recognize, ahead of everyone else, the changes that are imminent in his market. Profit is garnered from such an awareness via reallocation of resources before the rest of the market senses that a change is underway. Note that this is not the same as the mechanically reactive Walrasian 'entrepreneur', whose buying/selling is based on opportunities *already known* throughout the market. Rather, the stock-in-trade of the genuine entrepreneur is his proven talent in the following three areas: detecting error by learning from the experiences of himself and others; assembling and dissecting disparate raw data so as to *create* new information; and acting on his recognition to convince financiers that something new is afoot. Consequently, from a process perspective, prices change not only via the invention of new techniques and the moulding of new products, but also via the discovery of new employments for existing commodities, thereby creating new value. The model of perfect competition, on the other hand, must rely on exogenous shocks to generate price changes. Thus, 'the received theory... contains no coherent explanation of price formation'. Yet, despite this 'fundamental incompleteness', the equilibrium paradigm often yields reasonably accurate predictions and hence has enabled robust, policy-useful analyses of numerous aspects of real-world market activity. This result is indeed 'striking' (Roberts: 838). In other words, the Walrasian system, though partially unrealistic, has beautifully described an interesting special case—the market's culmination if all agents are fully informed at the moment trading commences—and has, thereby, led to a bounty of valuable contributions in the discipline's technical repertoire. (For an opposite view, see D.Walker 1991:561, where the Walrasian-based 'constructions of modern theory' are characterized as 'useless'.) For the purposes of this essay, the fact that our expertise was

unhindered in numerous positive-science realms of the discipline is of minor relevance; my concern is that the equilibrium paradigm created a deeply-rooted pro-planning bias in economics, hence its impact on the general intellectual climate has been monumental.

Shortly after the dawn of the twentieth century, mathematical economists simply accepted the perfect-knowledge postulate. It became embedded in new work, without apology, after which 'the paradigmatic climate was totally different' (Ingrao and Israel: 171). However, interest in real-world price formation lingered, and, over the succeeding decades, several writers reflected on the subject. In 1931, for example, Nikolai Kondratiev, writing secretly in one of Stalin's prisons, concluded that economic theory should not

assert that deals will be made only at the equilibrium price, or that this price is known to all agents.... In reality this price has yet to be discovered.... [T]his is resolved in the market by a series of approximations.... [W]e have no ground for denying that there will be deals at other than the equilibrium price.

(In Nove: 2-3)

The 1988 Nobel Laureate, Maurice Allais, also had analysed the profit-seeking disequilibrium transactions that drive prices to equilibrium and had noted, in 1943, that under such a regime the final equilibrium 'need not coincide' with the equilibrium of Walras (see Munier: 186-8, including fn. 5). Rigorous treatments of convergence to general equilibrium under sequential (vs. simultaneous) trading is relatively new. Frank Hahn, Takashi Negishi, and Hirofumi Uzawa laid the groundwork in the 1960s, and theorems demonstrating the existence and uniqueness of a general equilibrium under sequential trading at non-clearing prices were produced during the 1970s by Jean-Pascal Benassy, Jacques Drèze, Frank Hahn, and Yves Younès (see Mukherji: 75-6, 150-3, 161-7, 169). The significant contribution of these mathematical writers has been to portray the market without the perfect-knowledge requirement of the traditional analytical framework, and hence their work has helped to refocus attention on the issue of why exchange *necessarily* occurs at disequilibrium prices:

[The answer] involves the idea that agents are actually in search of information regarding the overall nature of the market imbalances; this information is obtained by taking part in trading. Only when some agents are constrained in

making a transaction do they realize the nature of the imbalance. Armed with this information, they decide to bid the price up or down depending on whether purchases or sales have been constrained.

(Mukherji: 8)

The Grossman-Stiglitz thesis (*See p. 200)

One of the most important of the unwritten chapters of economics is that *on the time that elapses between economic causes and their effects* in consequence of the slowness with which knowledge diffuses itself.

(Marshall and Marshall: viii; italics added)

The existence of trading at disequilibrium prices—and the information externality garnered by the previously uninformed through the generation of new prices—are at the core of a debate kindled by Sanford Grossman and Joseph Stiglitz over the conceivable inferiority of a decentralized allocation system. Grossman and Stiglitz have suggested that, due to the rapidity of information transmission in a market economy, the benefits reaped by uninformed free riders (particularly in financial markets) may be so large that the arbitrageurs who seek-out new information will not be able to earn sufficient profits to cover their search costs. If such were to be the case, the excavation of new information would be insufficient to ensure a Pareto-optimal outcome unless an information tax and subsidy were added to compensate arbitrageurs. In any system, explained Grossman and Stiglitz, some information must remain undiscovered because the cost of its excavation exceeds the expected utility of its employment, creating an optimally imperfect body of knowledge. Therefore, allocational efficiency can be improved if the cost of obtaining additional information can be reduced. Grossman and Stiglitz raised the following point: if 'the costs of monitoring [the] bureaucrats' who gather information within a centralized system can be shown to be less than the costs 'associated with the acquisition of information [by free-market arbitrageurs]', then the Lange model would yield an outcome superior to the free market. Since 'the [monitoring] costs of operating a centralized allocational mechanism' are unknown, Grossman and Stiglitz have claimed that the question of the comparative efficiencies of capitalism and socialism remains open.

The Grossman-Stiglitz thesis (on the possible inferiority of the free market) rests on their contention that the degree of entrepreneurial inhibition (engendered by free riders) may be more burden-some to the discovery process than the resources required to oversee and stimulate information-gathering by a bureaucracy of state-employed specialists. But Grossman and Stiglitz have structurally inflated the spectre of a free-rider profit drain via the quasi-equilibrium framework they have employed, in which uninformed participants almost instantaneously reap the informational advantages of the informed. The immediate transfer of knowledge, which would destroy the notion of private arbitrage, occurs in the Grossman-Stiglitz model because price changes are affected nearly concomitantly with the unearthing of new information. This is essentially a variant of the perfect-knowledge perspective that is inseparable from the neoclassical paradigm, and it reveals, said Manfred Streit, ‘the inadequacy of abstracting from time...’ (in Thomsen: 38). By implicitly excluding full-bodied disequilibrium transactions from their model, Grossman and Stiglitz have created a convenient caricature of the market process in which insufficient entrepreneurial action is not just a possibility, *but a certainty*.

In the real-world market process, the delay between the discovery of information and its appropriation by the previously uninformed is not as short as Grossman and Stiglitz implicitly posited in their scenario. As Streit has correctly noted, ‘the informational externality created via trading can only endanger the existence of a speculative market if an informed trader has no chance to trade before his new informative situation has become general...’ (in Thomsen: 38). Most participants cannot analytically incorporate and act—in real time—upon inferences culled from newly emerging reallocations being spearheaded by very low-profile entrepreneurial traders. Therefore, one who wrestles an insight from the current state of disequilibrium prices can easily exploit his informational advantage; that is, the delay between his decision to gamble on his hunch—say, to buy an undervalued asset (not yet recognized as such), and others’ absorption and reaction to his purchase—provides an opportunity ‘to trade at a price which is false in the light of his beliefs and to retrade at a profit if his beliefs turn out to be correct’ (Streit, in Thomsen: 39). At this point, it will be beneficial to recall Merton Miller’s insight (discussed in Chapter 4): ‘The prospect of trading profits is the bribe, so to speak, that

society uses to motivate the collection, and *ultimately* the revelation, of dispersed information on supply and demand' (M.Miller: 8; italics added). To narrow the window of opportunity for profitable exploitation of one's informational advantage is to reopen the debate over the potential superiority of Langean socialism. By incorporating an equilibrium perspective via the titled assumption of a '*Competitive Price System*'—that is, one which rapidly transmits new information to all participants—Grossman and Stiglitz built a weighty pro-planning factor into their analysis.

A recent model of learning rates concluded that the existence of a subset of perfectly informed agents would enable a convergence to the rational expectations equilibrium in only ten rounds of trading, whereas, in the more realistic case, in which no such subgroup exists, a thousand iterations would be required to achieve equilibrium. In the latter case, every agent initially bases his decision entirely on his private (albeit imperfect) information. With each successive trading round, however, the market price begins to absorb more and more of the totality of privately-held insights, until 'the average responsiveness of agents to their private information goes to zero' (as the number of iterations gets large). Consequently, if none of the traders is omniscient, learning... and convergence...is slow...' (Vives: 329–31). Of course, the less-informed agents are clearly free riding on the better informed, but the time required to attain equilibrium enables the better informed to profit from their superior knowledge.

Thus far my critique has focused on the evisceration of entrepreneurial incentive via the implicit postulate of near-perfect knowledge. This line of reasoning, however, may be unconvincing to the equilibrium theorist, who could reply, quite logically from his modelling perspective, that *private* profit is not really required to spur information-gathering. That is, socialist managers can theoretically become just as proficient as private managers in evaluating the marginal benefits and marginal costs of search; consequently, there appears to be nothing within the scientific rubric of public ownership to prevent 'the design of an incentive scheme that would lead to an optimal amount of information gathering', as exists in a free market at equilibrium (Thomsen: 46). Chapter 3 elaborated upon the analyses of Mises and Alchian to explain that the basis of ownership *does* matter—a great deal—through its impact on an entrepreneurial system's ability to change the pattern and/or degree of specialization by reallocating resources

to specialists with new insights through transfers of ownership rights. An underscoring of this point is merited because the Grossman-Stiglitz thesis is based on a way of thinking about information-gathering that brings to centre stage the real crux of the distortion engendered by the equilibrium perspective, namely, the idea of an optimal search, *given* that you are in the right haystack to begin with.

The idea of an optimal search is totally unobjectionable; however, the convenient idea of already being in the right haystack to be searched is highly misleading, for it expunges the entrepreneurial dimension of genuine market activity, and along with it, pure profit. The equilibrium theorist assumes that the decisionmaker is already drilling in the right field, whereas the process theorist emphasizes that recognizing the appropriate place to start digging is *the* big hurdle. In equilibrium theory, the probabilistic outline of the unknowns is already known, thereby enabling a Stiglerian marginal benefit, marginal cost analysis to reap an optimal outcome. Equilibrium theory simply cannot address the real problem: *where* to search and *what* to search for. In neoclassical economics, the character of specialization is somehow given to the system, after which the equilibrium theorist's resource managers decide how much time shall be devoted to the search within each specialty (based on the expected marginal benefits and costs of drilling additional wells). Since neoclassical information models are built on the assumptions that the probing agent is already in the right haystack and that he knows the probability distribution of the haystack qualities which are under investigation, 'the agents of search theory know almost as much as those of [equilibrium] stability analysis' (High: 11).

The entrepreneur's battleground is characterized not by a given distribution of probabilities, but rather by 'radical uncertainty'; for it is the scintillating prospect of the unknown that 'switch [es] on human resourcefulness and initiative, human dreams, hunches, imagination, and vision'. (Kirzner 1992:50). The MB, MC calculations required to determine the optimal search time is basically a mechanical task, the 'secondary part of life' alluded to by Knight, which is contracted out to hired managers and completely facilitated by the model's assumption of known statistical parameters. The entrepreneur—driven by the vast potential profit to be had in a private system shrouded by sheer ignorance—accomplishes the toughest part of the job: locating the

correct data base to plumb! Hence the market's task is not only to make 'the best use of *existing* dispersed knowledge' (via rivalry and free prices); the more profound challenge is to successfully tap into the limitless depths of 'unfathomed knowledge' (Bartley, in Thomsen: 46–7).

The market-socialism camp usually presents the knowledge problem as one of merely collection and assimilation. Thus they favour the portrayal of Nobel Laureate Herbert A. Simon, who has misleadingly reduced the problem to the 'poverty of attention' created by 'a wealth of information', in which case a sufficiently large computer to analyse data is the solution (see the numerous quotes from Simon and the associated discussion in Thomsen: 3–5, 13, 22–3, 77–9). Framing the problem in this manner misplaces the emphasis on the computational limits of man (and his machines) rather than on the open-ended ignorance of man, by which I mean that *before one can profitably distil and correlate data, one must be in the right data base*. Pioneers in the field of Artificial Intelligence have been unable to overcome this problem, that is, to write programmes that enable computers 'to "zero in" on relevant features of their environment while ignoring myriad irrelevancies...'. Teaching the computer to recognize that it is in the right environment to be searched remains 'the most central problem confronting Artificial Intelligence...' (from the opinions of software experts, quoted in Thomsen: 78–9).

Although we cannot describe precisely how the entrepreneur's attention is attracted to profit-making opportunities, experience has amply demonstrated that the prospect of so called obscene profit has the power to stimulate an adaptive process of trial and error in which 'innumerable individuals "zero in", even if only fallibly, on knowledge that has gone unnoticed up to that moment' (Thomsen: 79). As explored in Chapter 3, capitalism without the prospect of *private* riches and bankruptcy would be like Christianity without heaven and hell. Being able to transfer the consequences of one's mistakes to the society at large, via market socialism, would generate (at best) a flacid genre of entrepreneurship, which would deny society the aggressive discovery skills it needs to cope with the radical uncertainty it faces.

In summary, equilibrium theory assumes that, somehow, decision-making agents are always in the right haystack, hence a knowledge of the haystack's probability distribution will yield an optimal outcome, regardless of the basis of ownership. The market-process

approach, on the other hand, warns that the neoclassical paradigm's exclusive reliance on the rational calculator (armed with statistical estimates) is woefully insufficient to understand the anatomy of price changes in a market economy. Without the sociopolitical institutions that foster entrepreneurship, many opportunities will remain unrecognized and hence the resources expended by socialist planners (in a Stiglerian MB/MC search mode) will be largely squandered, because most of these planners will be swimming in the wrong ponds; that is, they will be efficiently searching for the best variant of the wrong product.

Modelling and predictability

Late in the nineteenth century, the physicist Joseph Bertrand⁶ discovered that if out-of-equilibrium trading was incorporated into a Walrasian model, this would lead to indeterminate and path-dependent results that are inconsistent with Walras's general approach.

(Hodgson 1992:762, fn. 7)

Explanations of four technical terms will serve as a convenient means of elaborating upon the role of predictability in modern economics. If a model eventually yields an equilibrium (even after a long series of adjustments), it is called 'definite' (or stable), and if this equilibrium is calculable in advance, the model is 'determinate'. If the model yields no tendency toward an equilibrium, it is 'indefinite' or unstable. On the other hand, if the model tends toward equilibrium but there is no way to predict the final position of the system, then the model is labeled 'indeterminate' (see the excellent discussion and phase diagram in Kaldor 1934:125, especially fn. 4; also see Schumpeter 1954:967, fn. 2, and 971). The indeterminacy of process reasoning, or 'fuzziness' as two critics have described it (Watkins: 1075; and Samuelson 1967:109, 111), is the primary cause of the neglect of the process approach over the past seven decades. As Nicholas Kaldor has explained,

The assumptions of static theory are...nothing else than the conditions necessary to make equilibrium 'determinate': the conditions under which we can give a scientifically precise description of the actual course of economic phenomena. Once these assumptions have been specified and have gained general acceptance as the limits within which deductive

speculation must proceed, any new elements subsequently discovered which play a role in shaping the course of events are likely to be put down as 'causes of indeterminateness'....

(Kaldor 1934:122)

The most compelling reason for supplementing equilibrium analysis with process analysis is that the former is based on a world of perfect knowledge in which all coordination problems have been assumed away. As a result, the system comes to be seen as automatically moving to a determinate general equilibrium. Whereas, if incomplete knowledge is assumed, the economy can still be conceived as groping at every instant toward the perfect-knowledge endpoint—but not the Walrasian endpoint—because the process of adjustment (through which full information is discovered) is the 'shaping' agent of the final outcome. Hence the equilibrium vector is like an embryo in that it is affected by the changes accruing along the maturation path of disequilibrium trades. 'Whether or not the ultimate equilibrium will be close to the one predicted by [the Walrasian system] or even whether the ultimate effects of the displacement will be in the predicted direction is not a question that lends itself to a general answer' (F.Fisher: 14–16). Path-dependent scenarios are scientifically uninteresting because they are mathematically intractable and hence inherently indeterminate; however, only through such a process perspective can we truly understand the phenomenon known as the market.

Walras created a determinate solution by assuming that no trading exists at non-equilibrium prices. In Walras, for example, consumers are precluded from buying substitutes for plums if the initial plum price is above equilibrium. This procedure also eliminates endowment effects, thereby insuring 'a unique solution which is identical with the mathematical solution' (Jaffé 1983:222–6). With disequilibrium trading and the subsequent alterations in each agent's wealth, the vector of equilibrium prices is at best indeterminate—and at worst, indefinite. The purpose of crying out (or *de facto* auctioneering) was to insure that the model was definite, i.e., possessed a convergent path to a point at which all markets would clear. To make his system determinant—i.e., to make the endpoint empirically predictable in the face of changes in demand or supply—Walras needed a set of passive firms to whom prices were parametric data, so as to simultaneously alter their

quantities supplied in response to price signals provided in a full-information forum. Since the classical entrepreneur is absent, changes in product and method must be introduced exogenously and adopted concurrently by all producers. Walras sought to construct a model that yielded a determinate, zero-profit general equilibrium, and the idea of a firm as simply a conduit, unable to launch an initiative of any type, was the only means by which his objective could be accomplished. Walras himself explained that he assumed perfect competition 'not...because it may be more useful or more equitable, but only for the sole purpose of knowing its results' (in D.Walker 1984:461).

The issue of predictability of the output vector is inextricably linked to the issue of price formation. In perfect-information models of exchange, as epitomized in Walras, the only action required of the perfectly passive competitor at equilibrium is to respond outputwise to the universally-known price changes promulgated in the wake of an exogenous shock, which insures a frictionless jump to a new general equilibrium (Walras: 37, 40, 83–5, 106, 164, 167–72, 196–7, 224–5, 242, 247–8, 289–90). Actual production and exchange occur in Walras only *after* the crying-out process has, in effect, centralized all information and found the set of prices which will generate equilibrium in every market.⁷

By abstracting away from time and the uncertainty linked inextricably to it, Walras empowered his model with the ability to yield a calculable general equilibrium which is otherwise undemonstrable, a fact which he conceded (Walras: 117, 380). Instantaneous responses to new information insures a real-time movement from the old to the new equilibrium, hence an economy initially at equilibrium will remain at equilibrium. However, the condition of perpetual equilibrium does not require stagnation of per capita income (the steady-state of classical economics). If *systematic* manna-from-heaven changes in technology are allowed (from government R&D facilities, for example), then the economy would grow yet remain at equilibrium because perfect-knowledge firms would anticipate each technological advance and make appropriate adjustments at the moment of introduction (Stigler 1957:11–12).

A helpful, concrete example of the implication of the role of time and uncertainty on calculability can be had by contrasting the simultaneous trading of the perfectly competitive economy of Walras with the sequential trading of the classical competitive

process. In his 1910 text, Philip Wicksteed provided the most comprehensive description ever written of how prices change. He explained, among other things, why firms are propelled to acquire knowledge on the exact level of the market-clearing price. If a firm unwittingly sells at an above-equilibrium price, it will find itself unable to dispose of all of its stock—even if it later sells at a below-equilibrium price—*because some of its demand will evaporate as early potential buyers are dissuaded and switch to substitutes* (Wicksteed, vol. I:224–6). Consequently, real-world groping—the information-gathering process through which final prices are determined—produces an equilibrium different from the mathematical solution. Wicksteed concluded that the Walrasian vector cannot be attained in the first iteration of trading unless all participants somehow have complete information before they trade, thereby ensuring an immediate adoption by all sellers of the pre-calculated equilibrium prices (Wicksteed, vol. I: 226).

Marshall's explanation of the convergence toward equilibrium differed from Wicksteed's. In a letter to Edgeworth, Marshall made clear that he was aware that exchange at non-clearing prices creates an equilibrium price that is not the same as the mathematicallycalculated price (which is the intersection of the supply and demand curves of producers and consumers who, from the outset, are perfectly informed). Marshall's assumption of a constant marginal utility of money led him to conclude, mistakenly, that preliminary transactions conducted at disequilibrium prices would have no wealth effects on demand curves and hence these transactions would not affect the final equilibrium value. Marshall believed, therefore, that real-world prices could be predicted with his scissors model (see D.Walker 1969:591–3; Negishi 1985:178; and Negishi 1989:379–81).

The real-world process of competition (information-gathering and reactions thereto) gravitates the economy toward an equilibrium which cannot be determined in advance. Pre-calculability remains elusive due to the unavoidable variations that occur in the wealth of consumers. That is, if trades are executed at 'false' (non-equilibrium) prices during intermediate adjustments, agents' assets will change, hence their demands will change, thereby altering the final equilibrium. Consequently, without a constant-wealth stricture, the general equilibrium price vector cannot be derived in advance (see Blaug 1983:612; Munier: 188, fn. 5; and F.Fisher: 14).

In the first three editions of his *Elements*, Walras simply ignored this ‘complication’ (as he called it). In the fourth edition he evaded the problem by disallowing all production and exchange until the equilibrium prices and quantities were discovered via successive on-paper-only trial runs conducted with his *provisional* contracting tickets. If the play-game bids and offers did not match, successive rounds of make-believe trading would be conducted until prices were found that equalled quantities demanded and supplied in all markets. ‘Thus equilibrium in production will first be established *in principle*. Then it will be established [*in practice*] through reciprocal exchange....’ Walras thereby avoided alterations in the bidding power of participants during *tâtonnement*, because the make-believe aspect of his contracting scheme insured that ‘*no change in data is allowed*’ (Walras: 242; also, see the analysis in Jaffé 1983:231–5, 277–8, 353).

If the wealth-effects problem is discounted and the perspectives of all agents were to become congruent, a stable equilibrium would emerge. Since demand is only marginally affected by changes in wealth, dismissing the endowments issue is not bothersome.⁸ And, although entrepreneurs initially draw non-uniform conclusions from the same price data, sufficient interplay causes a convergence of opinions, thereby promoting equilibrium, but not the one predicted by Walras’ model. As Hayek explained in a seminal paper in 1945,

The problem [of price determination and optimal allocation] is thus in no way solved if we can show that all the facts, if they were known to a single mind (as we hypothetically assume them to be given to the observing economist), would uniquely determine the solution [to Walras’ system of equations]; instead we must show how a solution is produced by the interactions of people each of whom possesses only partial knowledge.

(Hayek 1945:529)

In summary, the prices predicted by the Walrasian model are not the same as yielded by the real interplay between those who truck, barter, and trade; that is, ‘pre-reconciliation is achieved by mathematics, not by human interaction’ (Kirzner 1992:49). The adoption of this portrait as the exclusive mode of analysis robbed neoclassical economics of the only valid answer to the question posed by Edgeworth: ‘what is the most appropriate conception of

the process by which value is determined through the higgling of the market?’ (Edgeworth 1925, vol. I:39)⁹ Moreover, equilibrium modelling implanted a pattern of reasoning which obscured how the process of competition solves the ‘division-of-knowledge’ problem, namely, how the *profit-making* actions of entrepreneurs in a lagged-time system serve to coordinate all the ‘dispersed[,]... incomplete and frequently contradictory’ perspectives of each participant to yield society’s collective knowledge—which in its totality is given in advance to no single mind (Hayek 1976:49–50; and 1945:519–20).

Walras’ ‘Magna Charta of exact economies’ is indeed stamped with genius (Schumpeter 1954:967–8, 1006), for it correctly describes the optimal allocation of resources for an economy whose participants are fully informed at the outset of trading. However, Walras’ model created a misleading image of the market as a *simultaneous* calculator of optimum allocations, whereas, as Jaffé has explained, ‘so long as trading at ‘false prices’ [occurs] in actual markets, whatever equilibrium is arrived at in the [real] competitive market via *tâtonnement* cannot, except by accident, be the same as the equilibrium determined mathematically from a system of equations’ (Jaffé 1983:224). Through Walras’ letters to leading theorists, we know he did not understand, writes Walker, that ‘the behavior of an exchange system involving disequilibrium transactions is radically different from that of his own type of model’. Walras never saw that his assuming way of disequilibrium transactions was ‘analytically indefensible’; he was confident that the equilibrium prices yielded by his mathematics were ‘the only ones at which trade occurs’ (D.Walker 1970:693, including fn. 17). In effect, Walras became a prisoner of his elegant system of simultaneous equations. His model, with its hypothetical production offers and price bids (to preclude false trading) became his reality, a methodological trap that was to plague much of neoclassical economics, for it fostered the idea that, through government data gathering and policy making, we can negate the market failures—and the ‘unjustifiable’ monopoly profits earned through the sequential-trading discovery process—that impede the attainment of the Walrasian bliss point.

On the plus side, however, the precise description of the zero-profit state of affairs ($P=MC=ATC$) afforded by the Walrasian model was essential for a definitive understanding of the endpoint of the process of competition in a world of perfect information and

hence instant replication (i.e., product homogeneity). Without this concluding parable, the classical process approach to market activity would have been seriously incomplete and helplessly adrift as a tool of predictive analysis on the trend effects of various exogenous events (see the discussion of the instrumental role of comparative statics in the study of evolutionary dynamics, in Schumpeter 1954:963–5 and 1002). But the profession’s subsequent normative judgments (on a host of subjects) became rooted in welfare analyses that suggest an ideal state of affairs to which society should be directed, a turn of events to which this essay is centrally dedicated.

Finally, the issue of calculation via perfect-information modelling contains a lesson on the unintended discovery of insight in the history of economic thought. Hayek’s contribution on the nature of an economy governed by the division of knowledge of its specialists, though present in latent form in Smith’s description of the division of labour, would never have been crystallized in such penetrating depth without the contrasting vision provided by Walras and the ensuing model of perfect competition. Thus, as Marian Bowley has observed in another context, the development of economic theory rarely follows a logical path, ‘for the nature of the questions that ought to be asked, in the interests of future progress in analysis, may only emerge at the end of an investigation and may not be those the [original] investigators are interested in’ (Bowley 1937:167).

Redefinition of monopoly

The general condition of the theory of monopolistic competition...seems to me indisputable: it has led to reorientation and refinement of our thinking on monopoly.... We are now more careful to apply monopoly theory where it is appropriate.

(Stigler 1968 [1949]:321)

In 1931, the judicial decision in a major antitrust case reflected a process view of the market: ‘competition is, in its very essence, a contest for trade, and any progress or victory in such contest must lessen competition’; only when the reduction in competition is ‘by unlawful means’ is it enjoined (in Mason: 344). Within the classical tradition, rooted in the common law of Great Britain, a market was

considered monopolistic (i.e., anti-competitive) only if the spawning of imitators and other close substitutes were precluded by protectionist legislation or exclusive appropriation of an irreplaceable input (Mason: 334, 336). The *Encyclopedia Britannica* of 1823, for example, defined monopoly in terms of state grants of exclusive production rights (p. 337), and a popular American text in 1883 described a monopoly as ‘a restriction imposed by government upon the sale of certain services’ (Parry: 190). This treatment dominated classroom presentations through the 1920s (see Mund 1933:99–100, and the 1915 journal article on antitrust that is quoted at length in Mason: 332–3). In equilibrium economics, on the other hand, monopoly came to be defined as a mathematical state of affairs; specifically, monopoly existed whenever a downward sloping demand curve faced the seller, thereby resulting in the $P > MC$ output level of Cournot (pp. 56–61) and Dupuit (in Ekeland: 257–62). We shall see in Chapter 7 that as the neoclassical conceptions of competition and monopoly began to take hold, nearly every traditional means of competing came to be interpreted as unlawful.

When a classical approach is employed to explain how prices change via entrepreneurial action, the equilibrium mind immediately begins to conjure a static field populated by monopolists who reduce welfare by restraining production. Whereas, from a process perspective, the entrepreneur’s short-run profit is not seen as the result of withholding output which society would have had; rather, pure profit is seen as the reward for discovering new information on preferences and generating new value which society otherwise would not have had! (Kirzner 1979:13; and 1979:212–5, 219). As J.B.Say explained, entrepreneurs ‘reproduce existing materials under another form, which may give them a utility they did not possess...’. This, he said, ‘is creation...of utility...’ (Say: 62). Furthermore, an entry in the *Penny Cyclopaedia* (of 1839) explained that the pathbreaker who introduces a new product—and who has ‘no advantages given...by the law over other persons’—can continue to profit only ‘by producing the commodity cheaper and better’ (in Stigler 1982:40–1). Therefore, to classify a fleeting moment of the market’s incessant coordination process as utility-draining monopoly is an example of how equilibrium models have been grievously misapplied.

The redefinition of competition and monopoly has had

implications that are unfortunate and ironic. Three of the profit initiatives discussed earlier (new techniques, new products, and recognition of higher-utility employments of existing products)—which the古典ists considered to be the heart of the information-creation process of competition—acquired negative welfare implications after the triumph of the perfectly competitive model. And three inter-related elements of knowledge discovery—differentiated products, advertising, and ‘excess capacity’—were transformed into welfare-reducing phenomena associated with the possession of monopoly power.

When the state of affairs which defined Cournot’s limit of competition was found wanting as a mirror of reality, some of the new static theorists asserted that the real world must be monopolistic instead of competitive (Buchanan 1968:424–5). As a result, another static model was introduced (monopolistic competition), which hastened the demise of process thinking by reinforcing static methodology as the only acceptable mode of reasoning about the welfare implications of various states of market organization.¹⁰ The rapid follow-on application of Cournot’s concept of monopoly resulted in the redefinition of a wide range of classically competitive behaviours as monopolistic, thereby revealing how traditional habits of thought have been revolutionized by the model of perfect competition.

A detailed examination of the equilibrium treatments of product differentiation, advertising, and antitrust would require a separate book. However, a concise yet precise sketch of each of these three topics is indispensable to my case, because neoclassical efficiency analysis is linked inextricably to the post-1933 conventional wisdom in these three inter-related areas.

PRODUCT DIFFERENTIATION

The classical public-policy perspective on competition and monopoly is evidenced in the *Penny Cyclopaedia* entry quoted above. After the success of Chamberlin and Mrs. Robinson, this common-sense perspective, based upon experience, had to be abandoned. Knight, who appreciated the instrumental role of uncertainty as the rationalization of pure profit, had warned that ‘some distinction...must be made between temporary profit [from entrepreneurial initiative] and permanent monopoly revenue’ (Knight 1942:128). But no such distinction is possible under an

equilibrium paradigm. Therefore, a competitive, knowledge-discovery interval, such as the creation of a utility-enhancing variant of an old product, came to be defined as *prima facie* evidence of the welfare-reducing phenomenon of monopoly: '[E]very firm must, in the nature of the case, *act* as a monopolist ...' (J.Robinson 1965:89, 129). Since we had assumed away the process by which knowledge is created, the extraction of economic profit from any given piece of knowledge had to be seen as antisocial. That is, every monopolist must act in such a way that its presence leads to a smaller consumer surplus than if its output had been produced under conditions of perfect competition. Of course, without the presence of the 'monopolist' (the innovating entrepreneur), the reallocations required to produce *the new, more preferred* output under study would not have occurred, because a perfect competitor by definition is shorn of the ability to compete.

At first, Chamberlin endorsed the new conception: 'With differentiation appears monopoly, and as it proceeds further the element of monopoly becomes greater. Where there is any degree of differentiation whatever, each seller has an absolute monopoly of his own product, but is subject to the competition of more or less imperfect substitutes' (Chamberlin 1956:8–9). But four years after the publication of his book, Chamberlin distanced himself from the 'world-of-monopolies' view embraced by Joan Robinson (see J.Robinson 1965:5,307). Chamberlin criticized Mrs. Robinson's dichotomization of monopoly and competition into mutually exclusive phenomena (Chamberlin 1937:558, 571, 573); however, he eventually came full circle: 'the key to the whole analysis', wrote Chamberlin in 1961, is the 'recognition of each seller as a monopolist in the full sense of the word—as having control of a distinguishable product' (Chamberlin 1961:526).

Chamberlin understood (and initially seemed to regret) that the purely static perspective promoted by his model had unwittingly redefined monopoly and thereby decimated the approach to competition and monopoly inherited from the古典s. His 1937 article clearly revealed his unease over the situation; nonetheless, the Chamberlin/Robinson model provided the capstone for the triumph of equilibrium theory. In fact, Lord Kaldor singled-out the new portrait of monopoly as 'one of [Chamberlin's] great achievements':

Up to the publication of [*The Theory of Monopolistic*

*Competition*¹¹ the idea of ‘monopoly’ was inevitably linked-up, in the economist’s mind as well as in the public mind, with the idea of ‘privilege’;...the causes of the existence of monopolists were generally sought in the possession of some unique advantage. Professor Chamberlin’s theory of product differentiation has shown us that...monopolies of various degrees can exist... merely because the demand for a single variety of product is small relative to the economies of scale in its production.... [This demonstration] was a great step forward in economics....

(Kaldor 1938:523–4)¹²

Kaldor’s observations are especially germane to this paper. In 1911, Pareto had described monopolists as those who ‘consciously and deliberately wish to modify prices directly [by withholding output] and are in a position to do so...’ (Pareto 1965:410). Under the equilibrium paradigm, however, if consumers *believe* a certain brand provides a unique service, then that brand’s firm has a monopoly (Knight 1964:185–6, 189). The classical concept of monopoly (a la Pareto) becomes applicable if consumers are somehow tied to a particular differentiation which is non-reproducible due to copyright protection. Otherwise, intense brand loyalty is no more than evidence of a ‘cheaper and better’ alternative product, as described in the *Penny Cyclopedia*. From a neoclassical modelling perspective, imperfect substitutability between brands precludes a rigorous determination of whether or not a firm can continue earning economic profit. Hence the attractive nature of the tangency equilibrium proved elusive (Triffin 1941:125), and this is the shoal on which the Chamberlin/Robinson model ultimately foundered. As a result, the model of perfect competition was not overthrown, and it has reigned supreme ever since.

The redefinition of monopoly drove the final nails into the coffin of the classical understanding of the market as a process in which ‘all competition is nothing but a *striving* for monopoly’ (Liefmann: 315; italics added). The ideas of Chamberlin and Robinson did not replace perfect competition as the new analytical norm, but their model, when contrasted with the model of perfect competition, irrevocably transformed the genuine competitor—the discoverer of undervalued resources—into an agent whose presence reduces rather than enhances consumer welfare. As Kuhn has explained,

Led by a new paradigm,...scientists see new and different things when looking with familiar instruments in places they have looked before. It is rather as if the professional community had been suddenly transported to another planet where familiar objects are seen in a different light....

(Kuhn: 11)

In the eyes of the neoclassical economist, 'efficiency requires the maximization of total consumer surplus' at any given moment, whereas the market allocates resources on the basis of profit alone. Of course, 'these two criteria do not lead to the same choices'; consequently, according to equilibrium theory, 'market economies [may] produce too many varieties' (Murrell: 63). This conclusion stems from the limit which the number of varieties imposes on the firm's ability to exploit scale economies, as was illustrated in Figure 4.1, page 134. Entrepreneurs make judgments on the trade-offs between additional utility from enlarged variety and higher costs from sacrificed scale economies, and submit their decisions to consumer referenda for ratification. The entrepreneurs who minimize the variety of their offerings (via, say, the selling of generic, non-branded products) have the advantage of lower cost of production and hence lower price. However, the selections of consumers *from any given menu* does not necessarily constitute an efficient outcome in neoclassical economics unless it maximizes the sum of consumer surpluses. Since some unavailable alternative may enlarge utility by an amount that exceeds the bureaucratic cost of centralizing information on the net benefits of new varieties, it is tautological to say that the existing mix is best because it was chosen by consumers. Thus a pro-planning outlook is invited. The 'we (the state)-can-design-a-better-menu' mentality is a product of the equilibrium nature of modern economics, which has focused intently on the aggregate consumer surpluses flowing from various *static* configurations, and has, thereby, intellectually divorced itself from the only process that has demonstrated an ability to harmonize (however imperfectly¹³) the infinite magnitude of anarchist actions undertaken in a modern, specialized economy. With eyes fixed on the ideal state of affairs attainable in a world of perfect knowledge (of opportunity costs and preferences), central planning emerges as a superior alternative. Beginning in 1933 with Mrs. Robinson (1965:307–09 and 316–20), the chorus dwelling on the 'inefficiency' of a free market has never been threatened with a

shortage of adherents. This prompted Machlup to respond that the Robinson/Chamberlin model was given an ‘overly enthusiastic reception’ because its excess-capacity phenomenon furnished ‘critics of the capitalist system..., for once, with an argument against laissez faire’ (Machlup: 1939:231).

Finding the ‘best’ mix

The temptation to rationally construct an optimal mix of goods (by using the perfect information presumably collected by the state) is quite logical to one who sees the world through equilibrium lenses. Ultimately the problem is conceived as one of measuring and comparing the costs of *known* product variants, a task which a fully informed planner could indeed accomplish better than entrepreneurs whose imperfect information ensures ‘the inability of a market economy to produce the correct balance between economies of scale and variety’ (Murrell: 63). The proposition that some new mix of goods, as yet unconceived, can serve consumers better, is not in dispute. But to cast aside the division-of-knowledge problem (by conveniently escaping into the ‘what-if’ world of the centrally-informed decision-maker) is to obviate the question that begs for an answer, namely, how to *freely* coordinate the small pieces of information possessed by each agent so as, at each iteration, to experimentally adapt the current mix of goods in a way that improves the return to consumers. The epistemology inherent in this latter view of civilization-building is antithetical to the public-policy thinking occasioned by equilibrium modelling. The divorce from discovery-process thinking promulgated by the Walrasian system has served, therefore, to limit severely the usefulness of the neoclassical paradigm as a ‘candidate to provide the underpinnings’ for the reconstitution of the economies of Eastern Europe (Murrell: 61–3, 73). It is at this very juncture that Hayek’s warning on knowledge and ignorance becomes compellingly relevant, not only to the theory of the firm, but to the broader area of comparative economic systems as well:

The sum of the knowledge of all individuals exists nowhere as an integrated whole. The great problem is how we can all profit from this knowledge, which exists only dispersed as the separate, partial, and sometimes conflicting beliefs of all men.

Unfortunately, the popular effect of [the]...advance [of

science] has been a belief, seemingly shared by many scientists, that the range of our ignorance is steadily diminishing and that we can therefore aim at more comprehensive and deliberate control of all human activities. It is for this reason that those intoxicated by the advance of knowledge so often become the enemies of freedom. While the growth of our knowledge of nature constantly discloses new realms of ignorance, the increasing complexity of the civilization which this knowledge enables us to build presents new obstacles to the intellectual comprehension of the world around us. The more men know, the smaller the share of [total] knowledge... that any one mind can absorb. The more civilized we become, the more relatively ignorant must each individual be of the facts on which the working of his civilization depends. The very division of knowledge increases the necessary ignorance of the individual of most of this knowledge.

(Hayek 1978:25, 26)

For the nations who are groping toward reprivatization after five or more decades of communism, the neglect of sociopolitical institutions in neoclassical economics (and other social sciences) is the fundamental and immediate problem. Customary structures such as credit, contract law, a forward-looking (savings) frame of mind, the censure of envy-inspired recriminations, etc., have evolved in the West over *many* generations. Although only some of these customs have been formally codified, all were spontaneous responses to the desire by people to order their affairs in such a way as to enable material and spiritual improvement through specialization and free trade. As with most things that were not the product of preconceived human design, the multitudinous routines that govern the coordination of vertical and horizontal relationships in a market economy are so taken for granted that we have lost sight of their origins and their indispensable functions. The pioneering work of Hayek, and the more recent research by Douglass North, Oliver Williamson, *inter alia*, is beginning to shed light on how and why a constitutional package (of written and unwritten rules conducive to free trade) gradually comes into being. On the whole, however, we really understand very little along these lines, hence 'there is no unified economic theory explaining how to grow the institutions that are central to the success of market

activity' (McEarchen: 1). Hayek was the first postwar thinker to draw attention to our ignorance of '[o]ur habits and skills, our emotional attitudes, [etc.]..., all [of which] are... adaptations to past experience which have grown up by selective elimination of less suitable conduct' (Hayek 1978:26). The usual approach by which intellectuals reason about social change is misleading and dangerous, said Hayek, because it rests on a spurious assumption, namely, that man has *consciously* created all his patterns of doing things and thus can change them at will via legislative fiat (Hayek 1978:23). This was the case under the world's Marxian regimes, which replaced the labyrinthine network of market institutions with an artificial pattern constructed solely from a conceited mental vision of improved rationality—predictably fatal because it had not passed the test of multi-generational trials (a la J.S.Mill) through which *workable* rules evolve. (See the various applications of the spontaneous-order concept in Hayek 1978:26–7; Holmes: 5–33, 63–103; Gould: 8, 9, 12, 14, 16; and Williamson 1994:323–6). The Marxian approach—to totally reshape institutions to conform to some logically superior blueprint of the mind—is based on the erroneous notion that institutions are a major contributory cause of human action, whereas, under the Scottish Enlightenment, institutions were correctly seen as evolutionary products of the optimizing behaviour of men and women, who learn to adopt conventions that facilitate their propensity to specialize and trade.

Yet the utopian desire to 'build anew from scratch' persists, even today, due to the resentment that comes from our inability to fully comprehend and appreciate the *non-deliberate* manner by which our social organization has been created. Today's complex web of market arrangements is the product of a long, forgotten line of *cumulative* adaptations through which each person's objectives are reconciled, voluntarily yet impersonally, with the objectives of millions of strangers. The frustration we experience, first from being mentally unable to fully penetrate the whys and hows of this highly intricate process, and second from being unable to control it to further *our* specific ends (at the uncompensated expense of others' ends) occasionally manifests itself in an 'impetuous desire to smash the whole entangling machinery of civilization...' (Hayek 1978:25). But our lack of complete understanding, when judged from the working agent's perspective, is an invisible yet beneficial phenomenon. As Alfred North Whitehead has explained, 'Civilization advances by extending the number of important

operations which we can perform without thinking about them'. The goal of economizing is thereby greatly served, because '[o]perations of thought are like cavalry charges in a battle—they are strictly limited in number, they require fresh horses, and must only be made at decisive moments' (in Hayek 1978:22).

ADVERTISING

The outstanding fact is that the ubiquitous presence of uncertainty permeating every relation of life has brought it about that information is one of the principal commodities that the economic organization is engaged in supplying.

(Knight 1964:261)

Closely allied to the differentiated product is the role of advertising, which, under perfect-information modelling, is quite logically seen as redundant and hence wasteful. Within a regime of imperfect information, however, the value of advertising becomes readily apparent. A 1964 article by Lester Telser (537–62), and a later article by Phillip Nelson (1974:729–54), have inspired work on the pro-competitive aspects of advertising (see, for example, Schmalensee 1978:485–503). Yet, on balance, the equilibrium paradigm has created a hostile attitude toward advertising, as evidenced by the pro-interventionist conclusions in a major survey article by Comanor and Wilson (1979:473). The interested reader should also consult the effective reply by Julian Simon (p. 1074) and the rejoinder by Comanor and Wilson (1980:1078). To understand the genesis of the anti-advertising bias in neoclassical economics, we must examine the ideas propagated by the founders of the equilibrium model of monopolistic competition. The treatment of advertising in Edward Chamberlin differs significantly from those found in Pierro Sraffa and Joan Robinson. Chamberlin saw advertising as a vehicle of competition whereas Sraffa and Robinson saw it as further evidence of monopoly. Unfortunately, with the demise of the theory of competition as a process, the Sraffa-Robinson view came to dominate the textbooks. In Chamberlin, '[advertising] does not necessarily make its appearance with the monopoly elements already introduced'; instead, it is characterized as a competitive phenomenon, traceable in large part to 'imperfect knowledge on the part of buyers as to the means whereby wants may be most effectively satisfied...'. In particular,

Buyers often do not know or are but dimly aware of the *existence* of sellers other than those with whom they habitually trade or of goods other than those they habitually consume; they are ill-informed of comparative prices for the same thing sold by different merchants; they are ignorant of the qualities of goods, in themselves, compared with other goods, and compared with the prices asked.

(Chamberlin 1956:72, 118)¹⁴

The approach of Chamberlin (and Knight) was consistent with the theory of competition as a process, and as such it contrasted sharply with the views of Robinson and Sraffa. Robinson, for instance, saw advertising as the glue which binds customers to a particular brand; that is, by heightening the differentiation in consumers' minds, advertising strengthens the firm's monopoly grip (J.Robinson 1965:90, 101). Sraffa's views were even more pronounced than those of his Cambridge colleague: '[U]nder the protection of its own barrier [of heavy marketing expenses, each firm] enjoys a privileged position whereby it obtains advantages which—if not in extent, at least in nature—are equal to those of the ordinary monopolist' (Sraffa 1926:545). Thus advertising is portrayed in Robinson and Sraffa as a reliable weapon for insulating the imperfect competitor, thereby reinforcing the negative connotation of the term monopoly.

The differences between Robinson and Sraffa versus Chamberlin were not only technical; they were also normative. Chamberlin expressed support for a free market to facilitate the plethora of differentiated products required to satisfy the diverse preferences of the myriad of real-world consumers (Chamberlin 1937:577). Moreover, he questioned neither the legitimacy of people's preferences nor their role in guiding production. But not so in Robinson and Sraffa. Joan Robinson's hostility to the idea of consumer sovereignty is legendary and is shared by Sraffa, who wrote that product differentiation evolves not in response to a demand for a 'distinct commodity intended for the satisfaction of a particular [consumer's] needs'; instead, said Sraffa, such creations are fostered solely to promote monopoly power (Sraffa 1926:544).

The normative position of Robinson and Sraffa found wide support. For example, Boulding's price-theory text (a leader for three decades), asserted that '[m]ost advertising, unfortunately, is devoted to an attempt to build up in the minds of the consumer

irrational preferences for certain brands of goods'. Therefore, concluded Boulding, '[t]here is a strong presumption that much competitive advertising is social waste' (Boulding 1966:513).¹⁵ Such views were dominant for nearly 40 years following Chamberlin-Robinson. Today, however, the idea that 'there may be too much advertising...[is] by no means widely accepted...'. As a result of Schmalensee's *The Economics of Advertising* (and a later survey text on the same subject by Ekelund and Saurman), there is now 'no clearcut consensus' on this issue (W.Nicholson: 375).

From a process perspective, advertising is a competitive phenomenon—part of the trial-and-error discovery path of both producers and consumers and thus is not wasteful, just as bankrupt businesses, dry oil wells, and fruitless laboratory experiments do not represent waste. *Rather, they are part of the inescapable costs of learning what people want and how to produce more efficiently.* Only under the misleading aura of perfect-knowledge modelling does the carnage of discovery—the unsuccessful experiments in the search for better adaptations—appear to be centrally correctable waste (see Loasby 1976:185; and Gould: 8, 12).

Marshall had ambivalent feelings on marketing expenses. In his *Principles* he did not use the phrase 'social waste' to describe advertising; however, he did employ the term in his *Industry and Trade*, where he discussed at length the growth of trademarked goods. He noted that their rise in popularity in America was a sign of things to come elsewhere (Marshall 1923:330). The trademark, in and of itself, is worthless 'unless accompanied by capable and honourable dealing'; moreover, 'a name or trade mark which has gained good fame in regard to one product is a great aid to the marketing of others' (Marshall 1923:270). He explicitly recognized that paying a premium for a trademarked good (a brand proven by its past performance) was like buying a small insurance policy: 'the tailor knows well that his reputation runs no risk when he recommends a cloth from the pattern book of a particular maker' (Marshall 1923:300, 430). Therefore, Marshall believed in advertising's legitimate role in reinforcing the idea of the dependability represented by the trademark. All the same, he felt that here can be too much of a good thing, namely, 'an incessant iteration of the name of the product, coupled perhaps with a claim that it is of excellent quality—a practice he described as 'social waste' (Marshall 1923:306–7). Sraffa and Robinson never mentioned Marshall's comment; nevertheless, on this particular

score Marshall turns out to be an ambiguous ally. Marshall's normative remarks on excessive advertising demonstrate that he rushed to judgment and thus failed to realize that the usual connotation of the word waste is inapplicable to a world of uncertainty. In particular, he did not understand that advertising has a very short half life. Without incessant repetition, brand names quickly fade from our consciousness, particularly when every product is under constant assault from upstart rivals. See, for example, the long and interesting catalogue of 'Famous Brands on Death Row', in Elliott: F1 and F6.

A considerable segment of mainstream theory has persisted in portraying advertising as a device for the enlargement of monopoly power. The preoccupation with the effects of advertising on the inelasticity and height of a firm's demand curve (and on the size of the presumed deadweight loss to societal welfare) has obscured advertising's indispensable role for producers and buyers who lack perfect information. A notable exception in this regard is the research programme spawned by Stigler, 'the foremost originator of the economics of information'. The official announcement of Stigler's Nobel Prize recognized this particular contribution: 'Stigler has shown that price non-uniformity within a given market can be explained if the costs of searching for and diffusing information about goods and prices are incorporated in the model along with production and transport costs...' (Schmalensee 1983:61-2). However, the Stiglerian approach has remained within the equilibrium framework, for it relies on the application of marginal analysis to the dissection of a *given* haystack whose probability distribution is *known*, thereby enabling the rational mechanical agent to calculate the optimal search time. The instrumental role of the entrepreneur is lost in such a scenario. When radical ignorance intrudes, the paramount importance of selecting the right haystack—as well as the value of the 'hunch' skills required to probe its interior (whose probability profile is *unknown*)—become manifest.

A useful case study

Comparisons with planned, centrally-informed economies offer a fruitful source of insight on the issue of search costs. A 1960 article by Marshall Goldman applied a Hayekian perspective to the information-search problem in the old Soviet Union, where the pressure to meet production targets (cast solely in physical terms)

had long resulted in widespread inferior quality. During the post-Stalin reforms of the mid 1950s, the Russians responded by introducing trademarks and advertising—even in homogeneous products like soap and laundry detergent—so that consumers could more easily learn to identify shoddy manufacturers, who were then penalized for their poor performance (Goldman: 348–51, 355). Soviet planners knew that mandatory specifications and inspections to insure quality were often ineffective and always very costly; moreover, ‘as the degree of fabrication grows, so will the number of standards, *as will the necessity for administrative regulation*’ (Goldman: 352). Therefore, the Russians concluded that product differentiation was ‘more economical than the inflexibility and added cost of increased administrative standards and controls’. In the West, on the other hand, ‘welfare economists apparently have never had to face squarely the problem of the waste connected with [the multi-layered bureaucracies of the Leviathan state]’ (Goldman: 353). A similar experience can be recounted from India, where milk producers sold their milk to consumers *indirectly* through government commodity boards, hence the final product was *not* branded. By the 1970s, the quality problem had become horrendous: ‘Producers had no incentive to maintain high standards because..., with anonymous exchange, it was impossible to receive remuneration for higher quality milk’ (Morduch: 932). The branded product, therefore, is the invisible hand’s response to the moral hazard among producers created in a truly generic world.

One must also consider the costs of distribution and marketing in a society where advertising and product differentiation are absent, for it is here that phenomena concealed by static perfect-information models are strikingly revealed:

A concrete illustration of what is implied may make the point a little clearer. First in the United States and now in the Soviet Union the emphasis is on self-service and the reduction of salesclerks. Salesclerks, however, can be eliminated only when the customer has been ‘educated’ to act for himself, that is, knows what he wants and approximately what to expect from the package *he selects himself*. Advertising is particularly well suited for this task of education.

(Goldman: 354)

Within twenty years of the publication of Goldman’s article, the issues he explored had begun to carve a highly respected place in

the mainstream literature via research on transaction costs: 'The existence of firms with brand names reduces the costs of market search.... Firms are thus not only producers of product quality but also, importantly, carriers of information concerning it' (McNulty 1984:252; also see Stigler 1961:213–25). Nonetheless, the advertising-as-monopoly frame of mind spawned by equilibrium analysis has proved to be amazingly resilient: 'The ...article I wrote in 1974 on advertising as information...has not produced an endless stream of ex-advertising haters' (P. Nelson 1978:133). In fact, the criterion for contestability (no sunk costs) has spawned a new generation of advertising haters.

'Guerrilla war is part of total war' (Davies and Davies: 46), but the incentive to launch guerilla strikes is reduced if the cost of retreating is encumbered by *irretrievable* fixed costs. Therefore, if unwavering consumer allegiance can be purchased through a strategic decision to establish a brand name at the product's introduction via massive promotion, then advertising can be thought of as a sunk fixed cost. (Consult the lucid, sympathetic summary of John Sutton's *Sunk Costs and Market Structure* in Bresnahan: 137–52, particularly 137–40 and 142). Seeing the world in these terms has reinforced the old view that advertising acts as a barrier to entry. However, consumer allegiance is not as easily obtained as the anti-advertising school would have us believe. What is true for the reputation of an individual is also true for the reputation of a firm: It requires years of consistently excellent performance to acquire.... Thereafter, a still greater effort is required to maintain it...' (Greenspan 1963:113). Reputation certainly bestows a competitive advantage, but not an insurmountable one, for any prior attachment can be severed by the superior performance of a new entrant. Japanese auto makers, for example, worked assiduously to identify the unsatisfied wants of American car buyers and to upgrade their exports so as to exceed the quality offered by American firms. (Assael: 59, 668–9). At first, Japanese sales were dwarfed by GM, Ford, and Chrysler. Within a decade, however, the Japanese were able to establish an allegiance to their automobiles based on demonstrated reliability. And in the 1990s, the Korean Hyundai began retracing the trail blazed by Toyota, Nissan, and Honda. In short, it was the scrupulous attention of the Japanese to the desires of American consumers—not a heavy dose of snappy commercials—that led to the upstaging of the 'Big Three' American carmakers.

The debate over the *source* of consumer goodwill (product dependability vs sunk expenditures on front-end advertising) is highly relevant to whether or not advertising acts as a barrier to entry. Any initial attachment created by Madison Avenue for a particular brand name *is subject to depredation*; therefore, all advertising costs are variable, not fixed. Moreover, as the depreciation rate increases, ‘the *difference* between the advertising cost of maintaining any given goodwill stock over any [given] period and the cost of acquiring that stock from scratch *goes to zero*’ (Schmalensee, 1992a: 129; *italics added*). Hence advertising expenses confer no permanent advantage on incumbents. For example, the annual depreciation rate on advertising in the cosmetics industry is 13 percent, and in breakfast cereals, 37 percent (Ayanian: 479 and 499, cited by Posner in the volume edited by Burgess: 164, fn. 11). Therefore, to the extent that other firms can estimate the same expected profits (after absorbing the continuing, hence *variable* costs of promotion), advertising is like any other form of non-price competition. Since depreciation drives the differential cost advantage to zero over time, the arguments against advertising do not sustain the charge of hindering contestability; that is, they have nothing ‘to do with whether the associated costs are in any sense sunk’ (Schmalensee, 1992a:129).

If a firm’s prestige comes to be interpreted as a monopolistic barrier—by erroneously tracing it to large advertising costs (none which are fixed)—paternalistic judicial sanctions will be invited. The inimical result would be a new variant of Gresham’s Law, namely, ‘bad “protection” drives out good’ (Greenspan 1963:113). In other words, an antitrust policy of industrial levelling—aimed at firms who have already secured goodwill—would unintentionally yet assuredly harm the consumer through its order-by-design attempt to place ‘the reputable company on the same basis as the unknown...’ (Greenspan 1963:114).

ANTITRUST POLICY

Nothing in antitrust’s genesis foretold a fusion of law and economics, or the rise of economists as vicars of antitrust policy.

(Rowe: 1559)

Under the classical (process) view of competition, improvements in

consumer service via ‘shop credits’ was seen as an exchange-inducing and hence welfare-enhancing initiative, whereas, under the static neoclassical view of competition, the same phenomenon generated perverse public policy. For example, ‘it has been found that the ability to provide credit is a more effective weapon than an attractive price’ (Banner: 243). Yet the US Justice Department, in an incredible 1956 antitrust suit against the alleged anti-competitive policies of the General Motors Corporation, requested the court to rule ‘that General Motors be required to offer to finance the sales of buses manufactured by any other company upon the same terms and conditions as it finances its own buses’ (Banner: 244). In effect, to prove it was competitive, GM was expected to compete against itself! In this particular instance the Justice Department failed to win a conviction, but the nature of the case demonstrates that serving one’s customers ‘too well’ had become grounds for an antitrust suit under the Sherman Antitrust Act.

Justice Oliver Wendell Holmes, the most economically literate member of the Supreme Court of his era, would not have been surprised at the 1956 action against GM (see Holmes’ emphasis on scarcity and choice in the quotation in Hovencamp 1991:271). Holmes wrote during the 1920s that he had grown to ‘loathe and despise’ the Sherman Act, ‘a foolish law’ which had been ‘enlarged by construction’ in ways that he regretted (DeWolf-Howe, vol. I: 194, and vol. II:16). He was disturbed by the interpretations that had evolved concerning the nature of anti-competitive business practices. In his dissent in a 1904 case, Holmes explained that the purpose of the Sherman Act was not to prevent mergers, *per se*, even if the reorganised playing field dealt a higher price to consumers, because the resultant profit would presumably lure new competitors and thereby force the price back down. ‘Combinations or conspiracies in restraint of trade’, wrote Holmes, were meant to apply solely to ‘exclusionary practices’, covert or overt. The concern of Congress ‘was not the union of former competitors, but the sinister power exercised...by the combination in keeping rivals out of the business and ruining those who already were in’. Holmes’ *classical* dissent, though ‘historically...correct’, has been ‘all but forgotten’, for it was overshadowed by another decision, written by Chief Justice William Howard Taft, in which any combination that caused a higher price, even from *temporary* monopoly power, was viewed as anti-competitive and subject to prosecution, especially, I suspect, if the new-entrant adjustment period was considered to be

prolonged. The unwitting result ‘was a thoroughly neoclassical Sherman Act’ (see the analysis and conclusions in Hovencamp 1991:278, 281–3, 286–7, 291, 327, 329).¹⁶

Ironically, during the enforcement of the Sherman Act in 1924, the US Attorney General argued, unsuccessfully, that price uniformity (which prevails in a fully-informed market of price takers) should be interpreted as evidence of a conspiracy to restrain competition (Knaebel: 605–6). However, this ignorance of the implications of a perfectly competitive market was short lived. In little more than a decade the legal profession had begun to digest and technically incorporate the rigorous industrial-organization models of neoclassical economics. In a seminal article in the November 1937 issue of the *Yale Law Review*, Edward Mason¹⁷ outlined the difference between the meaning of monopoly to a jurist (barrier to free entry) vs the meaning to an economist (market power as evidenced by $P > MC$). Since the economist’s monopolist often has no control whatsoever over the ability of others to enter and compete with him, Mason recommended that the approach of neoclassical economics ‘be utilized in the shaping of a more satisfactory public policy’ (Mason: 334–5, 342–3, 347). He favoured equilibrium models because their welfare analyses might enable the courts ‘to extend the concept of unfair competition beyond injury to the competitor and to take account of the injury to the public’ (Mason: 346). Mason explicitly cited the ‘welfare conclusions as may be derived from an economist’s analysis of monopoly and competition’, which he believed should ‘be converted into appropriate [antitrust] action...’ (Mason: 327). However, he warned that ‘whether any welfare conclusions can in fact be derived’ is an unsettled matter that is complicated by the practical problem of converting welfare theorems ‘into administratively applicable and judicially enforceable rules’ (Mason: 327). Mason also struck a chord which came to be the heart of the subsequent debate between equilibrium and process theorists, namely, the issue of evaluating the social benefits of any particular arrangement from a static vs a long-term perspective: ‘the formation of public policy requires a distinction between situations and practices which are in the public interest and those that are not’ (Mason: 350).

From the 1930s to the 1990s, antitrust policy in the United States has taken several twists and turns which are described in Williamson 1968:17–20, 33–4; Williamson 1985:16–17, 386–7; Williamson

1987:95–7; Crovitz 1991:A23; and Rule 1992:A17. One of the most interesting developments grew out of a gradual acceptance by the courts that ‘bigness’ can, in some cases, bestow benefits on society (via economies of scale) that may mitigate the ‘market-power’ devil that, in the past, had been sufficient to *consistently* elicit damaging judgments against mergers. Of course, obtaining reliable data to argue for gains in productive efficiencies is a difficult task, and the studies undertaken on economies of scale in the US have yielded conflicting evidence on whether or not bigness, *per se*, lowers unit costs (see Gold: 5, 21, 22, 31; and E.Miller: 470, 473, 477, 478). In any case, the Japanese, in search of increasing returns, quickly abandoned the antitrust guidelines imposed by General Douglass MacArthur’s transition advisors (Yamamura: 4273–87).

An equally interesting development has been the courts’ recent recognition that discriminatory contracting practices that favour current vertical partners over potential entrants are frequently not an attempt to block entry, but rather are part of the market’s spontaneous minimization of transaction costs through an enhancement of promise-keeping (namely, long-time suppliers are unlikely to break their contractual commitments). Hence the consumer is ultimately well served by such arrangements, because economies of scale depend on the intensity of capacity usage, which, in turn, depends on forward integration (exclusive wholesalers) and backward integration (committed suppliers) to assure ‘high-volume throughput...’ (Chandler: 81, 87, 88, 89).¹⁸ The developments in scale economies and transaction costs, however, have been exceptional cases. On the whole, the courts have been strongly influenced by the conventional neoclassical approach to industrial structure, which looks at ‘monopoly’ as the breeding ground of sundry practices to restrain trade.

For six decades the structure of an industry (based on concentration ratios) has been the criterion for determining ‘shared-monopoly’ power, even if entry barriers were unaffected. In a 1947 article in the *Chicago Law Journal*, for instance, Eugene Rostow, who later became Dean of the Yale University School of Law (and who was strongly influenced by the model of perfect competition), called for the break-up of large oligopolists into ‘smaller and more independent units’. Furthermore, ‘the offense of monopoly under Section 2 of the Sherman Act’, he said, should henceforth be based on ‘what the economists call monopolistic competition...’ (quoted in Moritz: 395). These were not the idle musings of an armchair academic.

Rostow led the move in 1955 to redirect the Yale Law School curriculum. Armed with a sizable grant from the Ford Foundation (\$8,000,000 in 1995 purchasing power), Rostow and his departmental colleagues fashioned a legal training programme that was 'unique in the world'; their objective was to graduate lawyers 'whose command of law is rooted in a sure knowledge of the historic...and economic sources and purposes of law' (Moritz: 395).

Rostow endorsed the employment of 'the competitive norm in defining an acceptable social goal for the process of price-making' (Rostow: 239; also see Moritz: 394). Consequently, it is not an overstatement to say that 'Rostow's influence...was immense. From 1953 to 1973, three of his former Yale law students led the Antitrust Division [of the US Justice Department]...' (Rowe: 1522). In fact, as late as the 1970s, the Justice Department was still committing 'massive resources [to] an expansive collection of monopolization and shared-monopoly lawsuits that drew upon structuralist economic theories...'. This policy direction was finally aborted, but only because '[b]y the time the deconcentration measures were fully launched, the [academic] consensus that inspired them had vanished' (Kovacic: 299). The waning enthusiasm for the shared-monopoly thesis can be traced to the new criss-crossing forces of product diversification that not only have constrained giant firms via the generation of a plethora of close substitutes, but also have blurred attempts to legally specify the market in which any given firm operates. 'Recent studies... [have] linked...success [not to collusion but to] superior productivity, better product quality, or higher price from premium consumer appeal...'. Therefore, the traditional image of concentrated, anti-competitive markets has grown 'painfully elusive':

Oligopoly, a split image of monopoly, presupposes a few producers within an industry who share a common cost/price calculus and a common competitive prospect that tempts tacit collusion for mutual gain. But once enterprises compete against each other with multiple product/services in endless variations, [two unanswerable questions arise:] where to locate *the* market, and how to recognize oligopolists waltzing together within the square?...[Despite these fatal flaws,] the Oligopoly Model's...inbuilt ideology of intervention [has] linger[ed] to foment paradox and anomaly.

(Rowe: 1542–46)

A recent article on the influence of economists on antitrust has concluded that, despite the paucity of specific references to economic theory in judicial decisions, the indirect effect of neoclassical economics, through several channels, has been pronounced. Judges are heavily influenced, first by their law clerks, who regularly consult with economists, and second by professional-development seminars in law and economics, usually taught by economists who are specialists in industrial organization (Kovacic: 300–2). In addition, jurists frequently cite articles by established legal scholars who are well-grounded in economic theory. The writings of such experts ‘have made the economic literature accessible to the Supreme Court and to lower court judges’ (Kovacic: 298). Therefore, the dominant equilibrium view of the pre-1970 era, as well as the more eclectic, contemporary approach (tempered by the incorporation of new theories on scale economies and transaction costs), have had a significant impact on ‘the jurists’ understanding of economics [and have] shaped antitrust outcomes’ (Kovacic: 300; also see Hovenkamp 1989:105).

F.M.Sherer, an influential writer in the area of industrial organization, disagrees with the preceding treatment. In a conversation with me at a conference in August 1992, Sherer stressed that when he served as the senior economist at the US Federal Trade Commission during the 1970s, ‘no one employed the perfectly competitive ideal as part of the policy-formulation process; moreover, judges in antitrust cases, from my experience, never used it as a criterion in arriving at their decisions’. Sherer’s assessment was shared by Stigler, who wrote that he was ‘unwilling to believe that economists...[have] had any appreciable influence on antitrust [policy]—even though their ‘attitude...toward monopoly policy [has been] strongly influenced’ by the definitional precision given by equilibrium theory (Stigler 1982:46, 52). Stigler’s conclusion is especially surprising, because the revolution in antitrust policy (that began to be strongly felt in 1977) was largely a fruit of his personal labour in this field. To better appreciate Stigler’s contribution and to fully explicate the effect of equilibrium thinking on the evolutionary sweep of antitrust policy, a follow-on chapter is dedicated exclusively to the judicial history of antitrust thinking in the United States.

SUMMARY

The changes in thinking wrought by the model of perfect competition are sufficiently compelling to justify the revolutionary descriptive. The discipline forfeited its classical understanding of how prices change and, thereby, lost its appreciation for the entrepreneur's unique role in overcoming *the* economic problem: the division of knowledge phenomenon that is an inherent feature of a specialized society. Likewise, the jettisoning of the process perspective led us to accept the Walrasian solution as the actual set of prices to which an economy converges; yet the existence of disequilibrium trading, rooted in asymmetric information, ensures otherwise. The perverse result of our embrace of the convenient Walrasian price vector was that the real-world competitive process—by which we discover the desired character of GDP, improved methods of production, and equilibrium prices—was recast into an anti social (i.e. welfare-reducing) phenomenon. This, in turn, shaped how we came to think about the interconnected triad of market power, socially acceptable returns on investment, and antitrust policy. By focusing on these far-reaching implications of the classical versus neoclassical ideas on competition and monopoly, I have striven to legitimatize my attaching of the term Kuhnian revolution to the intellectual triumph of the perfectly competitive model. But how, exactly, did this victory occur? It is to this question we will turn in Chapter 8, immediately following a more detailed examination of US antitrust history in Chapter 7.

**The Grossman-Stiglitz thesis*

A review of pp. 50, 101–3 and 128, plus Note¹ on p. 317, will help the reader to fully appreciate the crucially important concepts in this subsection.

COMPETITION AND THE LAW

Until the 1920s most economists viewed competition as a... rivalrous process that would be stifled by antitrust laws. Once the perfect competition model—which largely ignores rivalry—was accepted, economists' opinions of antitrust grew more favorable. To the extent that antitrust interferes with rivalry and enterprise, the competitive model has very likely misdirected the profession, at least as far as antitrust policy is concerned.

(DiLorenzo and High)¹

The purpose of this chapter is to review the trends in antitrust policy since 1900, especially the momentous shift that began during the late 1970s, a shift that was spurred by a revolution in the theory of industrial organization. We will see that, as static neoclassical models became understood by jurists, business practices whose efficiency rationales were subtle—and hence not easily explicated by defence teams—were routinely yet incorrectly imputed to the exercise of monopoly power (Coase 1972:67). The overarching theme of all the upcoming sections will be that more harm than good has flowed from the inflexible application of the perfect-competition benchmark as 'the measure against which particular [antitrust] policies and actions are first tested' (Gellhorn: 188).

To accomplish this objective, we will first explain the approach taken by the high court during the early decades of the century. Next we will describe the specific decision patterns that emerged from what is now part of the 'old learning', namely, the market-structure models of imperfect competition and oligopoly that evolved during the 1930s. We will also review the 'new learning' and the radical antitrust departures of the late 1970s to which it

gave rise. Finally, we will briefly examine the ‘new-new learning’, which, at best, portends that doctrinal development is far from complete, and, at worst, suggests that most administrative decisions to pursue antitrust cases are not rooted in the general-welfare motivations of civic-minded prosecutors, but rather are inspired by the political heat brought by Congressmen who are responding to the antisocial, special-interest agendas of home-district corporations who are facing stiff competition from the ‘unfair’ (and hence illegal) practices of a new entrant.

THE EARLY YEARS: WORKABLE COMPETITION AND THE RULE OF REASON

During the formative period that followed the passage of the Sherman Act, the courts were consumed with trust busting: the dissolving of price-fixing cartels. Horizontal agreements to divide markets or to fix prices were clearly counter to the conspiracy provision of the Sherman Act; therefore, such activities were held, from the outset, to be illegal, *per se*. That is, a conclusive presumption prevailed that such practices were expressly prohibited by the Sherman Act, and hence were automatically illegal. However, except for egregious acts of cartelization and price fixing, the *per se* doctrine was not invoked during the early decades. For the majority of cases brought before the courts, a rule of reason was applied to ascertain whether a given practice was an attempt to prevent others from selling or simply part of the process of active rivalry. In other words, an attempt was made to evaluate both sides of an issue, so as ‘to determine whether competition was unreasonably restrained’ (Sunderland: 94). In 1918 Justice Brandeis explained the Supreme Court’s approach. The relevance of the italicized portions will become clear in subsequent sections.

Every agreement concerning trade, every regulation of trade, restrains. To bind, to restrain, is of their very essence. The true test is whether the restraint...*promotes competition or whether it ...may suppress or even destroy competition....* The history of the restraint, the evil *believed* to exist,...*the purpose or end sought ...*, are all relevant facts.

(In Sunderland: 94, fn. 9; italics added)

Deliberations on what was reasonable were initially guided by the classical idea of workable competition, which rested on the extent

of entry barriers. As J.B.Clark's *Control of Trusts* had explained in 1901, 'the fear of new mills' is a powerful weapon whose 'effect ...is to keep prices down' (in Stigler 1968:20). During the late 1930s, however, the courts became increasingly concerned 'with the time, cost, and results of rule-of-reason trials...' (Gellhorn: 186). In addition, market-structure models, which offered clear-cut efficiency criteria for evaluating monopoly behaviour, began to be understood and embraced by the antitrust community. By the end of the decade, therefore, many business practices came to be seen, pre-emptorily, as illegal. These practices—whose real social benefits were not fully understood (sometimes even by the practitioners themselves²)—were automatically assumed to be manifestations of the exercise of monopoly power, the existence of which, in neoclassical theory, reduces welfare, *always*. Consequently, the Rule of Reason was replaced by the *per se* rule to expedite the eradication of these presumably utility-reducing practices, most of which are described below.

THE OLD LEARNING: STATIC MODELLING AND THE *PER SE* RULE

The theory of [perfect] competition developed by economists is not a natural tendency towards equilibrium of forces but is an ideal of public purpose adopted by the courts, to be attained by restraints on the natural struggle for existence.

(Commons 1934:713)

The longstanding bias against concentration is based on one-point-in-time snapshots of investment returns in concentrated vs atomistic industries. Since returns in the former are noticeably higher than the latter, antitrust guidelines as late as 1968 favoured deconcentration initiatives. However, longer-term studies of profitabilities have revealed that, due to free entry over time, only 20 per cent or so 'of the variances of rates of return among industries is accounted for by differences in concentration' (Stigler 1968:145). This finding 'denies the asserted basis for the deconcentration recommendation' (Brozen 1970:292). Nonetheless, oligopoly theory succeeded in capturing and retaining 'the imagination of policymakers and the courts' (Gellhorn: 187).³ The undiscriminating bias against concentration, which reached frenzied levels in the 1940s and 1950s, has persisted in milder form to the present day.

According to Thomas Sunderland, an attorney who struggled fruitlessly to defend his corporate clients throughout the 1940s and 1950s, the counter-arguments of business firms were usually given zero weight. The Supreme Court justified this stance by noting that judges were not equipped to evaluate the efficiency consequences of the various business practices under fire. As Judge Bork has explained, when efficiency is not counted, ‘there is...no reason to uphold [the] legality [of a given business practice] if any remote danger can be imagined’ (Bork: 8). Consequently, from the businessman’s viewpoint, the *per se* era was a time when the notion of a fair trial was ‘dispensed with altogether, and the defendant [was] held guilty as a matter of law’ (Sunderland: 97).

If an industry satisfies the contestability criteria, then its maintenance of a huge market share ‘requires unusual productive ability, unfailing business judgment, unrelenting effort at the continuous improvement of one’s product and technique’. Therefore, such a firm ‘deserves praise, not condemnation’ (Greenspan 1961:59). If a firm’s supra-normal returns are due solely to high prices, then the free flow of capital will cause its products to be ‘immediately...confronted by competition’. However, those who garner supra-normal returns via breakthroughs in method are better insulated, for it takes considerable time to assemble the network of inputs and organizational modes needed to replicate the innovator’s process so as to match his lower costs. Hence the capital market ‘acts as a regulator of prices, not necessarily of profits’. Due to the lagged response time, ‘an individual [is] free to earn as much as he can by...increasing his efficiency relative to others’. And this is ‘the mechanism that generates...a rising standard of living’ (Greenspan 1961:61–2).

Several long-established business arrangements came under fire after 1940.⁴ Each was seen as harmful to consumers simply because of its association with market structures that were not perfectly competitive. In other words, a given behaviour was automatically judged to be antisocial if the actor could in any way affect the environment in which he operated. Such a conclusion flowed ineluctably from the reasoning underlying the *per se* regime, which was, namely, that the structure of one’s market and the purpose of one’s conduct ‘were *necessarily* related’ (Eisner: 114; *italics added*). Basically, the static-model structuralist paradigm (on which the *per se* rule rested) assumed that industrial concentration somehow

provided firms ‘with the ability to adopt a variety of collusive and exclusionary strategies designed to maintain or enhance their positions and realize monopoly profits’ (Eisner: 100)—all to the detriment of consumers. Consequently, six practices were struck down in the 1940s and 1950s as trade-restraining and hence monopolistic—without an understanding of precisely why these practices had emerged and without consideration of how their elimination might worsen the long-term position of consumers. This pattern of judicial decisions led McNulty to pose the following rhetorical question: “How may a business firm be expected to compete without monopolizing?”...[T]he critical reader will search [mainstream] economic literature in vain for a clear answer to that question” (McNulty 1968:642)⁵

- 1 Boycotting was held to be illegal, *per se*. No manoeuvring room was allowed for cases in which a manufacturer’s refusal to sell to a particular retailer might have been in the public interest, such as a boycott against retailers who were providing substandard warranty service (Sunderland: 95–6). And no consideration has been given to allow retailers to boycott customers who buy from competing retailers, even when unusual conditions exist to enable the inference that such a boycott may actually promote consumer welfare (see the hypothetical examples in Brennan: 247–9, 261–3).
- 2 To the layman (and to most economists), the practice of ‘resale price maintenance’ appears blatantly anti-competitive and hence the most worthy of being struck down. Refusing to sell to retailers who discount a product below the ‘manufacturer’s suggested retail price’ was certainly a form of price fixing, and hence the Court predictably found it illegal, *per se* (the first decision was the Dr Miles’ case in 1911). However, the rationale (under certain conditions) for resale price maintenance, though never weighed, was not meritless, as we shall see below when we examine the new learning. The existence of a legitimate (i.e., proconsumer) reason for a genuinely competitive manufacturer to boycott a retailer for discounting below the suggested retail price was simply lost in the rush to stamp out all presumed manifestations of monopoly power. ‘Antipathy towards resale price maintenance has been one of the clearest lines of policy in US antitrust’ (Frazer: 234).
- 3 Tie-ins, likewise, were automatically condemned. In 1947, the

International Salt Company, which sold a dispenser only to those who bought its salt tablets, was found guilty under the 1914 Clayton Act, yet the Clayton Act prohibited *only* those tie-in agreements that tended to create a monopoly. International's additional sales of salt (through the tie-in to its dispensers) were demonstrated to be insignificant; nevertheless, the firm was found guilty of restraining other sellers of salt tablets by locking-in customers with its dispenser arrangement. It was unreasonable, *per se*, said the Court, to adopt any practice that presents even an unintentional threat to foreclose any competitor from any market (Sunderland: 96).

- 4 In an analogous move, the Court struck down the right of a manufacturer to require a distributor to deal exclusively with its brand names, as was customary in gasoline and automobiles. In 1949 the Court ruled that Standard Oil of California could not require exclusive dealerships, even though sales through this medium comprised less than seven per cent of all gasoline sold on the West Coast, from which the suit originated. The defendant's claim that its distribution practice did not restrict competition was rejected as immaterial; the Court decided that exclusive dealerships were objectionable, *per se* (Sunderland: 96–7).
- 5 Under the influence of the price-leader model of oligopoly, uniformity of conduct became automatically suspect, even if it were known that no explicit agreement existed to collude on output and pricing. A large firm, responding to stimuli in the same manner as its rivals, came to be accused of accepting an implicit invitation to conspire against the public interest. In other words, if a firm definitely was *not* conspiring with its rivals, but if its unilateral actions were the same *as if* it had been conspiring, then it was held to be guilty, *per se*, of a violation via 'conscious parallelism of action', a term which was cleverly designed by the Federal Trade Commission 'to make non-conspiratorial conduct take on an air of willful concert of action...' (Sunderland: 100–1).

The 'power' to establish tie-in requirements or to maintain arrangements on resale prices was seen as necessarily detrimental to society because, in either case, the firm is not a pure price taker, hence price will be greater than marginal cost due to the *de facto* output reductions induced by the tying, etc. Therefore, from a Walrasian, snapshot-in-time perspective, the

resultant utility level *must* be inferior to a perfectly competitive regime, under which, by definition, no one can affect the terms of trade in any way, thereby generating a level of output at which welfare is maximized *in a make-believe world of homogeneous-good industries*. However, in such a world—where every manufacturer is precluded from possessing an exchange advantage—no entrepreneur can create a new source of utility for consumers unless he agrees to ‘share’ his findings (immediately) with all his rivals. As soon as ignorance intrudes, the Walras-Lerner method of evaluating societal welfare becomes inapplicable, because dynamic efficiency—improved allocations over time—requires pure profit as the bait to spur the discovery of superior variants, better manufacturing systems, and more effective inter-firm and intra-firm organizational forms, all of which, under equilibrium theory, became manifestations of utility-reducing ‘monopoly power’. The bottom line here is that those who view the world through Walrasian lenses are paradigmatically handicapped; that is, they are literally incapable of seeing the intertemporal opportunity costs of their exclusive focus on the efficient allocation of *given* resources amongst *known* ends.

- 6 Closely related to tie-ins and exclusive dealing is the issue of vertical integration, that is, the consolidation of upstream parts suppliers (and/or downstream distributors) under the ownership of the manufacturer of the main product. The Supreme Court, by a single vote, refused to apply the *per se* rule to vertical integrations. It did order motion picture producers to sell off their thousands of local theatres, but not on *per se* grounds. So in this single area a bare majority continued to apply the rule of reason, that is, to examine whether or not a given vertical integration created the *likelihood* of anti-competitive behaviour. However, the Justice Department, in several vertical-integration cases, had urged the Court (unsuccessfully) to apply the *per se* rule; and Congress, which had endorsed the Justice Department’s position, enlarged the Clayton Act in 1950 to cover certain acquisitions of capital stock, thereby encouraging the transition to future *per se* interpretations by the Court. Shortly thereafter, the Minnesota Mining and Manufacturing Company (3M) abandoned plans to expand vertically, even though, under the letter of the new law, the intended acquisition seemed perfectly legal because it in no way impeded

competition. Nonetheless, the climate of the times portended a non-sanctioning by the Court, which was steadily widening the definition of anti-competitive behaviour. Thus, to avoid assuredly high defence expenses and a potentially costly sell-off of acquired capital, the vertical integration was never pursued (Sunderland: 98–9).

The quandary faced by 3M was not an exceptional incident. A study by James Elbert of 205 challenged merger cases between 1950 and 1972 found not only that the litigation was expensive (the average case lasted three years), but that the results were even more costly: the defendants lost 82 per cent of the time and were required to divest assets in 60 per cent of the cases (in McWilliams *et al.*: 518). These private costs had an unintended social cost: a wave of conglomerate mergers that generally were safe from antitrust prosecution but were inefficient because they violated the specialization principle. The era of hostile takeovers of the 1980s, which busted up these conglomerates to reallocate assets to higher-valued uses, redressed these inefficiencies (see the research cited in McWilliams *et al.*: 527–8). We shall never know the extent of the damage caused by the entrepreneurial paralysis induced by the overt hostility toward vertical integration that grew out of the *per se* doctrine.

As late as 1959, Carl Kaysen and Donald Turner, two leading *per se* theorists, were advocating the prosecution of ‘any vertical merger in which the acquiring firm had twenty percent or more of its market’ (Posner 1992:171–2). President Johnson appointed Turner in 1965 to head the Justice Department’s Antitrust Division (Eisner: 126). Recall also that during the mid 1950s Eugene Rostow had begun to put his stamp on the Yale Law School curriculum, so as to further the enforcement goals of the market-structure school. Yet, shortly after Turner’s appointment, a massive and auspicious ‘purge’ of the ‘dead-wood’ was conducted at various federal enforcement bureaus, which ushered in a new stable of lawyers and economists, many of whom were fresh out of doctoral programmes whose price-theory courses had been highly critical of the old learning. They began to make their mark by altering the direction of case selection (an unintentional yet beneficial side effect of the decision to modernise the ranks of technical personnel). Hence the intellectual seeds of destruction of the *per se* school were planted more than a decade before Ronald Reagan’s election

(Eisner: 163–70). At the dawn of the new era, however, change in the temper of the Court appeared remote; in fact, *per se* reasoning seemed to be so firmly entrenched that an exasperated Supreme Court justice remarked, in a 1966 dissent, that the ‘sole consistency’ he could find in antitrust litigation was that ‘the government always wins’ (Potter Stewart, in *United States vs Von’s Grocery Co.*, quoted in W.Baldwin: 376). Nevertheless, dramatic change *was* afoot. Between 1968 and 1979, a series of monumental decisions swiftly shifted antitrust thinking to a situation which prompted critics from the old school to repeatedly complain, throughout the 1980s, that ‘the government never, sues’ (Gellhorn: 183).⁶

THE NEW LEARNING

Competition is a ruthless process.... The deeper the injury to rivals, the greater the potential benefit [to consumers]. (From a 1986 Federal Appeals Court opinion rendered by Judges Easterbrook and Posner).

(In Frum: 73)

The antitrust turn-around was not an overnight miracle. Nor was it a product of the Reagan presidency. It was fed by many years of persuasive academic counter arguments from pro-market economists (mainly quartered at the University of Chicago), who were at best ignored and at worst criticized for being slavish adherents to outdated notions about the public-interest efficacy of free markets. Singular in his early willingness to swim against the tide with a prodigious publishing assault was Stigler, who truly deserves to be known as John the Baptist of the new learning.⁷ Stigler, for example, brought balance to the issue of ‘conscious parallelism of action’ (discussed above). Stigler’s theoretical and empirical investigations of oligopoly led him not to deny the idea of tacit collusion, but to suggest that, except for industries with very high levels of concentration, it was unlikely to be a problem for society. Stigler thereby ‘cast grave doubt on the necessity for draconian measures...for preventing tacit collusion by arresting or destroying concentration’ (Posner 1992:167).

Stigler’s approach to oligopoly reflected the guiding principle underlying the Chicago critique of the public activism of the 1940–70 era, namely, that the unmolested invisible hand usually serves

the public far better than the intervention-minded structuralists were willing to concede. Except for keeping a wary eye on *horizontal* mergers (cartels), the government should follow a policy of *laissez faire*, because, given our ignorance, neither the government (nor anyone else) has sufficient insight into the vast interlocking complexities of the market to enable a successful fine-tuning of those business practices which appear, seductively, to be correctable deviations from perfection. Hence ‘[t]he hallmark of the Chicago approach to antitrust’ is a well-deserved scepticism rooted in a lingering doubt over our ability to ascertain, at any given point in time, ‘the optimal organization of industries...’ (Easterbrook: 119; and Stigler 1968:88–9).

Two of the seeds from which much of the new learning flowered are the concepts of barrier to entry and transaction cost. These two ideas will first be reviewed, and then be employed to ameliorate the nefarious connotations linked to practices such as monopoly power, tie-ins, and resale price maintenance.

Gargantuan capitalization: barrier to entry?

Suppose the sheer size of plant required to produce, say, steel, is such that four or five firms can satisfy total market demand. The structuralist would portray this industry as inherently uncompetitive because the capital required by new firms (to match the incumbent’s scale of operation) acts as a barrier to entry. Without stern government oversight, therefore, first comers could and would exploit their protected position—protected by the engineering nature of the minimum plant size required of new entrants to produce steel at a cost competitive with established firms. Stigler demolished this position with some simple logic. Since the *annualized* investment needed to cover depreciation and thus to remain in any given field is the same for *all* members of an industry (old and new), existing firms have no special long-run advantage over potential newcomers who want to out-compete and replace them (Stigler 1968:70; and Posner 1992:163–4).

As a more useful alternative, Stigler defined a barrier to entry as a particular *marginal* cost that ‘must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry’ (Stigler 1968:67). As a result of the widespread acceptance of Stigler’s definition, attention eventually shifted to the barrier role also played by sunk costs, an independent yet relevant

factor which Stigler had not incorporated. For now, the key point to appreciate is that Stigler reconceptualized the idea of gargantuan investment as a barrier to entry, a breakthrough that undercut the structuralist's contention that vertical integration generated monopoly power by magnifying the capital required to enter the multi-level activities of vertically-integrated incumbents (Eisner: 106). The order of entry in a vertically-integrated industry does not affect marginal costs, and the very existence of producers means that the magnitude of investment is not a deterrent (for it must be *sustained* by incumbents). After Stigler, the structuralist's argument—that the volume of required capital impedes entry—made no sense.

Transaction costs

[T]ransaction cost economics maintains that...[p]rice does not speak in isolation.... Specifically, contracts that pose hazards that are not mitigated by safeguards will be priced differently than contracts where those same hazards are mitigated.

(Williamson 1993:105)⁸

The second prong of the new learning is the study of the cost of conducting trade, the principle cause of which is asymmetric information. A descriptive list of the different situations that give rise to transaction costs—‘the costs of running the system: the costs of coordinating and motivating’—can be found in Milgram and Roberts: 28–34. Their text also provides (on pp. 88–120 and 126–96) superb coverage of the entire spectrum of information issues except the overriding problem of radical uncertainty (as discussed in Chapter 6).

Economists, wrote John Commons, begin their analyses with choices made by individuals, whereas ‘[t]he court begins with a transaction’, which is a ‘transfer of ownership’, and hence ‘is both individual and social’. Commons argued that the transaction should be ‘the ultimate unit’ of economics: ‘its starting point’. He believed that the welfare of a society rests on the manner in which it governs transactions. In particular, he highlighted man’s remarkable ability to ‘convert future happenings into present action’ via transactions which guarantee ‘present rights to the future use of things’ (Commons 1924:374; and 1934:4, 58, 400,

640)⁹ Arrow has also put his finger on this issue. He explained that the non-existence of a futures market in a given activity (due to the uncertainties shrouding long-term contract enforcement) will likely lead to the invention of other social devices, such as ‘codes of professional ethics’ (instrumental to the early Jewish and Quaker merchants), ‘or economic organizations *with some power intermediate between the [perfectly] competitive firm and the government*’ (Arrow 1974:8; italics added).

If property rights (‘the absolute right to use and dispose of something’) are fully guaranteed, then transactions become routine and their study is ignored. ‘If insecure’, however, ‘then everything else is dropped and armies go out to control [them]’ (Commons 1934:400, 644). Therefore, said Commons, it is to the evolutionary, trial-and-error selection of the laws, and to the customary or ‘reasonable’ sharing of gains governing transactions, to which we should look to understand ‘the critical turning points’ of political economy (Commons 1934:57, 242, 638, 710–11; and 1924:372–4, 376–7). With the exception of popular sovereignty via the right to amend the US Constitution, American courts ‘are final authorities on legislated acts’. Since ‘[everything turns on the [Supreme Court’s] assumption of meaning to be given to property, liberty, person, and due process’, and since ‘[e]ach change in meaning is a judicial amendment to the Constitution[,]’ American scholars should devote themselves to the ‘urgent’ task of developing ‘fundamental theories of the correlation of economics, jurisprudence, and ethics...’ (Commons 1934:715; and 1936:249).

Coase’s independent, Marshallian-like odyssey in factories and business trade journals during the early 1930s led him to highlight ‘the costs of making transactions’ and the need ‘to incorporate them into the analysis’ (Coase 1991:46). Over the past twenty-five years, the profession’s long-dormant interest in the precise role of transaction costs has exploded. The fruits of this labour have been especially welcome, not only in the field of antitrust, but also in the field of economic history, as evidenced in the writings of Nobel Laureate Douglass North. In the antitrust area, we will first examine Stigler’s critique of an ‘inappropriate’ use of transaction-cost theory that has ‘carelessly’ reinforced the idea that monopoly returns are sustained by so called ‘imperfections in the capital market’. This ‘Gabriel-horn phrase’ has been regularly employed to describe the capital market’s apparently irrational unwillingness to finance presumably meritorious new entrants, including the case of

students who, until the introduction of government-guaranteed loan programmes, were unable to borrow for college tuition, even though historical data amply demonstrate that a university degree yields a higher than average return on investment.

From a transaction-cost perspective, untested entrepreneurs are not good substitutes for tried-and-proven incumbents; therefore, the refusal of capital markets to fund aspiring new entrants—especially at the same interest rate available to established firms—should not have been portrayed as a defect in the invisible hand's allocative process (Stigler 1968:118–19). Untested entrepreneurs usually must borrow in venture-capital markets (via 'junk' bonds) that require a healthy interest premium. At issue here is another barrier-to-entry bugaboo—distinct from the large-scale capital requirement described earlier—namely, the 'I-can't-get-a-loan' argument, which has been erroneously presented as an example of capital-market failure and has been continually and persuasively employed to raise the spectre of monopoly power of incumbents. The imperfections-in-the-capital-market concept has been the traditional knock-out punch in any discussion: 'Once this phrase has been written or spoken, the economist has finished with *that* strand of analysis' (Stigler 1968:113–15).

Stigler pointed out that the efficiency criterion precludes the rational lender from building a totally accurate portrait of every investment project, hence the loan pattern that emerges from a lender's refusal to seek complete information should not be labelled a market failure. In other words, faced with the fact that the benefit of searching-out an additional unit of information will eventually be dwarfed by the marginal cost of doing so, a real-world capital market should not be deemed imperfect if every project (revealed *ex post* as 'worthy') fails to win funding, or if every apparent opportunity for arbitrage gain is not exploited, thereby creating more than one price for a given good in a given market (Stigler 1968:116–20). The capital-market 'problem' is rooted in asymmetric information. The lender's inability to perfectly monitor how his funds are employed creates a moral hazard by encouraging higher-risk borrowers¹⁰, which, in turn, compounds the adverse selection problem facing lenders. Without a mind-reading machine, lenders cannot sort out every bad prospect without unjustifiable expenditures on search costs, hence some rotten apples get in—and some good apples are left on the tree (Stigler 1968:115 [fn 1] and 120).

Consequently, in two separate yet related strokes, Stigler rendered vacuous the premier icon of the old learning, namely, that entry barriers to occupations and to businesses are pervasive. He destroyed the 'I-can't-get-a-loan' idea of imperfections in the capital market, just as he had likewise undermined the idea that gargantuan capital requirements protect established oligopolists. After Stigler, this double-barrelled loose cannon was brought under control: 'Once entry barriers are discounted, all firms are subject to potential competition...' (Eisner: 105).

The tenacious grip of the perfect-competition model on our thinking has led our profession to criticize—and to endorse ameliorative state action for—nearly every deviation from outcomes associated with the perfect-knowledge postulate. Stigler aptly concluded that '[t]he attribution of imperfections to markets has been an easy game because markets seldom have defenders ...I do not propose that economists appoint themselves defenders of markets, however; it is enough if they resign from the prosecution' (Stigler 1968:120–1). Yet he never questioned *why* economists are so quick, not only to highlight market imperfections, but also to suggest the potential superiority of non-market alternatives.

More on uncertainty, efficiency, and the cost of transacting

Efforts to improve markets through law aim at a moving target, with a paradox: if an economic institution survives long enough to be studied by scholars and stamped out by law, it probably should be left alone, and if an economic institution ought to be stamped out, it is apt to vanish by the time the enforcers get there.

(Easterbrook: 119)

In neoclassical modelling, the market is analysed at a fixed point in time. All demand and cost curves are drawn under the assumption of perfect information, hence the most efficient output and price *for society* (the optimum), can be determined for the period being studied. For industries that are perfectly competitive, the firm's private optimum will be the social optimum. Under imperfectly competitive conditions, the models tell us that the profit-maximizing calculus of firms will lead them to design methods to restrict output so as to obtain a higher price, thereby yielding an

antisocial (sub-optimum) outcome. Within a static framework, therefore, the solution to oligopolistic pricing appears to be indisputably clear: strip giant firms of their power to restrict output by disallowing, via antitrust action, the ‘variety of collusive and exclusionary strategies’ through which they ‘maintain or enhance their position and realize monopoly profits’ (Eisner: 100). But suppose that, within a dynamic context in which most key data are unknown, some of the so called anti-competitive practices outlawed during the *per se* era had served a socially useful purpose? Specifically, what if certain practices had enabled *an expansion of* national output by reducing the costs associated with uncertainty and free ridership? These costs are not captured under the neoclassical models that fuel antitrust action. Moreover, if antitrust policy prevented uncertainty costs and free-rider costs from being constrained through the invisible hand’s corrective (‘monopolistic’) strategies, then these real costs must have been borne by consumers via lower GDP. If this vision is closer to reality, then most structural antitrust actions will be socially counter-productive. Reconsider, for instance, tie-ins and resale price maintenance, both of which were described above.

- 1 Recall that tie-ins were seen as a barrier to entry because it was thought that a new entrant, to be an effective competitor, would have to raise sufficient capital to produce *two* products (salt *and* dispensing machines, for example) so as to break the incumbent’s hold on the field. But this is not so, for new salt firms can purchase dispensing machines from the same sources that sell dispensers to existing salt firms! (Posner 1992:168). In addition, one must consider that firms sometimes employ tie-ins to protect the integrity of their trademarks. For example, have you ever used a copier that repeatedly jammed? Did you curse *the machine*? Perhaps the real source of the problem was the cheap, off-brand paper being used—paper which failed to meet the copy manufacturer’s performance specifications. Informational dissonance on the reliability of trademarked goods can be effectively precluded by tie-in requirements.
- 2 Resale price maintenance and other restrictions (such as exclusive dealerships) seem to be bald strategies for boosting prices via the boycotting of discounters. However, the issue is more complex than it first appears. In the furniture business, for instance, a customer wants a trained representative to

demonstrate a sofabed—to explain its construction features, to review fabric selection through on-the-spot availability of sample upholstery material, to learn of warranty details, and, most importantly, *to see* the sofabed in various room settings. Consequently, products like furniture, appliances, non-instamatic cameras, microelectronics, top-line cosmetics, collectible hobby items, etc., are inseparable from a host of *costly* complementary services, such as ‘inventory, showroom display, and knowledgeable sales personnel...’ (Posner 1992:160–1). Furthermore, manufacturers sometimes protect the integrity of their product by contractually obligating the seller to assemble it—such as a bicycle, for example. Discounters can save money by selling a ‘bike in a box’, but a do-it-yourself assembly of precision equipment frequently results in poor performance—which rebounds against the manufacturer’s trade name and thus hurts future sales. When discounters enter the market (bare-wall ‘warehouses’), customers will *browse* at the retailer—milking him of his expertise—and then *buy* from the discounter. Consequently, there existed well-grounded apprehension among selected manufacturers, who were afraid that, in time, free riding by discounters on the extra capital and payroll of their retailers would destroy these retailers and, thereby, increase the consumer’s ignorance of their products.

In 1960, the *Journal of Law and Economics* published Lester Telser’s ‘Why Should Manufacturers Want Fair Trade?’. Telser’s carryover of the term ‘free rider’ from the public-goods literature to the industrial-organization literature was a brilliant stroke. However, we should note that the discounter’s *customer* is the ultimate free rider. The presence of the discounting firm enables people to consume the expertise and capital of the specialty store without paying for these inputs (Breit: 84, 86). Fair-Trade laws in the US were enacted in 1937 to exempt retail price enforcement from the Sherman Act and were repealed in 1976 (Breit: 81–82). But these laws, like the *per se* rulings, were unjustifiably all-inclusive. The free-rider argument for a Fair-Trade law loses its cogency when applied to the case of general merchandise carried by the largely self-service discounters, who garnered their sales from the traditionally labour-intensive, service-counter oriented department stores (such as Macy’s and the old-fashioned ‘5-and

10-cent stores'). In the early 1950s, however, the ultimate shape of the future landscape in retailing was purely conjectural, hence all discounting was initially resisted by manufacturers to protect their traditional outlets. In retrospect, of course, we know that a genuine act of creative destruction was underway.

The indiscriminate banning of *all* resale price maintenance agreements in the US failed to consider the difference between markets for high-volume, quasi-homogeneous merchandise, versus markets for more specialized products whose sale involves a host of expensive complementary services. Analogously, the blanket sanctioning of resale price maintenance (via Fair Trade laws) gave protection where it was unwarranted. A rule-of-reason approach would have been better suited to the problem, for it would have discriminated between pure price fixing versus the legitimate complaints of specialized dealers. The relevant issue here—that was never allowed to play a role under the *per se* regime—is that the customers *expropriate the property rights of showroom retailers*, a fact which the Supreme Court refused to consider in its 1967 Schwinn Bicycle decision, but which it finally incorporated when it reversed itself a decade later in the landmark private suit brought against Sylvania. Donald Turner, an old-learning warrior who was converted by the new learning on this particular aspect of policy, was one of the chief architects of the government's arguments in both of these cases (Williamson 1992:143, 145–6, 152–3, and 159, fn. 20). Congress has remained hostile to resale price agreements; nevertheless, from 1981 to 1991, not a single price-maintenance case was filed by either the Justice Department or the Federal Trade Commission (Frazer: 235).

The areas subject to free riding are broader than first anticipated. Consider, for example, the retailing of name-brand clothing. Many apparel manufacturers offer high-quality lines, but how does one determine which of these are better constructed than others? Criteria that come to mind are double seaming, fabric weight and colourfastness, strength of button binding, shoulder padding, etc. A comparative analysis of these features is costly:

[M]any reputable retailers expend resources employing sophisticated buyers and testing techniques to ascertain the intrinsic quality of a particular brand. If the fact that a reputable retailer chooses a specific brand signals to

consumers that this brand is of high quality, then consumers can learn this information without necessarily buying the product from the...quality-certifying retailer. In such an environment, 'no-frills' discounting dealers can free ride....

(Boyd: 449–50)

Building on the studies of Michael Spence and Hayne Leland, Howard Marvel and Stephen McCafferty produced 'convincing empirical evidence that quality-certification services are, indeed, important in consumers' purchasing decisions involving...non-technical fashion products—the same types of products for which [old-learning advocates] argue that free riding will not occur' (Boyd: 450). Moreover, Pauline Ippolito has tested the alternative explanatory power of the theories of collusionary power vs free riding in the 203 price-fixing cases filed in US federal and state courts between 1976 and 1982. 'Her conclusions were stark.' She found that only 15 per cent of the cases were consistent with the collusion scenario, but 'virtually all of the cases seem to be consistent with [various] free riding theories' (Boyd: 450). The irony here is that antitrust activists, who for decades relied on market-imperfection arguments to justify legal intervention, 'often find themselves denying that certain market imperfections (e.g. the free-rider problem) are significant' (Tye: 8).

Incidentally, the traditional distribution system inside Japan has adopted practices to support its near-universal price-maintenance policies, such as the boycotting of discounters by manufacturers to protect their small retailers. As in the US experience, Japanese consumers are reaping big gains in truly homogeneous products like underwear, generic toys, etc., as discounters find new supply sources outside the established distribution network (Ferguson: C6 and C9).

When the self-service stores triumphed in the USA, manufacturers employed additional national advertising to compensate as an informational substitute for the loss of service-counter sales people. Yet the structuralist school has also condemned advertising, which it sees as a twin evil, making entry more difficult to unknown newcomers, and raising the prices faced by consumers, who must absorb all costs. Chapter 6 recounted Schmalensee's argument that advertising does not deter entry because it is not a sunk cost. Moreover, advertising creates lower *real* prices by reducing the consumer's transaction cost,

which is the value of the time and other resources expended in deciding which brand to purchase. Non-advertised brands entail information costs to the consumer that exceed the difference between the nominal selling prices of the advertised and non-advertised brands. Therefore, transaction-cost theory, by incorporating the impact of previously-omitted search costs, 'has transformed advertising from a social evil into a social benefit...' (Posner 1992:172).

If, through various strategies that require no collusion with others, such as tie-ins, exclusive dealerships, etc., a firm can create efficiencies that, in the end, create greater output at lower cost of production, then consumers are ill-served by the indiscriminate curtailment of such practices. This is the revolutionary realization to which the courts arrived in the late 1970s. 'Since unilateral action ...had been the cutting edge of antitrust policy for so many years, to place it beyond the reach of antitrust law...[was] a breath-taking contraction in the scope of policy' (Posner 1992:162).

The application of efficiency analysis is not restricted to unilateral practices. In fact, its impact in the field of vertical integration has been equally revolutionary. This change was fuelled by the profession's reawakening to the linkage between organization and efficiency. Adam Smith had highlighted, through his pin-factory illustration, three specific efficiencies gained by integrating the various steps in pin making (Smith 1937:3–10). These intrafirm efficiencies may seem mundane, but they are not. Furthermore, the principles enunciated by Smith also apply to a firm which sees a need to control the flow of its inputs through direct production of same. Except for Coase's classic 1937 article on the nature of a firm, orthodox economists had not asked questions like, 'Why a firm?' or 'Why a vertically integrated firm?' (For a thorough survey, from a managerial perspective, of the problems and benefits of firms that integrate vertically or horizontally, see Milgram and Roberts: 546–79.)

Of course, the radical economists had addressed these issues, but through Marxian lenses, in which hierarchy was related to the power of the bosses. In general, only the organizational-behavioural theorists, writing for hands-on managers, had described the efficiencies of various forms of organization. These efficiencies were not trivial, and ever since economists seized this fact, 'the relation between transaction-cost reasoning and vertical

integration [has been] pervasive' (Williamson 1992:148). By integrating upstream and downstream stages of production (raw materials through retailing), a manufacturer can seize economies of scale between stages joined by certain technical or physical commonalities, and evade sales taxes on intermediate producers, and facilitate information between stages (see the complete list of advantages in Williamson 1992:147). After the writings of transaction-cost theorists had been absorbed by the legal profession, the *per se* rule against vertical integration was overturned, as evidenced most pronouncedly in Justice Powell's decision in the 1977 Sylvania case: 'Vertical restrictions promote interbrand competition by allowing the manufacturer to achieve certain efficiencies in the distribution of his product. These "redeemable virtues" are implicit in every decision sustaining vertical restrictions under the rule of reason' (in Eisner: 143).

The heart of the new learning is the Chicago School's conviction that spontaneously-developed arrangements (*not* resulting from governmentally erected entry barriers) are more efficient than the order-by-design patterns created under the *per se* regime. Therefore, the consumer is better served by the former than the latter, even if the former results in concentrated forms of industrial organization. The new learning concedes that these concentrated industries are not producing at the minima of their average cost curves; however, the oligopolist's cost per unit may be less than what society would be forced to bear if the industry were to become less concentrated (i.e., more competitive). In other words, a dismembering of a corporate giant will likely entail a sacrifice of certain organizational efficiencies without which the average cost curves of the successors would *rise*, and the post-dismemberment price, though more 'competitive', would nonetheless be higher! (For a graphical illustration of these points, see Martin: 24 and 274-8.) If the restrictive practices of the concentrated industries were, in fact, harming consumers (relative to the less-concentrated, textbook-designed alternative), then alert rivals could seize the efficiencies to be gained by 'expand [ing] their market shares...and...thus deconcentrate the industry' (Bork, in Eisner: 105). Therefore, it became acceptable not to insist on the perfectly competitive standard if the 'sufficiently efficient' criterion were satisfied (Eisner: 105). In short, courts have become averse to interfering with long-standing market practices whose spontaneous, open-entry character carries the

presumption of being beneficial to consumers. The burden of proof was shifted to those who would disrupt the status quo (Gellhorn: 190–1).

New merger guidelines were developed in the US (and Europe¹¹) during the mid 1980s to balance the incompatible goals of cost reduction and deconcentration. The big problem here is the interpretation of the new guidelines. An interpretation which clings to static efficiency as a necessary condition will be forced to sacrifice intertemporal efficiency (George and Jacquemen: 155; and Schmalensee 1987:45). Whenever innovation and growth have been in conflict with the deconcentration goal, the former have usually lost out because the ghost of the model of perfect competition continues to haunt antitrust policy. The lingering impact of the Walrasian benchmark seems unshakable. But recent research suggests that this need not be the case. A promising empirical approach for evaluating efficiency-defense claims has concluded that if a ‘fairly modest level’ of synergistic cost reductions are realized by a given merger, the failure of the efficiency defence would require a deadweight loss that could be triggered only by the unlikely occurrence of a ‘substantial price increase’ in the more concentrated industry (Weiss: 131). For horizontal mergers, however, the problem transcends the efficiency issue, hence the antitrust choice matrix in such cases is less tractable. A decision-tree analysis reveals, for example, that the acceptance of the efficiency goal at one juncture forecloses choices on other policy goals located on separate branches of the tree (see Tye: 1–11, 22–7).

SOCIALLY-BENEFICIAL COLLUSION

What happens in a market when the core [of mutually beneficial, non-cooperative exchanges] is empty?

(Telser 1994:159)

In a 1949 article, Stigler noted that, under certain conditions, ‘firms ...are compelled to collude...if mutually unprofitable price rivalry is to be avoided...’. He further explained that if aggressive antitrust policy precludes cooperative arrangements between firms, then ‘further mergers’ was a likely possibility (Stigler 1968:151, 162). The problem here is that some productions require each entrant to pay fixed costs that cannot be fully

recouped by most of the participants unless means can be found to restrict total output (and hence fix the price) and then divide up total sales. In other words, cases exist for which there is no determinate set of *independent-action* exchanges that will be mutually profitable. (See Bittlingmayer: 84–5, including fn. 9, plus the taxi case on 81–3. Also see the real-world examples in Sjostrom: 419–23, and Telser 1994:159–60). Without some form of legal cooperation, there will emerge a pattern of exits (from losses), followed by pure profit for those who survive, then entry by new firms, which, in turn, guarantees losses to *all* participants, hence another round of exits, etc. Sometimes this scenario results in a natural monopoly licensed by the state; sometimes the state sets output and price (as in the taxicab industry, via entry medallions and meter-rate regulation), while custom determines market share (closest cab to the patron wins); still at other times the industry will establish collusive arrangements on price and sales territories. The US airline industry, attacked in 1994 by the Clinton administration's antitrust officials for cooperative, restraint-of-trade behaviour on the sharing of rate information, may fit this pattern. 'The structure of the problem is not rich enough to determine what institutional arrangement will emerge, but it is clear that the transaction costs involved in various alternatives will have a major influence' (Bittlingmayer: 83). Before the Sherman Act was passed, firms facing the need to cooperate (to ensure the coverage of fixed costs) had resorted to cartels to police price-fixing schemes.¹² After the initial round of prosecutions against the trusts, former cartel members began to consolidate under one corporate banner, hence there occurred a 'great merger wave' at the turn of this century, followed by lesser waves during the 1920s and 1940s in response to subsequent accelerations in antitrust case filings (Bittlingmayer: 77–9, 84–6, 112–7).

The objective of this short subsection is not to endorse a wholesale abandonment of vigilance over the threat of cartelization. My goal is simply to draw attention to the fact that the technological structure of *certain* industries requires a cooperative (i.e., non-competitive) solution—one which, historically, has been accommodated through mergers. Since every merger cannot be justified on these grounds, continued oversight is needed to prevent horizontal collusion in areas where society is better served by competitive outcomes.

INNOVATION AND ANTITRUST

[T]hroughout the ‘market-failure’ literature, concern focuses on the static allocation of existing resources rather than with the dynamic creation of new resources....

(Sawyer: 53)

Experience, claims Chandler, has taught us that the securing of first-mover advantages (such as being able to borrow subsequently at lower interest rates) requires a fast-paced entrepreneurial programme to preempt others in the quest to capture, first, economies of scale in manufacturing, marketing, and distribution; and second, economies of scope via diversifications in related activities, such as the selling of insurance and mutual funds by banks. Of course, follow-on errors in judgment have frequently enabled latecomers to overtake early leaders, as with Henry Ford, whose resistance to change in style and colour led to displacement by the differentiated offerings of General Motors; Sperry-Rand, whose early lead in computers was lost to IBM, which in turn was dethroned because it clung to mainframes; and Sears & Roebuck, humbled by K-Mart, which has recently found itself being battered by Wal-Mart. Nonetheless, if a nation’s firms do not (or cannot) exploit the governance structures needed to capture the rents on their domestic innovations, foreign firms will fill the void and take the lead. This is what happened early in this century to Britain (whose new ideas were seized by Germans and Americans), and is now happening to US firms. Japanese companies are profiting from American know-how *because they have socially equipped themselves to do so*—through their creation of an organizational environment that is conducive to an integrated, ‘three-pronged investment in production, marketing, and [strategic] management ...’. The existence of such a business climate enables the Grafting by entrepreneurs of projects designed to capture economies of scale and scope, an objective that requires the coordination of a vast network of related activities. In a globally competitive system, the window for recognizing and seizing such opportunities closes quickly; therefore, nations with inhospitable ‘institutional legal contexts’ will find themselves playing the much more difficult game of catch-up (see the analysis of Chandler in Teece: 208–9, 213–7, and 219–20, including fn. 40).

This open-economy reality may prove to be the silver bullet that forces the retraction of the visible, interfering hand of government,

because ‘the underlying source’ of a nation’s ‘ability to attract the lightning of economic revolutions’ is its institutional readiness to ‘experiment in technology and organization to harness resources to the satisfaction of human wants’ (Rosenberg and Birdzell: 33, 307, 309–11, 331). Since capital has become highly mobile, it can more easily relocate to where its ability to network is least infringed. Therefore, the intensification of international competition in a global economy will probably constrain interventionist penchants, as was the case during the formative stage of capitalist development, when sovereigns actively courted the capital and commercial know-how of merchants who had become disaffected in other kingdoms (Rosenberg and Birdzell: 90–1, 121–22; and McKenzie and Lee: 15–17, 33–5, 44–50, 53–62, 175–8, 190–200, 233–8, 242–3).

The transaction-cost literature has enabled us to better appreciate the complexity of the innovation process, particularly the problem of protecting proprietary knowledge. We are now more conscious of the ‘relations between [feedback] stages (especially between R&D and commercialization)...that influence the acquisition and sharing of knowledge’. As a result, ‘the anatomy and physiology of complex forms of contracting and organization’ have become the source of comparative-cost analyses. Moreover, R&D joint ventures are no longer automatically disallowed; whereas, under the old learning, any form of cooperation between competitors was seen as a collusive and hence necessarily antisocial act (Williamson 1992:153–4).

Despite the change in the direction of academic thinking, US antitrust policy, in the main, remains ‘insensitive to the organizational needs of innovation’ (Jorde and Teece: 63). In Europe and Japan, meanwhile, this policy bridge has already been crossed, giving foreign corporations a competitive advantage in the application of ideas pioneered by American firms. Discovery is not enough. Harnessing a new technology for profit—that is, protecting one’s proprietary rights—requires ‘the existence of tight linkages...that must operate quickly...including links [that are both vertical and horizontal], and sometimes [with] other organization like universities’ (Jorde and Teece: 47, 49). The multi-faceted, synergistic nature of these linkages is rooted in the need to capture upstream, downstream, and cross-stream rents through a consortium of specialized firms who own the panoply of complementary assets requisite to fully exploiting first-mover

advantages. Complementary assets include the capability to manufacture, market, distribute, and service the product that embodies a new technology. (For a real-world illustration of a Japanese vertical integration of complementary assets that ‘turn[ed] an innovation into a commercial success’, see Geroski: 141–2).

Consider, for instance, the on-going battle in the US over the horizontal integration of the telephone and cable television industries—designed to capture the future fruits of in-home retailing via interactive video. In the telephone-cable TV case, the future course of the Clinton administration is unclear. The Commerce Department strongly favours the merger, for it would promote efficiency and make the US globally competitive as the leader in the ‘information-highway’ technology of the next century. However, the Justice Department has been rehhabited by old-learning types who quickly rescinded several new-learning policy practices. The message being sent—‘The antitrust cops are back on the beat’—has unwelcome overtones for American entrepreneurs (Davis and Davidson: A1 and A14).

Given the paucity of beneficial linkages that can be forged under US antitrust policy, the small to mid-sized American innovator usually has only one profit-making option: to license its breakthrough before someone else either (1) discovers a good substitute technology or (2) reverse engineers and counterfeits the original technology (Jorde and Teece: 49–50, 53–4, 59–63). The real tragedy in this situation is that US competitiveness is harmed by the understandable unwillingness of small to medium-sized innovators to face the expensive, *privately*-filed, antitrust litigation that is likely to be sparked by the socially beneficial networking required to exploit their prized R&D. Recall that the American judicial system has traditionally responded to appeals based on the level-playing-field principle; consequently, it is highly likely that domestic rivals of a networking innovator will complain to the Justice Department that their costs are being ‘unfairly raised’ by the need to match a first-mover’s new alliance of complementary assets. Safe harbours must be created to enable the establishment of appropriate consortia in the United States. Otherwise, foreign firms will continue to move first and harvest the fruit of American research.

Innovation can sometimes be accelerated by a joint venture between firms *in the same industry*, which enables R&D staffs to make strides through information sharing. However, widening the corridor of legal horizontal cooperation creates the very real danger

of cartelization by simplifying initial negotiations and facilitating subsequent internal monitoring (Baumol 1992:131, 136). For example, cooperation at the research stage may lead to indirect collusion on price via agreements to limit simulations of product differentiations by each partner. On the other hand, legalizing both the vertical and horizontal linkages through which R&D is embodied in final products is likely to generate positive outcomes through two channels. First, a change in the rules may increase R&D spending by firms who wish to heighten their attractiveness as potential partners. Second, even if total R&D volume is unaffected, its accelerated dispersal (via embodiment in final products) will have a cost-reducing multiplier effect throughout the economy. Hence the US economy is at a competitive disadvantage because 'the mere threat' of government penalties for collusion in the joint R&D arena 'can have a chilling effect on interfirm cooperation in the production and dissemination of technology' (Baumol 1992:135–6). The idea of legalizing vertical and horizontal cooperation to spur innovation is an anathema to those schooled in the early practice of antitrust policy. Fortunately, the economics profession has finally come to grips with the fact that the trade-off between growth and static efficiency had been given too little consideration under past antitrust enforcement, resulting in a dynamically inefficient allocation of the nation's resources. But the old-learning practitioners, who are now back in the saddle in Washington, appear uninterested in this particular aspect of the new learning.

The contestability approach to antitrust enforcement was an improvement when static efficiency was the only goal, but 'perfect contestability, again like perfect competition, threatens to rule out entirely the reward mechanism that elicits the Schumpeterian innovation process' (Baumol and Ordover: 85). Therefore, the faulty design of antitrust guidelines has caused our 'antitrust policies [to be] excessively preoccupied with static market power and competition at the expense of intertemporal considerations' (Baumol and Ordover: 88). An illustration of the problem at hand is the US government's recent actions against several major airlines for developing and jointly employing a computerized reservation system that tracks, in real time, available seating on all members' flights and enables travel agents to quickly make comparisons and book seats on the majors who owned the system, *without* having to make a string of time-consuming phone calls to individual airlines.

Competitors objected on contestability grounds; that is, the new system was a large sunk cost, without which smaller airlines were, in effect, barred from entry. Consequently, the government responded. (For an analysis of sunk costs and antitrust policy, see Kleit and Coate: 103–18). Employing the fact that a perfectly contestable market attains the allocative efficiency of a perfectly competitive market, the government removed the majors' sunk-cost advantage by ordering broader access to the computer reservation system. This step makes sense *only if* the static-allocation efficiency rule ($P=MC$) provides a reliable yardstick for measuring the sum total of human welfare. But it cannot, for it necessarily seeks to eliminate the profit created by the advantages accruing to entrepreneurs who have recognized new, *more productive* ways to employ currently-existing resources. Therefore, public policy which overemphasizes static efficiency will 'impede the movement of resources to more highly valued uses, because it can undermine the discovery process that drives this reallocation'. The reservation-system case 'reveals a clash of conceptual frameworks' that can be resolved only by deemphasizing the role of equilibrium thinking in the chambers of public policy (Ellig: 234–5). New guidelines should be formulated to spur growth by loosening the range of cooperative endeavours in which firms may engage (see the suggested rule changes in Baumol and Ordover: 94–5).

The needed policy modifications should be accomplished administratively, not legislatively. Flexible guidelines (from the Antitrust Division of the Justice Department) that call for 'a reasonable inference' of dynamic benefits are far preferable to statutory changes, for the latter will inevitably invite the impossible requirement of conclusive proof during trials instigated by the private suits of disaffected competitors. 'A rule of law that permits only mergers that can be *proven* to increase welfare will permit no mergers, while a rule that bars only mergers that can be proven to decrease welfare will stop no mergers' (Schmalensee 1987:42). The avoidance of statutory rigidity in this area will narrow the opportunity window of the private litigant and thereby speed reform. Schmalensee believes that we should aim for an adaptable merger policy that renders swift administrative decisions based on generally understood criteria, so as to minimize uncertainty. Versatility is possible if we are willing to 'rely on presumptions and shortcuts that reflect the current state of economic...belief (see the convincing arguments in Schmalensee 1992b: 113; and 1987:43–7).

THE NEW-NEW LEARNING

[A]ntitrust can and probably often does serve as a vehicle for rent seeking and as a means to prevent ‘unfair competition’, meaning any competition that threatens to make life too uncomfortable for rivals.... To this extent, *rather than promoting static efficiency, antitrust legislation may serve to undermine it.*

(Baumol and Ordover: 82; italics added)

Support for governmental activism has been traditionally based on the assumption that elected representatives and civil servants are motivated to serve the common good, hence their analyses and recommendations are more general-welfare oriented than the actions pursued by private parties with their own narrow agendas. This thinking is reflected in the Supreme Court’s decision in the Southern Railway case of 1933: ‘In theory, at least, the legislature acts upon adequate knowledge after full consideration and through members who represent the entire public’, (in Rose-Ackerman: 199, fn. 2). In fact, the entire progressive movement of government intervention is based on the desire and ability of federal and state agencies to conduct *objective* cost/ benefit analyses of those areas through which tax-and-spend policies can yield positive net benefits to society at large, with judicial oversight to guard against subversion of Congressional intent (Rose-Ackerman: 5–7, 44–6, 187–9).

The conventional view (that elected officials and career government employees strive to serve the interests of the general public) has been attacked as naive. It has been contended that governmental initiatives, in the antitrust arena and elsewhere, are largely the political products of the ‘factions’ feared by James Madison in *Federalist Paper 10*. Free-press debate and judicial oversight have not been able to derail the locomotion of special interests, each of which are seeking transfer payments or monopoly profit (pure rent) from the privileges that can be granted—and enforced—only by the governing apparatus of the state. This newest interpretation is the product of an influential group of economists and political scientists who comprise the Public Choice School, whose position is rooted in Adam Smith’s warning against ‘the clamorous importunity of special interests’ who seek ‘contrivance[s] to raise prices’ through public policies that ‘restrain ...competition’ and thereby create advantages for themselves (Smith 1937:128, 129, 439).

Chicagoan analysis since the late 1940s has emphasized that regulatory agencies are usually captured by those whom they are supposed to regulate; therefore, the antitrust claims of the Public Choice School are not as novel as they first appear. Moreover, there is mounting evidence that, instead of promoting competition, the antitrust bureaucracy has restricted competition through the filing of 'unfair practice' suits against new entrants who are threatening established firms located in districts protected by powerful Congressional representatives (Faith *et al.*: 329). '[W]hatever its economic roots and theoretical justifications, antitrust *enforcement* [has become] politically driven' (McChesney: 496). Hence antitrust policy has frequently led to 'the hobbling of competition', sometimes through the filing of politically-pressured government suits and sometimes through the filing of private suits, which impose large defence costs that are not recoverable from the plaintiff if the charge is dismissed. Furthermore, incumbents can disarm a potential competitor through the ambiguous class-action provision of US antitrust law. Settlements in such cases are unusually lucrative (treble damages), and thus the threat of a class-action suit can be employed as an effective instrument of legal intimidation (Baumol and Ordover: 87, 93; and Bork: 6). In October 1993, for example, three small-town pharmacists won a triple damage, lower-court ruling in their predatory-pricing suit against the Wal-Mart chain, which offers prescriptions at discount prices. Ironically, the number of independent drug stores in Conway, Arkansas (the site of the Wal-Mart store that stirred the ire of local druggists), has *risen* 17 per cent since Wal-Mart opened its doors! (Hurt: A15).

An econometric study of data from Congressional hearings on the Federal Trade Commission (FTC) revealed that 'House subcommittees, taken as an observational unit, appear to have been a ripe arena for antitrust pork barrels in the 1960s' (Faith *et al.*: 338). Both the FTC and the Justice Department's Antitrust Division underwent significant reorganizations during the late 1960s, with the avowed goal of increasing the number and power of industrial-organization economists in the decision-making process (Eisner: 114–5, 163–70). If the traditional view of public service were correct, the post-1970 FTC should have become less entangled in politicized antitrust suits as it enhanced its expertise. Alas, the data apparently refutes such a hypothesis: 'most of the basic results of the 1960s carried over into the 1970s'. Moreover, the disturbing

pattern of the earlier data was statistically *more* pronounced in the later data (Faith et al.: 339). These findings contradict the public-interest theory of antitrust and support the private-interest interpretation. Public employees, no matter how knowledgeable in their fields, do not unilaterally determine policy. The empirical record suggests the maintenance of ‘a healthy dose of cynicism about representative democracy, which works in [the antitrust] area much as it does in others’ (Faith et al.: 342).

Finally, it should be noted that the regulatory apparatus of the state offers numerous ‘contrivances’ (short of antitrust litigation) to neutralize the threats of competitors. For example, large, established firms whose personnel budgets liberally fund, say, on-site employee child-care centres, will likely support women’s rights groups in their quest for new federal labour regulations that *mandate* such benefits *for all firms*. The adoption of such a rule would have no impact on the incumbents’ costs, yet it would boost potential rivals’ costs, thereby reducing (or eliminating) a potential advantage of new entrants who would prefer not to provide child care for their employees (see Salop and Scheffman: 267–9). The proliferation of side agreements on environmental protection, child-labour prohibitions, etc.—needed to assuage the ire of US special-interest groups in the quest to win Congressional ratification of the North American Free Trade Act (NAFTA)—is another example of the strategy of ‘predatory cost-increasing’. These side agreements will cause a *relative* boost in Mexican costs, thereby securing an advantage for US manufacturers, who, quite logically, supported the plea for so called ‘fair and equal treatment’ on ‘vital issues of conscience’, such as ‘environmental despoliation’ and the ‘inhumane spectre of sweat-shops populated with children’. An international equalization of regulatory burdens via NAFTA will increase the profitability of American and Canadian firms, who, due to the depth of their longstanding domestic policies, will face much smaller percentage increases in regulatory costs than their Mexican counterparts, who will thus be placed at a competitive disadvantage.¹³

Identical policies were employed—via uniform labour and vehicle standards—against Spain, Portugal, and Greece by the more highly developed members of the European Community (EC), which insisted on such cost-raising measures as the price of new admissions to the European free-trade zone. However, comparative differences in the real cost of providing social security programmes

(not yet ‘standardized’ throughout Europe) has rebounded against the richer countries, whose domestically mandated packages of generous, employer-funded benefits have created an unhealthy wedge between productivity and total compensation. The widening of the welfare wedge has become the equivalent of a narrowing of the productivity gap that otherwise would have disadvantaged Eastern Europe labour. The Czechs, Hungarians, and Poles have seized this opportunity to lure West European capital. The EC’s executive commission responded in early 1994 with a report that warned of the high social costs from capital flight that must be paid if the EC continues to insist on luxurious social security programmes funded through taxes on employee payrolls. France, for example, ‘is considering cuts in compulsory benefit levies for firms that hire low-wage workers’ (Gumbel: A1 and A10). Likewise, Germany, Holland, and Britain ‘are finally having to pare away welfare-state benefits’ (Melloan: A19). The redistributive utopias of yesteryear must face the new constraints imposed by the open economy. Real social security cannot be created through constitutional declarations and other political card tricks that create *material* ‘human rights’ that satisfy the something-for-nothing mentality of voters—and create moral hazards in health care and employment search—but do nothing to foster the institutions required to give substance to such material promises via enhancements in factor productivity. A rude awakening is in store for all those who have come to believe in—and hence to rely upon—the illusion of income ‘guarantees’ proffered by the men of system of this century.¹⁴

SUMMARY AND CONCLUSIONS

Attitudes towards monopoly power have in the past tended to swing between a justified suspicion and an undiscriminating hostility.

(Davies and Davies: 38)

As the ‘trust-busting’ era drew to a close, the enforcement emphasis shifted from the prosecution of collusive agreements (which may have provided the compensating benefit of cost savings via scale economies) to the elimination of any advantage-seeking practice that the government chose to characterize as being in restraint of trade (collusive or not). Prosecutions of the latter type ‘do not raise

the question of economies of scale'; therefore, the defenders of the new thrust in antitrust policy—the rooting out of all restraining practices—did not feel compelled to respond to complaints that their agenda was promoting inefficiency via higher costs. Consequently, '[a]s the main content of the effective definition of monopoly changed, it became easier to oppose monopoly' (Stigler 1982:45).

The postwar, Chicago-based critics of the direction of US antitrust seemed to be getting nowhere until 1977, when the Supreme Court's decision in the Sylvania case opened the door, unexpectedly, to new vistas of understanding on the salutary impact of the competitive process on cost, a genuinely *social* phenomenon. During the 1980s hope began to appear, deceptively, that the new learning might triumph over the old. Of course, hanging like a dark cloud over both the old and the new learning is the Public Choice School, which claims that, without effective changes in the rules of engagement, the Antitrust Division of the Department of Justice will remain the inescapable captive of firms who want their rivals persecuted—and prosecuted—for competing too successfully.

The purpose of this chapter has not been to advocate an abandonment of antitrust action. Cartelization to fix prices *does* occur, especially where collusion to rig bidding is easy, as in highway construction contracts and used-car auctions (for a case of the latter, see J.Nelson: 396–94). Therefore, we must keep 'a watchful eye on ownership dominance of an important input', but we 'ought to hesitate before penalizing success merely because it results in an increase in concentration' (Demsetz 1980:209). The aforementioned recommendations of Schmalensee, and of Baumol and Ordover, would enable antitrust machinery to promote dynamic efficiency and to guard against the special-interest problems that worsen static efficiency. In a world of increasing global rivalry, the issue of dynamic efficiency is sure to take centre stage, thereby highlighting the paradox of American antitrust in its current form; that is, '[c]ertain of its doctrines preserve competition, while others suppress it, resulting in a policy at war with itself (Bork: 7).

At the onset of the application of the new learning, Bork expressed doubt about its long-term staying power: 'A position based not upon settled ideology but rather upon an accidental equilibrium of forces is unlikely to prove stable' (Bork: 4–5). Stigler

shared Bork's pessimism, implying that the 'sophisticated and sensible...Sylvania decision [of 1977]' is likely to be a 'random fluctuation' in the long-term course of events (Stigler 1982:49). If the new learning's impact proves to be transitory, then future antitrust policy will surely be deleterious to the entrepreneurial foundations of the competitive process.

Bork has built a convincing case that the original intent of Congress,¹⁵ and even more so for the early (rule-of-reason) Supreme Court, was to employ antitrust policy to promote *social welfare*, i.e., the *sum* of consumer and producer surpluses (Bork: 16–71, 88–9). A survey of common-law precedents during the 1800s has bolstered Bork's claim that the primary purpose of the Sherman Act was not the prevention of wealth transfers from consumers to producers (Kleit: 647–58).¹⁶ From the very inception of the Sherman Act, however, populist goals have intruded, such as the preservation of the small, independent businessman (see Grandy: 364). This factor, for example, was later cited by the Court when it barred Alcoa from its attempt to acquire the Rome Cable Co. (W.Baldwin: 376). Business practices which appeared to favour large incumbents over smaller rivals were deemed unfair and hence were disallowed. Perhaps these currents derive from the Jeffersonian impulse in the American polis (Bork: 5, 9). Or perhaps they are traceable to the anti-market feelings aroused by the Great Depression. In any case, the role of the industrial-organization thinking shaped by the model of perfect competition was instrumental in cementing these ideas into policy. With the triumph of the *per se* rule, the Supreme Court refused to attach importance to the fact that concentrated market structures were often better for consumers—via cost reductions and output expansions—than an atomistic structure. '[T]his failure...skewed legal doctrine disastrously' (Bork: 7).

A contested transaction 'is both individual and social', for it involves a conflict of interests between two persons or classes, the resolution of which lies in the court's application of a 'rule or custom that has been found to be good, in that it...[serves] the common interest...of society' (Commons, 1924:374). Productive efficiency—measured by the amount of commodity X that must be sacrificed by *society* to manufacture a unit of commodity Y—was not embraced by the courts as a criterion of *common* interest until after the new learning had been absorbed. Prior to 1977, a blind spot had existed during antitrust litigation. The new learning

illuminated the very real social aspect of cost. Hence the new learning injected a breath of fresh air into the antitrust community, but it did not eradicate those who cling to the world-of-monopolies view. '[T]he residual potency' of the old learning (through its appeal within the career enforcement bureaucracy and die-hard quarters of academe) acts inertially 'to prevent the law's mistakes from being [permanently] retracted' (Bork: 4). The Kodak case, tried in 1992, vindicates Bork's concern.

The Kodak Corporation had decided to cease selling replacement parts to independent service organizations who competed with Kodak in repairing its copiers. This raised costs for the independents (who needed to seek new sources of supply), so they sued, charging that the new tie-in policy facing the owners of Kodak copiers was bestowing monopoly power on Kodak through 'installed base opportunism' and 'informational market power', terms that connote a resurgence of the old learning. The former term refers to the fact that the current owners of Kodak copiers are locked-in, whereas potential new buyers can be lured to accept the tying of service and product via discriminatory discounts unavailable to those whose copiers are already installed. Such a tiering of Kodak's customers, said the plaintiffs, provided the opportunity for higher-than-competitive returns (in the aggregate). Ignored by the Court was the short lifespan of heavily-used copiers, which severely strains the monopoly-profit potential of such a policy, particularly in light of the other prominent firms in this industry who are eager to steal Kodak's presumably disgruntled clients. It was further argued, successfully, that the likelihood of monopoly profit was enhanced by the presumed mental disabilities of some consumers, 'who do not analyse life-cycle costs in making [a] new equipment decision', thereby enabling Kodak to exploit 'informational market power' by charging the ignorant bumpkins more than the astute buyers. (The pernicious impact of the perfect-knowledge postulate cannot be eradicated!) The Supreme Court accepted these arguments, which are throwbacks to the structuralist era, and hence ruled against the defendant, even though Kodak's total share of new copiers was only 23 per cent (Salop: 170-1).

The surprising result in the Kodak case may be just the beginning of a damaging backslide in antitrust policy. The recently appointed Assistant Attorney General for Antitrust, Anne K. Bingaman, described the new-learning policies of the post-1970 era as 'just

appalling'. Her approach, concluded a *New York Times* reporter, 'is likely to mark a sharp departure from the last twelve years' (Labaton: F8). The *Times*' assessment has been reinforced by two events: the old-learning 'fervour' of Bingaman's 'activist' policies (McGinley: A1, A10; and Novak: A1, A14), and by the fact that the original leader in the race to fill the 1993 vacancy on the Supreme Court (Judge Stephen Breyer of the US Court of Appeals, Boston) was initially dropped like a hot potato after President Clinton discovered that Breyer largely subscribed to the antitrust theories of Stigler, Bork, etc.—the antithesis of the views embraced by Clinton, who received his law degree from Yale in 1973 (see Berke: L10, and Saddler: B12)¹⁷ If the success of the new learning proves to be short lived, then not only will the competitive efficiency of American firms be jeopardized, but, more importantly, the very set of spontaneous forces which spur entrepreneurial alertness will, once again, be undermined:

Antitrust constitutes one of the most elaborate deployments of governmental force in areas of life still thought committed primarily to private choice and initiative.

The capture of the field by anti-free market theories will have an impact far beyond the confines of antitrust itself.

(Bork: 1 and 10)

EVOLUTION VERSUS REVOLUTION: THE CONVENTIONAL WISDOM

At present [1955] the principal frame of reference is the vision of the static economy..., in which change is treated as essentially exogenous to the system, and market structure and behaviour are taken as structurally determined. *This ...main contours...date back to Adam Smith....*

(J.Miller: 135; italics added)

Stigler portrayed the perfectly competitive model as having been rooted in the presumed equilibrium notions of the classicals and having evolved incrementally over a long period, with the technical delineations provided by Edgeworth late in the nineteenth century. I disagree. The classical concept of competition, which dominated thinking until the 1920s, was distinctly one of process and hence had nothing in common with the static notions embodied in the perfectly competitive model; in fact, the classical conception was antithetical to the post-1920 conception which displaced it. The process view of the classicists and early neoclassical writers was purged during the 1920s as the profession adopted an exclusively equilibrium framework for its microeconomic theorizing. The next three chapters will provide an in-depth analysis of this scantily-treated episode in the history of economic thought, namely, how and why the idea of competition as a market process was shunted aside during the 1920s by the static models of perfect competition and monopolistic competition. My basic thesis is not new. The claim that the perfectly competitive model represents a radical departure from the classical notion of competition has been made by at least twelve writers since 1957 (all of whom are mentioned throughout this volume). However, the comprehensive historical spadework required to transform this idea into a viable, debate-inspiring

hypothesis has heretofore either been absent or existent piecemeal in disparate sources. Hence it is not surprising that the vast majority of our profession, regardless of their differences on other matters, simply take it for granted ‘that the classical economists...first articulated and analyzed the perfectly competitive economy...’ (George: 99).

Contrary to conventional wisdom, the concept of a field of perfectly competitive firms was not implicitly embedded in the reasoning of the founders of the discipline. The continuity view, which sees the neoclassical definition of competition as a mathematically matured product of classical lineage, was first advanced by Knight, then accepted by Mrs. Robinson, Chamberlin, and others, and was eventually cemented into the profession’s bank of unquestioned knowledge by Stigler. I will summarize Stigler’s position below and describe the dissonant reactions from a small minority of economists. The classical heritage, which is embodied in Marshall’s approach to competition, demonstrates that our predecessors did not classify nor reason about market activity in terms of its position at any single instant. Rather, like today’s businessmen, the classical economists saw a moving picture which, while promoting a convergence of price and cost, was also continually subjected to entrepreneurial initiatives that created new equilibrium values.

In the distant macroeconomic long run, of course, many classical economists were resigned to the approach of an inevitable steady state in which population and per capita income would level off. They believed that the new ideas which enhance productivity—and thereby offset the retarding impact of diminishing marginal returns to capital and land—were being drawn from a well of finite depth. According to this dismal perspective, technological change will someday slow down, after which output growth will be barely sufficient to keep pace with population; that is, living standards eventually will reach a plateau and remain there forever.¹ The analyses of Smith, Ricardo, and Marx were foiled by the same error: ‘they all lack[ed] any systematic view of the likely trend in productive efficiency’ (A. Walker: 371). But there were notable exceptions to this forecast. McCulloch, for example, though an avid disciple of Ricardo, was not pessimistic about long-term growth. He foresaw no diminution in technological advancement. He stressed that ‘the cooperation of genius and labor, of men and the powers of nature’ has no limit: ‘Manufacturers are all

susceptible of infinite improvement, according as the progress of scientific discovery gives man a mastery over these powers [of nature], and enables him to employ them and his own energies with increased effect' (McCulloch 1859:430). Whately reached the same conclusion. He said the search for knowledge (inspired in some cases by intellectual curiosity and in others by the desire for pecuniary gain) fuels production and understanding, two by-products which react upon each other and are 'without any limits that we are able to assign' (Whately: 165).²

Mill, as usual, was ambiguous. He discussed the 'limits' and 'ultimate boundaries' of growth, but he explained that the stationary state was *not* inevitable. Mill's analysis was coloured by his lurking fear of a...Malthusian population threat' (Stigler 1990:8). Thus, if technological progress fails to outpace the growth rates of labour and capital, a steady state would ensue. Yet he believed that this was an avoidable scenario *if* population-control measures were adopted *and if* the information-generating institutions of society remained supportive of liberty (Mill 1864, vol. I:258, 271, and vol. II:273, 276, 317–18, 334–40). Thus it appears that neither the capitalist steady state nor the Marxian successor state were seen by Mill as foreordained evolutionary paths.

STIGLER'S THESIS

In his seminal article on the development of the perfectly competitive model, Stigler explained that the classical concept of competition was based on a recognition of active rivalry, yet he also proposed that the neoclassical notion of competition was a direct descendant of the classical heritage. Stigler saw the early mathematical economists as providers of 'analytical refinement [to] the concept of competition' (Stigler 1957:5); however, his basic thesis is that the modern-day model of perfect competition evolved, in stages, from the classical approach to competition. Most of the changes, notes Stigler, took place between 1871 and World War I, with the final crystallization appearing in Knight in 1921. But he explained that the core conceptual prerequisites of perfect competition (such as non-collusive firms, adequately full information, and mobile resources) were addressed by two eminent classicals, Adam Smith and Nassau Senior (Stigler 1957:1–3). Thus Stigler added his prestigious reputation to the generally accepted

idea that the cognitive framework of the classicals amounted to a de facto erection of the notion of the perfect competitor, while the rigorous formalization of the model came through the contributions of later theorists, particularly Edgeworth and Knight.

Stigler conceded that his historical perspective had been formulated without a close study of the classical literature (Stigler 1957:3). This was unfortunate, because, as Stigler himself had noted, the classical economists did not think of market behaviour in terms of the passive perfect competitor of Walras. Yet Stigler created the impression that the equilibrium mode of thinking was nonetheless rooted in the classical literature. One cannot have it both ways. As was demonstrated in Chapters 4 and 5, the classical mode of thinking was linked to the idea of the market as a process of discovery. The older writings emphasized the quest for *unshared* information which can yield pure profit via imaginative action. After the creative moves and counter-moves have run their complete course, price will equal average cost ('natural value'). The bottom line here is that Adam Smith's 'simple system of natural liberty' (1937:651) is the nexus of free-entry, *advantage-seeking* yet *socially-beneficial* forces that are seen as monopolistic and hence treated with disdain under the paradigm of neoclassical economics, and which cease to exist under a regime of perfectly competitive firms. Also relevant is the fact that the founders did not take institutions as given, as in modern theory. The classical economists forthrightly addressed the sociopolitical threats to entrepreneurship, and they advocated the building of a constitution that would minimize disincentive. Consequently, it is fair to conclude that through their illustrations of the strategic quest for pure profit (via intertemporal foresight, new methods, new products), and through their emphasis on the importance of the sociopolitical climate, the older treatments portray, on balance, more concern with the nature of the competitive process than with the measure of its results.

In response to the perceptions which Stigler's article had helped to solidify, McNulty explained that 'the Smithian concept of competition was of a fundamentally different character than that which was later perfected by economic theorists'. In particular, said McNulty, 'price came to be a parameter' in neoclassical economics, whereas in the classical era price had been a variable amenable to entrepreneurial initiative. Classical writers 'did not conceive of competition as a "situation" at all, but, rather, as an active

process...' (McNulty 1967:395, 397, 398). McNulty was not the first to challenge the popular belief that the classicals had reasoned (more or less) in terms of the perfectly competitive model. Simultaneous with the publication of Stigler's article, Shorey Peterson had explained that John Maurice Clark's theory of workable competition—which had been heralded in *Fortune* magazine in 1952 as a 'new theory of competition'—was nothing more than a resurrection of the strong process current which had dominated both the classical and early neoclassical treatments of competition. Peterson protested that, '[t]o economists trained in the 1920s and before', as he had been, the 'oft-repeated view' that classical economists reasoned about market activity in equilibrium terms 'must seem mildly shocking'. Peterson asserted that 'Marshall, (John Bates) Clark, and other theorists...from Adam Smith on, quite surely would have rejected...[the] reconstruction of their thought...' (Peterson: 61–3; *italics added*). Peterson's view was echoed in a 1961 symposium paper by Milton Heath (1968:199), as well as in more recent works by Evelyn Forget (1989:117), Richard Nelson (1986:470), Willi Semmler (1982:738), and James Clifton (1977:138, 150, and 1975:193, 233–4, 239–42).

O'Brien has highlighted the emphasis of the classicals on 'new profit opportunities' and warns that 'it is misleading to interpret their writings in terms of the [perfectly] competitive model...' (O'Brien: 53–4). But more to the point of my evolution vs revolution theme is the perceptive assessment of G.B.Williams:

Smith...both identifies the tendency towards equilibrium and implies (albeit imprecisely) that the allocation of resources thereby produced is optimal from society's point of view. It may therefore seem reasonable to regard later theories of competitive equilibrium as providing a formalization of Smith's vision with its several deficiencies made good. In this way, intellectual continuity seems to be preserved; what Smith could see in a glass, darkly, it took Walras, with his more refined technique, to bring fully into light. But this view of the matter seems to be mistaken.

(G.B.Williams: 531)

Consequently, the Stiglerian thesis has not gone unchallenged, but none of these writers has attempted to conclusively demonstrate that the model of perfect competition is strictly a neoclassical

phenomenon. Of course, despite my catalogue of examples from the classical literature, plus the recounting below of the events of the 1920s and 1930s, my case ‘cannot be proved in the sense in which a proposition of Euclid’s can’; nevertheless, I believe ‘that the dominant traits of the picture...are too strong to be neglected’ (adapted from Schumpeter 1976:61).

REBIRTH OF THE PERFECT COMPETITOR

The neoclassical model of perfect competition did not gradually evolve from a classical corpus. Rather, after having lain dormant for nearly four decades in Cournot’s *Researches*, the perfect competitor (the final limit of the process of competition) reappeared in Walras because it provided indispensable ingredients for insuring the attainment of general equilibrium and social welfare maximization. The rebirth of Cournot’s perfect competitor was initially neglected because Walras was initially neglected. By the turn of the century, however, Walras’ *Elements* was well known and respected among the world’s small but influential (and rapidly growing) academy of technically proficient economists. With the widening awareness of the general equilibrium model came the need to refine and formalize the equilibrium conditions of the ‘perfectly free competitor’ of Walras, a process which began in 1881 with Edgeworth’s *Mathematical Psychics* and reached its zenith in 1921 with Knight’s *Risk, Uncertainty and Profit*.

The intervening years can be described as a bifurcation period, during which time the classical conception of the active entrepreneur was still very much alive in textbooks written by the Old Guard. Meanwhile, the seeds of the perfect competitor were being sown by the upcoming, mathematically-oriented members of the profession, and this is the conception which, during the 1920s, came to dominate the new cerebrum of economics. The development of the perfectly competitive model can be said to have emanated from a unique seed planted in 1838 by Cournot—an atypical seed which did not even germinate until 1874 (in Walras) and finally reached maturity nearly a half century later in Knight. This prolonged gestation period was *not* accompanied by a groping amongst nineteenth and early twentieth-century economists toward employment of some rudimentary concept of the perfect competitor as the behavioural norm. Therefore, the model of perfect competition is not a formalization of classical thinking on

competition; rather, the perfect competitor is entirely a creature of the modern neoclassical mind.

Of course, it's true that Marshall's treatment of his representative firm was framed in terms of a businessman reacting to parametric prices. Product homogeneity and infinitely elastic demand curves were usually assumed, and, when taken together with his description of the state of affairs at long-run equilibrium,³ it is easy to infer that the firm's role in Marshall was identical to the passive, equilibrium-serving role portrayed in modern neoclassical theory. But such was not the case. Marshall appreciated the analytical indispensability of the concept of equilibrium; yet, at the same time, he strove to maintain the idea that competition is an information-revelation process, not a state of affairs. Marshall employed the idea of a perfect price taker as a pedagogic tool to describe the conditions prevailing at the end of the process of competition, but his overarching approach to market activity was firmly rooted in the classical perspective. For example, Marshall described competition as a 'constant experiment by the ablest men ..., each trying to discover a new way in which to attain some important end' (Marshall 1964:114). He also emphasized the effect of incomplete information on the firm's decisions concerning what to produce and how to produce (Marshall 1964:109, 111, 114; Marshall 1920:280–1, 297, cited in Loasby 1982:236, 238; Marshall 1920:355, 491; and Jenner 1964:36–7). According to Dennis Robertson (a prominent student of Marshall), the idea of a *representative* firm reflects Marshall's recognition of *non-uniformity*; that is, he did not see every firm in a given industry as having the same production function (see Robbins 1928:391). In other words, Marshall's concept of a statistically modal firm was based on his notion that some firms in an industry are more efficient than others, thereby reinforcing his emphasis on the search for new technology and improved input combinations. Lionel Robbins 'launched a sustained attack' on the concept of the representative firm, arguing that since it was counterproductive to an understanding of equilibrium, 'it should be eliminated from analysis'—and it was. Robbins and other leading-edge theorists did not appreciate 'the exact dynamic problem that Marshall was trying to cope with...' (Corry: 207).

With Pigou's seminal 1928 paper in the *Economic Journal* (which presented, for the first time, simultaneous graphs of average cost and marginal cost), Marshall's analysis was seemingly 'translated ...into a neat, logical system; but this translation

required the assumption of perfect competition and led to the [non-Marshallian] conclusion that firms tended to be of optimum size' (Maxwell: 105). Thus, according to Joan Robinson (another of Marshall's prominent students), Pigou did not just translate Marshall; by injecting the neoclassical perfect-information postulate to achieve production-function uniformity, Pigou transformed Marshall. (J.Robinson 1974:208). Marshall's admittedly parallel desire for a pedagogical vehicle of prototypical behaviour became the only praiseworthy feature to survive. The mainstream has sided with Pigou's condensation; the implications of a discovery perspective in Marshall have been totally discounted:

The introduction of the representative firm...is directed not to the firm's individual *differentia* but to the role it plays as a decision unit in decentralized industries.... The very purpose of the study of the firm is to deduce from its behavior the properties of industry demands for inputs and supplies of outputs.

(Stigler 1990:7–8; italics added)

Marshall's process approach to competition was shared by most of his contemporaries. For example, an early writer in the *Quarterly Journal of Economics* complained that competition had not been precisely defined, and he employed Hayekian terminology to suggest that economists should restrict the definition of competitive activities to those 'involved in reconciling productive processes to the wants of men'. Through the eyes of this turn-of-the-century economist, competition was described as 'a simple act of comparison by which th[e] inner relation of serviceableness is brought out. ...The productive agent who can furnish...a commodity... better adapted to men's wants...thereby commands the market' (Bascom: 537–8, 541). Marshall warned against the misapplication of static models, which he felt were 'mischievous' because they offered the alluring 'appearance of lucidity which is given by skillful exposition', yet are incomplete and hence unable to penetrate the forces shaping the real economy (Marshall 1920: vii–xv, xvii, 347, 366 [fn. 2], 368–9, 461, 852, 855, 856).

Walras' chapter on dynamics conceded that equilibrium is never actually attained; nonetheless, he insisted that the real economy 'is perpetually tending towards equilibrium...' (Walras: 380). *However*, only if perfect competition is assumed to prevail throughout the economy—thereby reducing entrepreneurship (via

the perfect-information postulate) to unimaginative parametric exercises in buying, selling, and inter-industry capital switching—would it be correct to accept the equilibrium of the Walrasian mathematical system as the ‘normal state’ toward which Walras believed the economy is tending (Walras: 224). Marshall remained unseduced by Walras’ vision. Marshall’s reluctance to chisel in stone, said Paul Samuelson, created ‘ambiguities’ which ‘paralyzed the best brains in the Anglo-Saxon branch of our profession for three decades’ (Samuelson 1967:109, 111). A more sympathetic assessment has explained that the distinctive strength of Marshall’s treatment lay in its being ‘characterized by uncertainty, incompatible decisions, and unrealized expectations’:

[W]hat Marshall wanted short-period analysis for [was] the study of the choices of a particular entrepreneur, possessed of an historically given productive capacity, and making decisions which may turn out to be wrong, but which nevertheless result in the firm being in equilibrium (given the expectations guiding its conduct) for a short period of time. Such decisions may be inconsistent with actions (of which the entrepreneur is not aware) being taken by other firms. This is a sort of equilibrium of a rough and ready, partial kind and it enabled Marshall to conduct a richly informative analysis of the short-period behavior of individual agents and of particular markets.... The strength of Marshall’s method...is that it highlights those partial and ultimately inconsistent equilibria which may be the nearest we can come to depicting certain aspects of real life....

(Gram and Walsh: 522)

Stigler correctly noted that ‘Marshall as usual refused to float on the tide of theory...’ (Stigler 1957:9). The new tide of theory (being shaped by the followers of Cournot, Jevons, and Walras) was indeed based on the model of perfect competition, but this restructuring had barely been felt by most economists in 1920. Marshall, though himself a prize-winning mathematician, quietly resisted the sterilization of the competitive process inherited from the classicals. This is significant, because, as Joan Robinson has reminded us, ‘Marshall’s *Principles* was the Bible’ when she matriculated at Cambridge in 1927. ‘We heard...nothing of the general equilibrium system.... Marshall *was* economies’ (J.Robinson 1966: vii). Marshall’s eighth edition was also the Bible to most early American students (Homan: 274–5).

'No one can understand the history of [the model of monopolistic competition]', explained Samuelson, 'if he does not realize that much of the work from 1920 to 1933 was merely the negative task of getting Marshall out of the way' (Samuelson 1967:111). Therefore, although the tide was beginning to change by 1920, the great mass of water was yet to be displaced. When Knight's book appeared, its significance was lost on most economists, for the profession's geocentre was still anchored in a process perspective of competition. In the wake of Knight, however, both the style and substance of competition theory was transformed as leading-edge scholars recast the theory of the firm strictly in a static mould. The victory of the equilibrium school sent a signal that the profession's approach to competition and monopoly was being dramatically altered. The message was clear: he who could not (or would not) employ static models as the standard bearer was doomed to become like yesterday's newspaper. The focus of the discipline was redirected and its interpretation of events was substantially altered in several branches of thought. This does not mean that process thinking was expunged for all time; on the contrary, it lingered outside the mainstream, but with negligible impact until recent times. Yet its continued existence and nurturing by various sources is a living testament to the proposition that no revolution in economics can totally eradicate alternative modes of thinking.

KNIGHT'S STEAMROLLER

With a sigh of wistful regret, Milton Friedman reminded us that 'we curtsy to Marshall, but we walk with Walras' (See Jaffé, 1983:110, 284). The commonly accepted notion held by those at the cutting edge of the profession in the 1920s was best summed-up by Knight: 'the historic body of economic theory rests upon the assumption of perfect competition...'. Knight's position was that the classical economists had assumed perfect competition but had never catalogued its 'premises and implications' (Knight 1964:51). Knight's view affected all who followed, so before proceeding, we must zero-in on Knight's claim by making a sharp distinction between the following issues:

- 1 *In the classical literature, what conditions ensured that market price would equal 'natural value' (average cost)?*

VERSUS

2 *What was the classical approach to competition and monopoly? That is, what was the classical essence of the socially-beneficial nexus of behaviours that came to be known as 'the market'?*

Let us begin by addressing question 1. The classical view on price equal to natural value was clear-cut. If three conditions are satisfied, price will rapidly converge toward natural value:

Provided...that there are no restrictions on the mobility of factors of production, provided that there are no monopolies or artificial scarcities, provided that neither entrepreneurs nor labourers, neither capitalists nor consumers make mistakes as to what to produce and what to buy—given all these conditions—then exchange values will correspond with cost values.

(Fraser: 96)

Knight's belief was that some of these provisions were 'not...adequately emphasized' in the classical literature (especially the perfect-knowledge assumption), and hence they 'have been liable to escape the observation of its readers' (Knight 1964:51). But he failed to make a distinction between questions 1 and 2 above; that is, Knight apparently assumed that since the classical theory of long-run, free-entry price generated zero pure profit (normal returns), the classicals must have assumed perfect knowledge, and the classical conception of competition must have closely resembled the neoclassical notion of perfect competition. The classicals, however, approached competition from a process perspective, so they most emphatically did not assume perfect knowledge. Unlike modern theorists, the classicals emphasized the entrepreneur's role in dealing with uncertainty. Their notion of competition as an unceasing process of profit-creation is inconsistent with the now-accepted proposition that the classical economists *implicitly* employed the notion of perfect competition so as to focus attention on its result: general equilibrium. The free-entry dissipation of economic profit causes price to converge to cost in established endeavours, but the incessant entrepreneurial discovery of new profit-making opportunities means that profit as a general phenomenon never evaporates (as it does in neoclassical theory). With the exception of Ricardo, the focus of analysis from Adam Smith to Alfred Marshall was more on the forces making for

change than on the synchronized reactions required for equilibrium.

To sum up: the classical analysis of long-run price can be portrayed as follows: 'If conditions A, B, and C are satisfied, then price will converge to natural value'. It is unacceptable, however, to leap to the following dubious conclusion: 'Since (A+B+C) constitute the conditions which define the static model of perfect competition, the classicals primitively theorized about the market within the same bi-polar equilibrium framework as the trailblazing mathematical economists of the early 1900s'. Yet this is precisely the leap which apparently was made by neoclassical writers in the post-Knight era. They failed to recognize the fundamental change in perception wrought by Walras and other pioneering equilibrium economists, and they transferred their own perfect-knowledge, zero-profit frame of mind to the founders of the discipline. Both Robinson and Chamberlin, for example, portrayed their 1933 model as superior by juxtaposing it against, to paraphrase, 'the classical model of perfect competition' (J.Robinson 1965:34; Chamberlin 1956:3, 206). And Triffin, writing in 1940, explained that the books of Chamberlin and Robinson were a 'reaction against...[the] two apparently exclusive and opposite classes of phenomena, monopoly and pure competition, *and against the practical dominance of the second throughout economic theory*' (Triffin 1956:37; italics added). Noted writers like Yntema (p. 272) and Boulding (1952:24) also linked perfect competition to the classicists. In 1943 it was further claimed (incorrectly) that the intermediate idea of firms who were not pure monopolists—and not helpless perfect competitors—was a distinctly modern contribution:

The theory of imperfect (or monopolistic) competition brought recognition of the fact that both perfect monopoly and classical perfect competition are equally extreme cases.... The new theory...suggests that, even if the number of firms is large, each firm seeks to differentiate its own product from those of its competitors, either physically or...psychologically.
(Nichols: 8-9)⁴

Finally, we have Arthur Burns' 1949 appraisal that US antitrust laws 'have failed to achieve a competitive system at all closely resembling that which was in the minds of the economists of the last century' (in Peterson: 61-2). Burns definitely meant a system of

passive price takers, shorn of the monopoly power which presumably accrues to any firm not facing a horizontal demand curve, for in his 1936 book, *The Decline of Competition*, he 'adopt[ed] the [now common] usage of employing the term competitive to mean [perfect] competition and of referring to situations departing therefrom...as noncompetitive or monopolistic' (Peterson: 61).

CONCLUSION

The young theorist, working with an increasingly formal, abstract, and systematic corpus of knowledge, will seldom find it necessary to consult even a late nineteenth-century economist. He will assume, just as a mathematician or chemist assumes, that all that is useful and valid in earlier work is present—in purer and more elegant form—in the modern theory.

(Stigler 1982:107)⁵

The post-Marshall generation of economists came to accept, uncritically, that the perfectly competitive mindset was a product of the classical era, when, in point of fact, the static notion of perfect competition was alien to those who had been nurtured by the classical heritage and who later found themselves, uncomfortably, on the cusp of the old and the new. Perfect competition was an abstract construct created in Cournot's *Researches*—where it languished until resurrected by Walras as an instrument necessary to construct his model of general equilibrium. During the first years of its publication, not a single copy of Cournot's book was sold. Gossen met the same fate: 'Disgusted by the fact that nobody would buy his book (published in 1854), Gossen destroyed the entire edition, but one copy had somehow reached England, was discovered by a professor in the British Museum, and was, like Cournot's, brought to public attention by Jevons' (Soule: 135). Fifty years after Cournot's book was published, his method was still being ignored by all but a handful of the profession. Consider, for example, the 1887 history-of-thought text by John Ingram of Trinity College (with an introduction by Richard Ely). Ingram belittled Cournot's *Researches*, asserting that 'the great objection to the use of mathematics in economic reasoning is that it is necessarily sterile.... There is...no future for this kind of study [in

economics], and it is only a waste of intellectual power to pursue it' (Ingram: 176–7). Jevons, on the other hand, was at the vanguard of the new economics, and he recognized immediately that Cournot's approach to market structure would eventually triumph:

I am quite convinced that [Cournot's] investigation is of high economic importance, and that, when the parts of political economy to which the theory relates come to be adequately treated, as they never have yet been, the treatment must be based upon the analysis of Cournot, or at least must follow his general method.

(Jevons: xxxi)

The profession's embrace of the Cournotian method bore-out Jevon's prediction. In Chapter 10 we shall return to key events in the early twentieth century that secured the triumph of the model of perfect competition as *the* analytical tool of neoclassical economics. First, however, we must examine Marshall's theory of growth, an 'incubus' that, it was contended, had to be 'excised' before a purely equilibrium basis could be established for the new economics (Samuelson 1967:109).

ALFRED MARSHALL, INCREASING RETURNS, AND COMPETITION

The doctrine of external economies...was a major Marshallian contribution. The classification permitted an analytical reconciliation of competition and increasing returns....

(Stigler 1990:6)

Alfred Marshall was not hostile to mathematical economics, *per se*. Yet he worried about the consequences of a purely Cournotian approach to competition and monopoly. Marshall, like Jevons, foresaw that mathematical methods would necessarily dominate the next generation of economics, but he cautioned that the snapshot-in-time outlook fostered by differential calculus could lead to isolated analyses that distort the sense of continuity of the market process and thereby cause us to lose sight of the primordial Smithian principle that reduces cost over time (Marshall 1920:xvii, 461, 852, 855, 856). For instance, in Cournot's treatment, a falling long-run marginal cost curve is explicitly said to yield monopoly (Cournot: 91). Marshall disagreed. He knew from years of observation that declines in cost—from industry-wide increasing returns to scale rooted in long-term external economies—had been continuous, and yet, contrary to Cournot, monopoly had not been the historical result (Marshall 1920:38, 320–1, 460–1, 808–9; and Marshall 1964:111). Hence, in a letter to A.W. Flux (a former student), Marshall concluded that Cournot's mathematics 'led inevitably to things which do not exist and have no near relation to reality'. He added that his extensive first-hand journey to British factories during the 1870s was undertaken 'to discover how Cournot's premises were wrong' (Marshall 1956:407)¹. In short,

Marshall wanted to explain why the appearance of *ex post* scale economies did not endanger the process of active rivalry.

EXTERNAL ECONOMIES, EXTENT OF THE MARKET, AND UNIT COST

In Marshall, external economies are classical counter-forces working unwittingly to defeat the forces which otherwise would be propelling the economy toward a Walrasian equilibrium. The three economies to which Marshall alluded have been neatly categorized by Blaug; they originate with the effects of growth on labour costs, knowledge, and the degree of specialization within the entire economy:

With the growth and localization of industry in a particular area, all firms eventually benefit from the development of a steady supply of skilled labor and a well-informed labor market. Thus, as new firms arrive in the area and draw in still more skilled labor, all the existing firms find that the cost of labor turnover and of labor training declines. The trade journal..., on the other hand, exemplifies external economies arising from improved [knowledge via] communication about market conditions. When the industry reaches a certain size, it becomes feasible to publish information and to make it cheaply available to all. Once again, the existing firms reap the benefits of cheaper information in the form of lower average costs of production. A third possible example...is that of the vertical disintegration that comes with a widened market. Since 'the division of labor is limited by the extent of the market', the growth of industry brings into being a host of specialized auxiliary industries to service the needs of the parent industry and the effect is to lower costs as a function of the output of the entire industry.

(Blaug 1983:401–3)

The third case cited by Blaug was fully developed by Stigler in a 1951 article. The question answered by Stigler was the same one raised by Cournot and then Marshall. A former member of the Federal Trade Commission stated the issue succinctly in 1948: 'The traditional problem of [the] size-efficiency question is concerned with the compatibility of competition with increasing size.... Briefly, the problem was this: What was there to prevent a given

firm...from steadily increasing its size...until it had achieved a monopolistic position?' (Blair: 122). Stigler settled this issue once and for all by explaining that each firm faces a multi-step production process, and at least one of these steps is usually characterized by increasing or constant returns to scale; nevertheless, the remaining steps are subject to decreasing returns to scale, so the net effect is that the gains from *internal economies* are finite and rather quickly exploited. Therefore, at any given instant in time, the firm sees itself facing a rising long-run marginal cost curve. However, as the market widens and each firm's output expands, *new specialists will emerge*—who will seize the decreasing cost steps and build them into fledgling firms which will service the many existing firms of the industry from which they sprang. The contracting-out of these steps by the original firms enables the new specialists to exploit the original economies-of-scale steps and thereby reduce the unit costs of their clients. Moreover, this process describes the essence of change in every human endeavour:

The concept of structural differentiation...is probably the key sociological concept today in the analysis of crescive social change.

Contrary to the nineteenth-century image of science as a bounded or exhaustible field of knowledge whose dimensions would eventually be fully explored, we now assume an openness to knowledge which is marked by variegated forms of differentiation. Each advance opens up, sometimes rapidly, sometimes slowly, new fields which, in turn, sprout their own branches.

(D.Bell: 173, 186)

The US Secretary of Commerce in 1950 commented on the consequences of the openness of knowledge: 'in 1900 there were approximately twenty-one business firms for each one thousand persons, [yet] in 1949—after all the gobbling up of the little firms was supposed to have taken place—there were twenty-six business firms per thousand people' (in Sunderland: 107, fn. 63). Thus the widening of the market deepens specialization and produces *not* an ever-increasing, all-encompassing enlargement of some leading firm in a given industry, *but rather a flowering of separate industries* driven by an unceasing mitosis of specialization. Of course, each of the new firms is soon faced with efficiently accomplishing the

decreasing cost step in which it has specialized, and this necessitates devising its own multi-step production process. As output greatly expands in the service of its ‘parent’ firms, the original economies of scale eventually evaporate, and now each of the new enterprises is itself characterized by an upwardly sloping marginal cost curve. However, as was the case in the old industries from which the new firms sprang, the production process of each new specialist has a few steps in which economies of scale persist, thereby setting the stage for the emergence of another round of new specialists. And so it goes, with the increased efficiencies over time (from further divisions of labour) being limited only by the extent of the market (Stigler 1951:185–93). Therefore, despite the continued existence of mega firms from mergers in some industries, the symbiotic relationship that exists between large and small firms in many other industries ensures the continued propagation of new firms as market growth induces partial vertical *disintegration* to reduce costs via subcontracting (A. Hughes: 5). Of course, if the transaction costs of monitoring subcontractors is high, then the vertically integrated approach will be preferred (Becker and Murphy: 1144).

My emphasis will be on the external benefits reaped through changes in the organization of production via the appearance of new (external) specialists. But Marshall also noted the knowledge externality that separately accompanies this change in structure; for example, the appearance of trade journals enables firms to obtain new information at less expense, hence the average-cost curve has several sources of downward shift in the long-run (Marshall 1920:284–5). For an interesting growth model based on the twin assumptions of increasing returns to *existing* knowledge (via externalities) but decreasing returns in the production of *new* knowledge (via internal R&D capital), see Romer 1986:1002–37.

Since the decline in long-run costs is primarily due to *inter-firm* (external) economies rather than *intra-firm* (internal) economies, the Marxian spectre of ‘monopoly capitalism’, said Stigler, does not haunt Smith’s vision. Therefore, the firm, *ex ante*, faces a rising marginal cost curve; but, due to the dividends reaped via the interfirm specialization that accompanies growth, the firm’s costs, *ex post*, will decline (Marshall 1920:809; and Loasby 1976:175). Marshall’s treatment, grounded squarely in Smith, explained that capital widening causes real prices to fall, but he did not explain, explicitly, that further interfirm specialization—based on a

declining-cost step—is the precise spark which ignites the cost-reduction process, as did Stigler. In Marshall, the ‘high theme of economic progress’ (1920:461) was simply the reduction in costs resulting from the external economies (exogenous to the firm but endogenous to its industrial cluster) that slowly unfold as macro growth proceeds (Loasby 1982:236–7). Marshall’s description of ‘subsidiary industries’ as those that ‘keep in use machinery of the most highly specialized character’ in order to ‘devot[e] themselves each to one small branch of the process of production ...for a great many of their neighbours’—and his inclusion of this phenomenon as a source of external economy—suggest that he had absorbed the ideas later clarified by Stigler (see Marshall 1920:271 and 615). But, unlike Stigler, Marshall never explained, with microeconomic precision, the exact genesis of subsidiary industries. Young, on the other hand, in a paper in 1928, more clearly presaged Stigler’s insight (see Blitch 1983a:19). According to Kaldor, Young’s analytical update of Adam Smith ‘was so far ahead of its time that the progress of economic thought has passed it by...’ (Kaldor 1972:1243). Young had chosen to write on this topic because he believed that, due to the rise of equilibrium theory, Smith’s explanation of the secular decline in costs appeared ‘to be in danger of being forgotten’ (Young: 531). His treatment contained all the key points on which Stigler later expounded:

The important thing...is that with the division of labour a group of complex processes is transformed into a succession of simpler processes.... In the...adoption of indirect processes there is a further division of labour, the economies of which are again limited by the extent of the market.

(Young: 530)²

Kaldor had inappropriately employed the Smith-Marshall-Young vision to attack as irrelevant the very notion of an optimum. He called for the total rejection of the idea of being constrained by an inherited set of fixed resources. The Robbinsian optimum, said Kaldor, is applicable only in a world in which new demand patterns cannot lead to falling-cost reorganizations in the industrial cluster that is expanding (Kaldor 1972:1245–6). Such a harsh critique of neoclassical economics is undeserved, for Marshall himself stressed that, due to the exhaustibility of internal economies, the firm faces a rising marginal cost curve in the short run, thereby generating the allocative behaviour inherent in a constrained system. Traditional

Lagrangian optimization techniques, therefore, are in no way undermined by the insights provided by Smith, Marshall, and Young, especially when it is noted that their vision was offered to clarify the likely impact of *extensions* of the entire market, as opposed to reorganizations created by transformations of demand independent of growth (Marshall 1920:317, 441, 615). ‘It is not surprising’, said Hahn, that Kaldor’s call for a departure from the scarcity axiom has ‘not found wide acceptance’ (Hahn 1989:49).

Smith, Marshall, Young, and Stigler emphasized how the extent of the market affected the degree of specialization. Recent research, however, has revealed that the division of labour is ‘influenced by several other factors that often are far more significant than the extent of the market’ (Becker and Murphy: 1138). Specifically, the deepening of the division of labour is hindered by a disproportionate growth in the costs of coordinating the efforts of complementary specialists. For example, a paediatrician generally does not ‘overspecialize’ in a single childhood disease because such a pattern would require greater expenses in coordinating care between physicians. Similarly for historians: the benefits of great expertise in one short era would be outweighed by the costs of coordinating research with other historians (Becker and Murphy: 1142–3).

As an illustration of a different category of coordination costs, consider the ‘efforts to extract rents by “holding-up” other members [of a work group]’. As a team of complementary workers grows, each member has an incentive to become less cooperative in order to emphasize *his* special importance, thereby increasing one’s bargaining power in future wage negotiations. ‘Principal-agent conflicts, hold-up problems, and breakdowns in ...communication [among specialists] all tend to grow as the degree of specialization increases’ (Becker and Murphy: 1141). Consequently, the division of labour is limited not only by the extent of the market, but also by the costs of coordination. Moreover, the entrepreneurial pursuit of new arrangements to reduce coordination costs (through ‘investments in knowledge’) is part and parcel of the market process (Becker and Murphy: 1144 and 1149). Therefore, even in a market not subject to extension (due to, say, zero population growth and no further tariff reductions), the division of labour may nonetheless continue to deepen via knowledge investments aimed at reducing coordination costs, thereby spurring growth in output (Becker and Murphy: 1157). Hence the role of free-market prices

intensifies over time because the deepening of specialization heightens the cruciality of timely information signals to facilitate coordination (Becker and Murphy: 1144–5).

DIAGRAMMATIC ILLUSTRATIONS

A review of Figures 2 and 3 will hopefully clarify the Marshallian perspective upon which we have been elaborating in this section. Economies of scale along the average cost curve (declining cost per unit) occur whenever a firm is expanding along the increasing returns portion of its production function. In Figure 9.1, for example, consider function f_1 , which is homothetic and quasi-concave. Along cross-section OC, it exhibits increasing returns to scale only from O to P, then decreasing returns from P onward. Returns to scale are constant at inflection point P, which lies on a locus of constant-returns points on the production surface, a portion of which, PN, is illustrated. This locus of constant-returns input combinations can be projected onto the (L, K) plane as isoquant Q_2 in Figure 9.2, where the cost-minimizing combination of inputs will be 100 machines and 200 workers.

Similarly, isoquant Q_1 represents the locus of points whose height is 1000 output units, (GE in Figure 9.1), while Q_3 represents 4000—all projected from production surface f_1 . Firms facing infinitely elastic demands will seek to acquire operating funds sufficient to purchase 100 machines and 200 workers, so as to capture all the economies of scale between zero units and 3000 units, where unit cost is momentarily minimized. Beyond $Q_2=3000$ in Figure 9.2 (i.e., beyond point P on f_1 in Figure 9.1), decreasing returns to scale on the production surface will cause diseconomies along the average cost curve (i.e., rising unit cost for an output exceeding 3000). These diseconomies are reflected in Figure 9.2 as the disproportionately higher capital and labour outlays required to move north-eastward from P along ray OR. For example, input usage would have to rise 50 per cent to boost output 33 per cent (from 3000 at P to 4000 at T). Of course, we are assuming that input supplies are perfectly elastic, so $\Delta P_L/\Delta Q=P_k/\Delta Q=0$. Also, if demand is insufficient to sell 3000 units, the firm will produce along the downward sloping portion of its average cost curve.

In the face of demand-generated expansions beyond Q_2 , *coupled with expansions in allied industries*, the external economies described by Marshall would gradually create a new production

function, f_2 , whose inflection locus of constant returns is, say, at point A in Figure 9.1, where output is 4000. Consequently, firms can now expand from 3000 to 4000 and experience declining unit costs: Along the BA portion of f_2 , total outlays are rising slower than production, which can be seen in Figures 9.1 and 9.2: from initial point P on f_1 , to transition point A on f_2 , the $\Delta(K, L)$ is only +10 percent, yet the ΔQ is +33 percent. (The three preceding

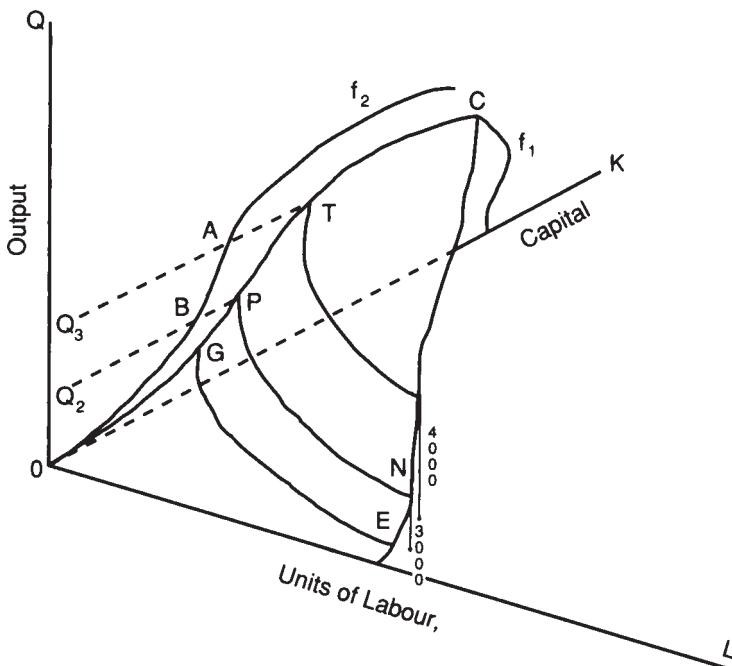


Figure 9.1 Marshallian Economies and the Production Function in 3-space

The regrouping of activities that accompanies a deepening of the division of labour (and capital) will cause an upward rotation of the three-dimensional production function, thereby boosting output for any given combination of (L, K), or, in other words, reducing unit cost for any given level of production, including those judged to be suboptimal from a perfectly-competitive perspective. That is, if the differentiation required to satisfy the myriad of consumers' preferences causes the demand curve facing the firm to be downward sloping, 'then some economies of scale will inevitably have to be sacrificed' (Richardson 1960:117).

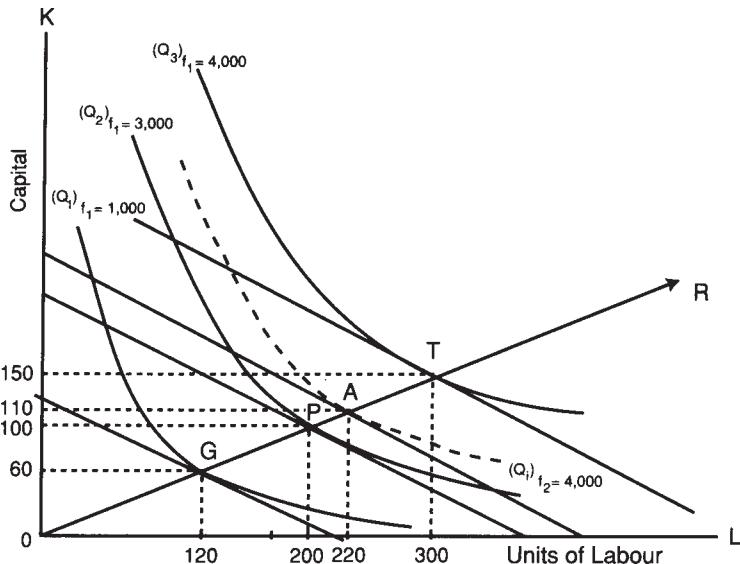


Figure 9.2 Marshallian Economies and the Production Function in 2-space

Points G, P, and A in Figure 9.2 correspond to points G, P, and A in Figure 9.1. Also, the output along Q_i —which is the i th isoquant of f_2 (not f_1)—corresponds to output Q_3 in Figure 9.1. The Q_3 isoquant for production function f_1 lies *above* Q_i in Figure 9.2 because more capital and labour were required to produce 4000 units on f_1 than on f_2 .

paragraphs were greatly aided by the treatments of returns to scale in Truett and Truett: 411–18; and in C.Bell: 331–5).

Finally, the principles discussed via Figures 9.1 and 9.2 can be brought together through Figure 9.3 to illustrate that a falling long-run average cost curve does not necessarily imply that monopoly must ensue. Assume the market is initially at equilibrium at P_1, Q_1 . A rise in demand to D_2 will, *in the face of fixed short-run supply* Q_1 , drive price to P'_1 and create supranormal returns in either price-taker or price-maker firms. As original firms and new entrants (lured by pure profit) begin to expand along MC_1 toward Q_2 , price will decline to P_2 . External economies gradually appear (from the Marshallian channels enumerated by Blaug on p. 251), thereby generating a reduction in costs from MC_1 to MC_2 . This shift presumably occurs in small increments over a period of several years. Thus for the new short-run output, Q_2 , marginal cost will

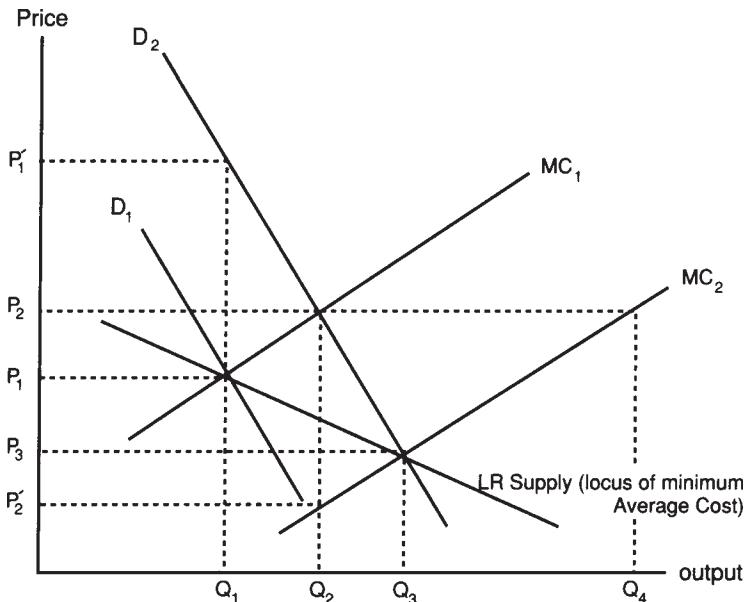


Figure 9.3 Marshall's Falling Long-run Supply Curve

Marginal costs (MC_1 and MC_2) rise in the short run due to the traditional internal diseconomies associated with a fixed capital stock; however, economies of scale from external forces gradually cause marginal costs to decline, resulting in a total cost curve that is downward sloping in the long run. Of course, in the absence of external economies, a proportionate expansion of capital is presumed to be sufficient to generate constant returns to scale, that is, a horizontal long-run supply curve, reflecting an exact offset of the diminishing returns to labour that causes MC to rise in the short run.

ultimately fall to P'_2 . Hence additional profit can be earned by expanding along MC_2 toward Q_4 ; that is, due to the reduction in costs, all units between Q_2 and Q_4 become money-makers *as long as the price remains at P_2* . But the price will *not* remain at P_2 ; each $\Delta Q > 0$ creates a new short-run vertical supply curve which intersects D_2 at successively lower prices. The expansion is arrested when the new equilibrium is reached at P_3 , Q_3 . But attaining the new equilibrium is usually a slow, incremental process. In Marshall, therefore, (P_1, Q_1) and (P_3, Q_3) are *not* 'simultaneously available for choice as are the price and output combinations of equilibrium theory' (Loasby 1976:175; and Marshall 1920:809). In Marshall's

time, the changes required to reduce long-run costs occurred over a generation. Today, however, the process unfolds more rapidly, as in the computer industry, where a round of new specialists (with resultant cost savings) are propagated every couple of years.

FIVE POINTS OF TECHNICAL ORDER

- 1 If, due to a recession, demand should decline, the cost benefits secured via previous expansions would be retained (Marshall 1920:318). That is, the operational (short-run) supply curve would remain at MC_2 , even if future market demand should move to the left, because the gains from specialization have become a permanent fixture of the industry.
- 2 Technical change induced by the very process of expansion is included by Marshall as a factor contributing to the long-run decline in costs (such as, for example, the development of more efficient trucks to meet the enlarged orders now facing the firm). But manna-from-heaven technical improvements (such as the numerous and varied spin-offs from today's space programmes) are *not* included. Such exogenous changes, when they do occur, cause the entire downward sloping long-run supply curve (in Figure 9.3) to *shift to the left*, thereby reflecting the additional and immediate cost-reducing impact of gift-horse economies. In equilibrium models, on the other hand, exogenous change *causes a downward slope* in the long-run supply curve but does not cause the curve to shift (Blaug 1983:403, fn. 3). Marshall's vision was shared by leading contemporaries. See, for example, the treatment on page 71 of S.J.Chapman's *Political Economy* (London: Williams & Norgate, 1912), which, according to Lord Robbins, was 'one of the most widely-used pre-1914 textbooks' (Robbins 1970:30).
- 3 The aggregate welfare impact (i.e., the change in *per capita* income) from a liberalization of trade will become more pronounced as Marshallian external economies unfold, because the total (social) returns from the expansion of capital will exceed the private returns: 'The extra output change due to this dynamic effect appears to be quite large' (R.E.Baldwin: 162–3, 166, 172).
- 4 Walras did not rule out the type of ex post falling supply curve found in Marshall. Walras said that 'technical progress' (defined

as the intensified use of capital to offset diminishing returns to land) would yield lower real prices as long as capital grew faster than population (Walras: 383, 386–9). Marshall's treatment explained precisely how and why macro capital deepening causes real prices to fall.

5 Contrary to Cournot, therefore, the threat of monopoly from classical cost-reducing forces is zero: at any point of managerial decision, a single firm cannot expect to face a falling cost curve from *its* expansion; i.e., declining costs are attributable to interrelated changes which occur *only* if an entire industrial network expands simultaneously. The profession's infatuation with the model of perfect competition made the Marshall-Young updates of Smith increasingly unattractive. Without an upwardly sloping long-run supply curve, the mathematics of the classical model is indeterminate; that is, a concrete equilibrium output cannot be calculated unless the competitive firm's long-run marginal cost curve is rising. Recall that, since $\pi=TR-TC$, π is a maximum only if $MR-MC=0$ and if $dMR/dQ-dMC/dQ<0$. Under perfect competition the firm's price is fixed by the market, which means that its marginal revenue cannot change, or, symbolically, $dMR/dQ=0$; therefore, MC *must* slope upward to fulfil the second-order condition for profit maximization: $dMC/dQ>dMR/dQ$ (see Blaug 1983:398–400; and Arrow 1971:68).

SCALE ECONOMIES AND INTERNATIONAL TRADE

With the integration in the 1930s of Haberler's concave production-possibilities frontier (which illustrated the *incomplete* specialization stemming from rising opportunity cost) and the Heckscher-Ohlin model (to explain foreign-trade patterns through factor intensities), the perfect competitor became a truly indispensable component of modern theory. The reluctance to deviate from the constant-returns assumption embedded in perfect competition was finally overcome in the 1970s, when scale economies were incorporated to explain trade patterns.

The Smithian approach to scale economies, it must be noted, is not the same 'as the two approaches to scale economies that have been introduced in the trade literature over the past twenty-five years. The most recent approach is based on the existence of hightech 'idea goods', such as mechanical drawings for turbine

blades, designs for semiconductors, or formulas for a chemical process, which, in turn, are instrumental in the pioneering of many new consumer goods. The cost of producing the original blueprint is usually enormous, but subsequent blueprint 'units' can be reproduced 'at virtually zero cost on a photocopy machine' (Romer 1990:97). Therefore, the originating firm must rely on its ability to protect its trade secrets, for anyone armed with the mechanical drawing or chemical formula can clone its line of resultant consumer goods. *If* the originator can exclude others from obtaining its idea, then it can exploit the zero cost of reproducing this key input, and thereby capture increasing returns to scale in the production of derivative products (Romer 1990:98). In other words, a convex production-possibilities frontier would ensue, creating the potential of 'large dynamic gains from trade between similar countries' (Romer 1990:102). Copy-cat interlopers, of course, reduce the originator's market share and thereby limit the exploitation of its declining cost curve:

[A private security firm that specializes in industrial espionage was hired] to find out who was stealing plans for industrial compressors and turbines from two major US manufacturers ...and selling illegal copies in the multimillion-dollar industry for gas and steam turbines and compressors. The 18-month probe produced two indictments in Houston...and is zeroing in on more suspects from Texas to New York.

* * * *

Milton Socolar, a top official at Congress's General Accounting Office, told lawmakers [in April 1992] of a case in which just the research and development costs associated with trade secrets of pharmaceutical products sold by one US scientist to foreign concerns 'were estimated at \$750 million'.

(Johnson and Pound: B1)

The bottom line is this: in a dynamic world faced with the task of discovery, perfect accessibility to knowledge is harmful. Knowledge theft 'is the ultimate free ride', an act of wealth-transfer 'piracy' which either discourages research or elicits costly countermeasures. 'Globally', therefore, 'everyone suffers' (J. Hughes: 1235).

The conventional approach to trade and scale, by way of contrast, focuses on the untapped economies inherent in certain manufacturing processes whose technologies and cost structures

are common knowledge. In such industries, reductions in unit cost for higher output levels are available *if the number of product variants being manufactured by a given firm can be reduced*. These savings are rooted in the costs associated with the learning, inventories, marketing, and assembly-line changeover required for *each* variant, all of which decline per unit as output rises. Therefore, a larger run of a particular variant enables the firm to capture internal economies of scale to a far greater degree than is possible when several variants (say shoe styles) must be produced. In this scenario, which made its way into the trade texts during the 1970s, scale economies pre-exist due to a downwardly sloping P-P frontier for two variants of the same product. This situation

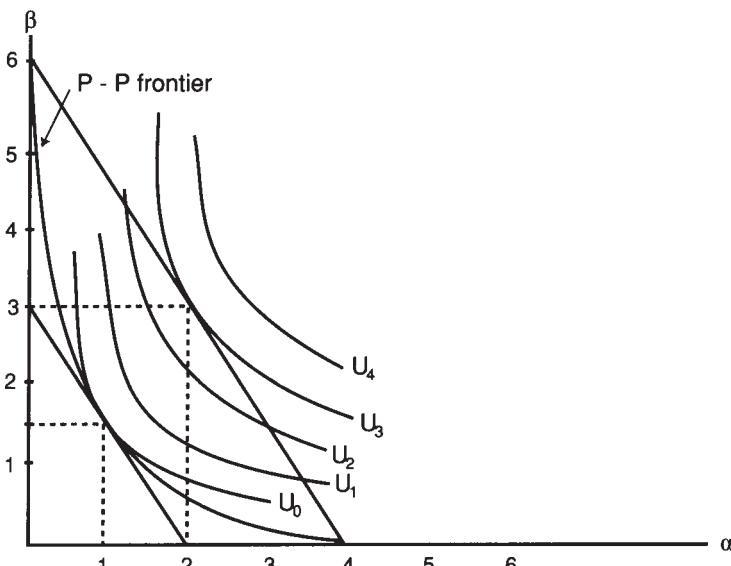


Figure 9.4 Gains from Trade with Convex Production-Possibility Frontiers Countries I and II, facing identical production and preference functions, each consume one alpha and 1.5 betas under autarky. Specialization and trade enables each country to fully exploit the increasing returns to scale along its convex P-P frontier. For example, Country II produces four alphas, shipping two units to Country II in exchange for three betas. Therefore, post-trade consumption in both nations is two alphas and three betas.

can be exploited by nations with similar factor proportions and similar tastes. That is, under autarky, both variants must be produced in each country, yielding U_0 in Figure 9.4. Whereas, with trade and *complete* specialization,³ consumption of each variant rises dramatically, pushing welfare to U_3 . (An excellent treatment of this topic is in Hogendorn and Brown: 240–3, 248–53. For additional analysis on the learning curve, see Arthur Thompson: 157–63.)

The economies of scale in the two cases above were ‘ready-and-waiting’; that is, firms were aware of the potential gains, but were either unable to discover the appropriate formula (Case 1) or were constrained from seizing the savings by differentiated-product demand limitations in the domestic market that can be ameliorated only by free trade (Case 2). In the Marshallian version of the Smithian vision, on the other hand, the potential savings to any given firm are *not* discernible in advance; rather, the cost reductions appear fortuitously as output growth (spurred by foreign sales or increased domestic investment) generates a deepening of *inter-firm* specialization. The end result is the emergence of economies of scale unachievable prior to the realignment, which itself was spawned by the widening of the market. Each individual firm, initially at long-run minimum average cost, would have faced diseconomies of scale if demand rose only for *its* product. However, the resource reallocations and associated savings prompted by an expansion across an entire cluster of related industries—such as plastics/petrochemicals/pharmaceuticals, or colourgraphics/audiotech/movie-making, or microelectronics/ product design/robotics—create economies of scale where none existed previously. Comparative-static analyses have not allowed for the Marshallian ‘elongation’ of the downwardly sloping portion of a firm’s long-run average cost curve (via an evolutionary transformation of its production function), because such a change was presumed to be irreconcilable with the parametric model of perfect competition on which neoclassical economics had come to rest (Hahn and Matthews: 833). Yet this presumption was unfounded, for no given firm can unilaterally exploit the potential of currently non-existent economies of scale. From *society’s* perspective, however, an across-the-board sectoral expansion *will* reduce the opportunity cost of acquiring additional units of the given industry’s output. In other words, the new production function facing the old-industry firms creates an extended area from which increasing returns can now be

realized. But this is an unexpected, after-the-fact phenomenon, derived from the simultaneous expansion of inter-supportive industries to service the network.

REJECTION OF THE CLASSICAL VIEW

The leading expositor of the perfectly competitive model, Frank Knight, was made fully aware of Marshall's vision through correspondence with his former mentor at Cornell, Allyn Young (Blitch 1983b:362). But Knight rejected Marshall's arguments as unconvincing, for two reasons. First, Marshall's 'weight of authority' was no substitute for his lack of concrete, real-world illustrations (Knight 1925:332, in Blitch 1983b:362). Second, and more important, Knight saw Marshall's concept as inconsistent with the small-firm nature of the model of perfect competition (Knight 1924:597, in Blitch 1983b:362). Knight believed that the cost-reducing effects of internal economies plus external economies (if any) are exhausted at a very low level of a firm's output. This fact, together with the rising rents on fixed factors, combine to prevent a decline in long-run cost, thereby generating the atomistic structure that insures perfect competition (Knight 1925:332; also see the handwritten comments on Knight's original typed draft of *Risk, Uncertainty and Profit*, in Blitch 1983b:362). Knight concluded that the burden of the Marshallians

is to show that in a significant proportion of cases industry really operates under decreasing cost, without tending toward monopoly.... I have never succeeded in picturing [external economies] in my mind, or finding any convincing reason to believe they exist.... Until a plausible example is brought forward, the category of decreasing cost under stable competition remains an 'empty economic box'.

(Knight 1925:331-3)⁴

On three occasions Pigou tried to reconcile Marshall's falling long-run supply curve with the price-taking aspect of perfect competition, explaining that the two are not mutually exclusive (Pigou 1924:744-5; 1927:195; and 1928:241-2). Pigou did not succeed, and Marshall's eclectic blend of static and dynamic elements was rejected (Seligman 1963:470). The momentum,

therefore, was with those who wanted to recast economics strictly within an equilibrium mould.

CONCLUSION

This recapitulation of the debate over Marshall's falling long-run supply curve was undertaken to demonstrate that the equilibrium option was not preferred as an intellectual modus operandi by most early twentieth-century economists (who were, in the main, holdovers from another era). The most theoretically sophisticated members of this group, Allyn Young and Alfred Marshall, led the resistance; they were the last of the magisterial (and majestic) Old Guard who were seeking to preserve the legacy of classical analysis threatened with obliteration by the perfectly competitive model. They could not reverse the march of static theory whose ascendance Jevons (and Marshall) knew was inevitable. But Marshall and his soulmates did wage a holding action to delay its complete domination over early neoclassical thought: 'Marshall by his towering prestige delayed the coming of age of abstract formalism of the Lausanne tradition by at least a generation, and with the aid of his premier student, Keynes, by possibly two generations' (Stigler 1990:12). To Walras, these intrusions ratified Jevons' complaint over the 'noxious influence of authority' in Britain (Jevons: 275-7), a charge that may have been overdrawn (DeMarchi: 189). In any case, Walras resented the lukewarm (and sometimes hostile) reception his *Elements* had received for several decades at the hands of the profession's Old Guard.

According to Jaffé, Walras believed that 'his efforts to... disseminate his theory of general equilibrium in England had failed...partly because of the dominant and exclusive influence of Alfred Marshall, whom he once called "the great white elephant of economics"...' (Jaffé 1983:115). In the United States, by way of contrast, Walras in 1892 was elected an honorary member of the American Economics Association in recognition of his 'eminent services to the Science of Political Economy', a tribute that elated him. (Walras, in Jaffé: 11). And in 1901 his work was given a highly favourable review by a leading Italian bio-mathematician. Upon learning of the reviewer's comments, Walras was ecstatic. He wrote that it was significant that a fellow scientist had recognized and praised 'the revolution we have attempted and even accomplished in political and social economy...' (in Ingrao and

Israel: 162). From the beginning, Walras was fully aware of the profound impact his work ultimately would have in economics. He eschewed the quest for 'a quick harvest'; instead, his 'ambition [was] to plant oak trees', so that his grandchildren 'will owe [their] shade' to his work. 'It is I who resolved to do this' (Walras, in Jaffé 1965, vol III:225).⁵

PERFECT COMPETITION: ASCENDANCE AND IMPACT ON HABITS OF THOUGHT

[T]he school which is gradually coming into being will... convert pure economics into an exact science.

(Walras: 47)

Four nagging questions remain partially or totally unanswered. An examination of these four questions will complete my argument that the rapid onset and triumph of the perfectly competitive model justify its being categorized as a genuine revolution in the development of economics. The unfinished business of this essay can be posed thus:

- 1 Why did the new leadership embrace perfect competition so warmly?
- 2 What series of intellectual events propelled this revolutionary idea to prominence so quickly?
- 3 How did the adoption of the perfectly competitive model reshape the normative notions and public-policy prescriptions of economists?
- 4 Did anyone with an influential voice express concern when the classical approach to competition was being thrown overboard?

THE NEED FOR PERFECT COMPETITION

The classical notion of competition as a process was jettisoned by the new school of technical economists because it could not yield a calculable set of predictions regarding output, price, and social welfare effects, like those generated by the ‘providential’ model of perfect competition (see Bowley 1973:175; and Stigler 1957: 14). The classical description of the market process—a broad tapestry which explains much but provides no concrete mathematical

predictions—came to be considered useless and thus was no longer defined as a legitimate theory in the sense of positive science. The ascent of the new mainstream has been marked by its members' tacit agreement 'that it is better to have a poor, useful theory than a rich, useless one' (Stigler 1950:393). The various groups who objected to 'precision as the end of thought'—that is, those who wanted to distinguish between the explanatory sharpness of a theory and its predictive prowess—were shunted into the neglected sidestreams of economies (adapted from Dobb: 175). The direct answer to question 1, therefore, is that the model of perfect competition was warmly embraced because the new discipline of economics wanted to be recognized as a predictive science, hence it eagerly divorced itself from the 'useless' conception of the market portrayed in classical political economy. As explained in Chapter 6, the prices and quantities predicted by the perfectly competitive model of Walras are not the same as the values generated by the real-world process of competition; nonetheless, *a concrete prediction* (even the wrong one) was preferred to a predictive void. Edgeworth, for example, in the final sentence of *Mathematical Psychics*, stated that his demonstration of determinate outcomes under perfect competition was 'a sufficient vindication' of his treatise (Edgeworth 1961:148).

The elegance and power of Walras' marriage of mathematics and economics had become indisputably clear before the turn of the century. Although most of Marshall's contemporaries shared his process approach to monopoly and competition, the profession's pursuit of rigour—'the increasing vogue for deterministic models'—assured the adoption of the more precise approach of Cournot (P.L.Williams: 123; also see Barreto: 118–21). It was only natural, therefore, that the new wave of mathematical economists would want to define precisely all that was implied by the inherent assumptions of perfect competition. And this brings us to our second unanswered question: *What series of intellectual events quickly propelled the perfectly competitive model to prominence?*

ASCENDANCE AND TRIUMPH OF PERFECT COMPETITION

'It was the meticulous discussion in [Risk, Uncertainty and Profit]', said Stigler, 'that did most to drive home to economists generally the austere nature of the rigorously defined concept [of perfect

competition] and so prepared the way for the widespread [Sraffarian] reaction against it...' (Stigler 1957:11). As it became apparent that the state of affairs which characterize the end of the competitive race did not reflect the conditions prevailing in everyday life, a search began for a more realistic model. The end product was another static model based on the state of affairs by which Cournot had defined monopoly. From a process perspective, it is regrettable that the terms monopoly and differentiated product came to be synonymous in neoclassical economics. However, from a static, Cournotian perspective, this was the only possible outcome. As Knight had explained in 1921, a firm whose product is differentiated solely by a trademark is nonetheless a monopolist:

The buyer being the judge of his own wants, if the [brand] name makes a difference to him it constitutes a peculiarity in the commodity, however similar it may be in physical properties to competing wares. And the difference from physically equivalent goods may be very real in the way of confidence in what one is getting. Such goods are then commodities whose supply is controlled by the producer, and competition with other makes or brands is a case of substitution of more or less similar goods, such as a monopolist always has to take account of.

(Knight 1964:185–6)

In the same year Knight's book was published, Jacob Viner published an article that reintroduced an old notion which appeared new, namely, that producers 'use a variety of devices such as special brands, trade marks, patents, style differentiation, even different methods of wrapping or different containers, to differentiate their products...'. What was new *in* Viner was the Walrasian implication that the existence of differentiated products acts to reduce welfare through higher prices—prices not as high as pure monopoly, but higher nonetheless than what would prevail under perfect competition (Viner 1958:6). Viner's discussion dealt exclusively with price differentials; that is, he never alluded to welfare effects. However, to those schooled in Walras' *Elements*, only one inference was possible. In 1926 Sraffa began to assert stridently that economics should 'abandon the path of free competition¹ and turn in the opposite direction, namely towards monopoly' (Sraffa 1926:542). Sraffa believed that businessmen 'would consider absurd' the claim that rising costs at the margin

determine their level of production. Sraffa contended that such an analysis was based on a world of perfect competition, in which each firm in the industry encounters rising marginal costs while marginal revenue remains constant. But, said Sraffa, such is not the case in the real world: 'The chief obstacle against which [businessmen] have to contend when they want gradually to increase their production does not lie in the cost of product—...—but in the difficulty of selling the larger quantity of goods without reducing the price...' (Sraffa 1926:543). Sraffa cleverly invoked Marshall,² who had conceded that for the producer of a differentiated product, the demand curve, in a strict sense, becomes 'the particular demand curve of his own special market' (Marshall 1920:287 and 458, fn. 1). Marshall was indeed suggesting that static monopoly diagrammatics may be a helpful analytic tool, but nowhere in his *Principles* or *Industry and Trade* is there any hint that the omnipresence of downwardly sloping short-run demand curves (acquired, say, from the introduction of temporarily unique products) is sufficient to characterize an economy as monopolistic in the pejorative, welfare-inhibiting, neoclassical sense of the word. (Review Note 4 in Ch. 8.) To the newly emerging static school of the 1920s, Marshall must have been seen as an ambiguous equivocator. Given his classical perspective, however, he could be no other way, for normative judgments about the organization of industry at any particular point in time were not based on the Cournotian state of affairs prevailing at a specific instant, but rather on the overall pattern induced by the on-going process of adjustment to new information signals. Hence Marshall cautioned that 'general propositions in regard to either competition or monopoly are full of snares...' (Marshall 1923:512).

Sraffa wanted to employ bipolar equilibrium analysis to clear away the fuzziness of the classical process approach. Sraffa conceded that the introduction of substitutes makes the demand curve more elastic and the market more competitive, but his bottom line was that product differentiation is an obstacle to a perfectly elastic demand curve and hence is *prima facie* evidence of utility-reducing monopoly power (Sraffa 1926:544–5). He thereby constructed a sturdy intellectual foundation for Chamberlin and Robinson, as noted in Samuelson (1967:107). His articles signalled a movement toward a new view, which, due to its absorption of the equilibrium notions of the perfectly competitive model, led to the portrayal of the economy as a

composite of essentially anti-competitive (monopoly) elements. As Romney Robinson has observed,

Sraffa not only attacked [perfect] competition theory; he rejected the compromise idea that price theory should be made up of a *mixture* of [perfectly] competitive and monopoly theories.... Sraffa wanted the whole structure of price theory built afresh in *monopoly* terms.

(R.Robinson: 22)

Sraffa had used the word competitive to mean perfectly competitive in the Knightian sense, but the profession as a whole did not yet identify the two as synonymous. Sraffa, as part of a nucleus which constituted the cutting edge of the profession, reasoned entirely in static terms, so his vision of the market as a continuum of monopolies was quite logical. Marshall, on the other hand, had intentionally avoided framing his treatments solely in a state-of-affairs context. In an age of progress, he warned, 'economic problems are imperfectly presented when they are treated as problems of statical equilibrium, and not of organic growth' (Marshall 1907:xi, cited in Guillebaud 1942:338). The final triumph of static analysis (and the resultant eradication of classical ideas on competition) occurred as an indirect consequence of the unremitting attacks on Marshall's long-run, decreasing-cost supply curve (illustrated in Figure 9.3 of Chapter 9). In effect, the falling supply curve provided Sraffa with a prominent launching pad for his world-of-monopolies position. Sraffa alleged that Marshall's eclectic portrait could not be reconciled with the model of perfect competition, and this charge sparked a lively debate which ushered in the model of monopolistic competition.³

Marshall had made it abundantly clear on several occasions that the catalysts in his model of decreasing costs were external to the firm. In a 1930 symposium on the subject in *The Economic Journal*, Sraffa succeeded in discrediting Marshall's approach by correctly emphasizing that external economies must be excluded from the equilibrium world of neoclassical economics because their dynamic nature makes them, by definition, incompatible with the principles of analysis (Sraffa 1930:92; and 1926:540–1). He concluded that since Marshall's system was inconsistent with equilibrium theorizing, it 'should be discarded' (Sraffa 1930:93). Erect in its place, said Sraffa, the Cournot-Dupuit monopoly model, for it affords 'a well defined theory in which [internal]

variations of cost connected with changes in [scale] play an important part' (Sraffa 1926:542). After the falling long-run supply curve was declared inadmissible, the path was cleared for asserting that competition and decreasing costs were irreconcilable; that is, if the new paradigm was to rely exclusively on static techniques, then economies of scale along the long-run marginal cost curve—from downward shifts over time in short-run marginal cost curves—must be ruled out as inconsistent with the rising long-run marginal costs needed (mathematically) to attain equilibrium via zero economic profit. The gains from interfirm specialization, spawned by classical extensions of the market, were seen as non-equilibrating forces creating the most dreaded of all phenomena: an indefinite system.⁴ A downwardly sloping average cost curve henceforth came to be seen as a monopoly-generating phenomenon. Abandoned was Marshall's extension-of-the-market idea, rooted in Adam Smith, of an evolutionary transformation of the firm's production function, creating a new region of increasing returns over which the firm could expand.

The doors opened by Sraffa had a chilling effect on those who preferred to portray the market in classical terms. With Marshall 'out of the way', the idea of competition as a discovery process was discarded; producers came to be painted either as black or white via the exclusive employment of equilibrium models. Moreover, as Mrs. Robinson explained, precious little white could appear on the landscape: 'as soon as we abandon the attempt to confine monopoly in a pen by itself..., the analysis of monopoly immediately swallows up the analysis of competition...' (J.Robinson 1965:5). Blaug's comments on this episode are particularly germane:

[T]he entire Marshallian theory of value was reconstructed by Sraffa, Harrod, Chamberlin, and Robinson on the basis of the individual firm as a monopolist of its own particular market. ...The almost total rejection of long-period analysis that this entailed banished the concept of the...falling supply price from economic literature.... The gain in rigor from this piece of surgery has been immense, but the price in terms of a lopsided theory of competition has been equally great.

(Blaug 1983:412–13)

John Maynard Keynes warned that Sraffa's arguments, if accepted, would destroy the neoclassical model of supply and demand

(J.M.Keynes: 79). Therefore, the compelling need for a *market* supply curve preserved the assumption of a homogeneous product (Reinwald: 553). The only other alternative—to regard every single firm as a separate industry—would have resulted in ‘the complete disintegration of the theory of value...a relapse from order to anarchy and chaos’ (Guillebaud 1952:119). Therefore, the proposals of Sraffa, Robinson, and Chamberlin threatened the newly-won premier position of the perfectly competitive model. Yet when all the dust had settled, the model of monopolistic competition faltered because it was plagued with the curse of indeterminateness. Early on, Robert Triffin had concluded that the analysis of a partial equilibrium of a group of Chamberlinian firms was an intractable problem (Triffin 1956 [1940]:188–9; and 1941:125). The tangency solution makes sense only if new entrants are replicating the product of the originator. Whereas, if the output of each new firm is genuinely different, even by a small degree, there is no reason that existing or potential producers should always be forced to a position of normal returns. Since product heterogeneity means that supranormal returns may or may not exist, the precise conditions of equilibrium cannot be identified (Hay and Morris: 12; and Demsetz 1972:593). Ironically, this snare of imprecision is what Mrs. Robinson had hoped to avoid, for she had recognized that the exact price which prevents new entry rests on the ‘distressingly vague...guess work’ of entrepreneurs (J.Robinson 1965:16, 23).

Stigler conceded that the ideas of Sraffa, Robinson, and Chamberlin made an indisputably valuable contribution to economics, but he argued that the perfectly competitive model should remain ‘the chief work of economic theorists’ because the model of monopolistic competition did not appreciably enhance the ability to make predictions (Stigler 1937:707; and 1968 [1949]: 320). The arguments of Stigler and other proponents of the perfectly competitive model carried the day, for monopolistic competition did not become the centrepiece of economic analysis. Nevertheless, it ‘led economics into a new land’ and became a useful adjunct (Samuelson 1967:138); that is, despite its indeterminacy, the basic idea of a tangency equilibrium ‘is sufficient to permit analysis’, hence the model of Chamberlin and Robinson won a high, permanent place in microeconomics (Napoleoni: 57).

In 1938, a general textbook was published in Britain which covered the theory of the firm entirely from an equilibrium

perspective: J.E.Meade and C.J.Hitch, *An Introduction to Analysis and Policy*, Oxford University Press. A similar tilt appeared on the American scene shortly thereafter (A.J.Meyers, *Modern Economics: Elements and Problems*, Prentice Hall, 1942). To an economist at that time who had received his or her doctorate before the Walrasian paradigm had come to dominate graduate training, it must have appeared that the classical idea of competition as a process had been thrown down George Orwell's memory hole.

To recapitulate, the full understanding of the model of perfect competition (as outlined by Knight) provoked a reaction from Sraffa which inspired Robinson and Chamberlin. But the model of perfect competition was not dislodged. It triumphed and became enshrined as our primary pedagogic tool. Destroyed instead was the notion of competition as a market process—a notion which had been preserved in the texts of early neoclassical writers. After Knight and Sraffa, the membership rules of the leadership club were amended: 'Non-equilibrium theorists need not apply'. I disagree with the traditional view as recounted by Richard Gill, who believes that since monopolistic competition developed '*out of* mainstream [equilibrium] economic thought, ...it brought forth no ideas that would have been shocking say, to Alfred Marshall' (Gill: 76; and R.Robinson: 10). Marshall surely would have objected strenuously, on two grounds, to the counter-revolution fomented by Sraffa, Robinson, and Chamberlin. First, the model of monopolistic competition solidified the static (perfect-knowledge) approach which Marshall had warned against, and second, it redefined monopoly and incorporated into its realm the dynamic notions of competition which had conspicuously punctuated Marshall's own works.

Since entrepreneurial insight cannot be modelled, the imprecise concept of market process became, as it turned out, the unwitting victim, simply lost in the shuffle as the supporters of the contending static factions (monopolistic vs perfect competition) vied for control of the intellectual landscape during the 1930s. This was a period when the long-delayed quantum change in economic method presaged by Walras, Jevons, Pareto, and Edgeworth was finally taking firm root and flowering; and there were many economists 'who were overtaken by the mathematical development of theory, and found themselves unequipped to participate in—or even sometimes to comprehend—the change taking place in the theory' (Stigler 1955b:299). And thus, in less than two decades

after the publication of Knight's book, static modelling, with perfect competition as the benchmark, totally dominated the discipline and began to exert 'a powerful and baneful...influence on our minds' (Richardson 1960:138-9).

The stage is now set to address the third unanswered question: *How did the adoption of the perfectly competitive model reshape the normative notions and public-policy prescriptions of economists?*

IMPACT OF PERFECT COMPETITION

[P]aradigm changes do cause scientists to see the world differently. In so far as their only recourse to that world is through what they see and do, we may want to say that after a revolution scientists are responding to a different world.

(Kuhn: 111 and 113)

The perfect competitor, devoid of rivalrous spirit, was a revolutionary break with the classical conception of the competitive firm, and our cognitive processes were heavily influenced by our technical redefinitions of competition and monopoly: 'Pygmalian-like, the model of perfect competition [took] in its creators' (Dean: 68); and, as a result, classical aspects of competitive activity came 'to be almost synonymous with the absence of competition' (Kirzner 1973:68). In short, economists began to see the real-world firm through monoploid lens, thereby changing the entire aura that governed our evaluation of industrial organization. To borrow an apropos analogy from another discipline, 'In diplomacy this is known as semantic infiltration: if the other fellow can get you to use his words, he wins' (Moynihan: 30).

More significant, I believe, has been the impact of the equilibrium paradigm on mainstream assessments of the performance prospects of economies whose institutions are intentionally arranged to destroy the competitive process. This can be effectively illustrated by first examining, relatively briefly, how the Walrasian vision has shaped the early neoclassical approach to comparative systems, a field which is a close sibling to the field of economic development (covered thoroughly in Chapter 3). We will then return to the case of industrial organization, and finally we will revisit the latest ideas in the literature on international trade, ideas that are *not* based on the perfectly competitive outcomes on which our trade theory has traditionally rested.

Comparative Systems

The debate between Mises, Lange, and Hayek over the *relative efficiency* of socialism (*not* its workability, *per se*) was ultimately resolved in favour of the Lange camp because the new wave of technical economists saw the market not as a rivalrous process, but rather as the non-existent phenomenon modelled by Walras. “Walras’ great vision”, wrote Solow, “was that of the price *system*, working like a complicated computer simultaneously to allocate resources...” (Solow: 8). The market thereby came to be thought of as a calculating machine whose internal mechanisms could be cloned under collective ownership. If a centrally planned system employs supply-and-demand prices as signals to its impotent firms—whose only roles are: (1) to hire an input until the value of its marginal product declines to equal its price, and, (2) to identify the output level which satisfies Lerner’s $P=MC$ optimality condition—then, concluded neoclassical economists, a socialist economy can indeed achieve an efficient allocation of resources (as in a free-enterprise economy composed of perfectly competitive firms). How could this be so?: both would be employing, in Solow’s terms, the same price computing system. (See the superb coverage of the Lange model in Kohler 1989:204–36; and Gregory and Stuart: 301–27.)

Hayek challenged the plausibility of Lange’s model because it had assumed away *the* problem of economic organization: the division of knowledge which only the process of competition can solve. The profession’s rejoinder (then and now) is that super computers can someday overcome the knowledge-coordination problem. This response is unsatisfactory. Computers assemble a picture from a given set of its constituent elements; but, as Hayek explained, the market’s picture is *not* constructed from a complete yet unassembled box of puzzle pieces supplied centrally (as suggested by the neoclassical way of thinking). Rather, the market produces a picture from an *incomplete* set of disparate information. For the pieces of most participants are rough-hewn and fragmentary, not smooth and intact; moreover, some pieces are missing altogether! Despite our best efforts to date, we cannot adequately explain how the market accomplishes this feat, but, as we learned in Chapter 6, we do know that the picture yielded by the market process is different from the picture generated by the computer-coordination solution offered by the Walrasian model.

Moreover, the deceptiveness of the ‘we-can-construct-it-artistically’ scenario has led to a string of harmful public-policy formulations.

‘[P]rocess’, wrote Georgescu-Roegen, is a ‘familiar and widely used word, and yet an example of a more neglected term, as far as its explanation is concerned, is hard to find’ (Georgescu-Roegen: 44). This is particularly true of the market process, hence it is not surprising that most economists were unreceptive to Hayek’s critique to Lange. To most members of the new generation of young pioneers, whose analytical habits of thought were a product of their weaning on full-information models that yield concrete equilibrium prices and quantities, Hayek’s vision was simply unintelligible. However, I strongly suspect that this blindness did not afflict every leading-edge theorist. Nonetheless, Hayek’s complaint was universally ignored within the mainstream camp, even by those who understood its profundity. Contending with the Hayekian perspective required the unwanted exhumation of an unscientific (i.e. non-equilibrium) corpus of non-theory. Hence Hayek’s critique was treated as irrelevant; that is, it was not engaged. So Lange’s model of market socialism carried the day in the 1930s and 1940s, primarily because Lange’s proposition was consistent with the mathematical essence of the Walrasian system. Moreover, Lange’s vision continued to fascinate equilibrium theorists during the postwar era, and in 1975 the Nobel Prize in economics was shared by Koopmans and Kantorovich, whose earlier work had bolstered the feasibility of the Lange model. The Swedish Academy’s citation highlighted the recipients’ demonstration that ‘the basic economic problems are the same in all societies’. Therefore, concluded the Academy, the goal of optimal allocation of resources ‘can be treated in a scientific manner that is independent of the political organization of the society under consideration’ (in Wasson: 569). This is the view which dominated the discipline for nearly half a century, despite the contravening arguments of Hayek, Friedman, and Buchanan (who also were awarded Nobel Prizes).

Ironically, by adopting a paradigm that ostensibly is politically neutral, neoclassical economics proved to be a valuable servant to proponents of radically illiberal systems. Granted, it is true that microeconomics ‘is best at uncovering reasons why government intervention is *not* needed in a particular case’, which explains why ‘a penumbra of [nineteenth-century] liberalism somehow clings to economics whatever the...school of thought...of the economist’ (Maloney: 216, 220); *however*, ‘by constraining the economist’s

[domain], the neoclassical paradigm constrains his political message' (Maloney: 217). And this, unwittingly, undermined the pro-market ideology that had been the badge of most classical economists. In short, as the idea of the market as an entrepreneurial discovery process was expunged by the perfect-knowledge postulate, the technical expertise of the deliberately apolitical modeller became the new two-sided badge of professionalism (Maloney: 217–18). Hence the supposed political neutrality of the models of neoclassical theory gave birth to an anti-process perspective that proved to have highly partisan consequences in the application of theory within public-policy arenas.

The entrenchment of the Walrasian calculating-machine definition of the market led to an ensuing catalogue of textbook judgments about development under socialism which, though perfectly logical extensions of equilibrium theory, were downright naive when judged against the explanatory common sense afforded by a process perspective (see the examples in Bethell: 36–8; and Harries: 19). Furthermore, prior to the recent Eastern European sociopolitical earthquakes, the comparative-systems literature was *not* poised for a change, as evidenced by the inexplicable deletion of Hayek's definitive 1945 use-of-knowledge article from the 1989 printing of one of the field's leading texts, *Comparative Economic Systems: Models and Cases*, 6th edition, Morris Bornstein, ed. (Homewood: Irwin).

Finally, the post-Walrasian role of technology, covered in Chapter 3, must be reemphasized. By expurgating the entrepreneur, neoclassical economics came to see the world as a set of production functions which maximize output when fed the 'right' mix of capital, labour, and technology (including knowledge on alternative transaction-cost schemes). In this apolitical recipe, we lost the entrepreneur's decisive role in recognizing profitable reallocation opportunities, including lower transaction-cost means of organization. More harmful was the traditional equilibrium classification of technology as a magic exogenous elixir which enhances the productivities of capital and labour, a perspective which blinded economists to the importance of its endogenous genesis. As Jan Prybala has correctly noted, 'Ultimately, technology is not an engineering but a socio-cultural phenomenon' (see Prybala: 393; and Hanson and Pavitt: 16, 19, 30, 31).⁵

The endogeneity of science becomes clear when one realizes that the best R&D proposals (i.e., the most promising haystacks to

probe) are signalled to entrepreneurs through the counter-tugging of rivals in the market. The enormous profit to be reaped from a successful first use of knowledge—and the losses to be endured if a competitor beats you to the market—incessantly drive the entrepreneur to pursue applied R&D in areas ripe with opportunity. But the degree of ripeness is revealed by educated-guesswork trials of new methods or new composites of materials. Therefore, the idea of a purely theoretical science, operating outside the competitive process and serving as the primary source of change, is mistaken and misleading (see Bernholz: 158–9; and Rosenberg 1986:141–59). For example, the exogeneity conception created by the calculating-machine view of the market led to flawed analyses of the effect of Western exports of technology to centrally planned economies. From a neoclassical perspective, technology transfer is a legitimate route to higher GDP via upward shifts in mechanical production functions operating in an environment unaffected by Hayek's division-of-knowledge problem. However, *without competitive institutions to diffuse new methods and to guide adaptation to change*, imported technology will be a costly mistake—which was borne out by the Soviet experience of the 1970s and 1980s, when the USSR's inability to absorb its capital imports caused *many* billions of dollars of Western machinery to sit idle and rust (see Bowden: 56; Cooper: 102; Rosefielde: 327; and Schroeder: ii–iii).

Industrial organization

[I]nefficient distributors now shelter behind their little walls of monopoly and cannot be driven out into occupations where they would be of more benefit to society.

(Boulding 1966:514)

Since the source of socioeconomic progress—the *process* of competition—is nonexistent in a world of general equilibrium, the main focus of theoretical attention in the neoclassical era came to be directed upon the Robbinsian allocation problem. The average cost of a monopolistic competitor's output is always more than its potential minimum, hence gains in societal utility can presumably be achieved by reconfiguring the organization of industry to eliminate sub-optimum sized firms (see Figure 4.1 on pp. 134–5).

Unlike Joan Robinson, Chamberlin did not refer to the minimum

unit-cost production level as the optimum. He stressed that the perfectly competitive model ‘may no longer be regarded in any sense as “ideal” for purposes of welfare economies’ (Chamberlin 1956:214; and 1957:99). Nevertheless, the intellectual die had already been cast. Since the Lerner condition ($P=MC$) is not satisfied under imperfect competition, a more efficient (i.e., utility-enhancing) alternative can be hypothetically devised within a perfectly competitive regime. Perfect-knowledge models, which necessarily abstracted away from the social discovery costs of defining a given bundle of goods (in a radically uncertain environment), were believed to have revealed the source of the shortfall in welfare: namely, the production of ‘too many’ variants, each on too limited a scale, requiring not only a change in what to produce (less variants) but also a change in how to produce (fewer plants, each with a higher volume so as to capture unrealized economies of scale and thereby attain minimum average cost).

The trend in the post-1933 literature prompted Buchanan to ask the following question: ‘Is the appropriate basis for social policy necessarily equivalent to the welfare ideal that serves as the guide-post for the economist’s normative judgments?’ (Buchanan 1955:78). It had become clear to Buchanan and others that the alleged inefficiency of deviations from perfect competition—the unseized surpluses inherent in the static analysis of a firm that is not yet at the end of the competitive race—had become a club employed to attack ‘monopolistic’ practices such as product differentiation and advertising. Moreover, this club was fashioned by Walras himself, who had expressly advocated the correction of all imperfections:

the equations we have developed do show freedom of production [perfect competition] to be the superior general rule.... [S]ince the factors which interfere with freedom are obstacles to the attainment of [utility maximization], *they should, without exception, be eliminated as completely as possible*

[J]ust as a lake is, at times, stirred to its very depths by a storm, so also the market is sometimes thrown into violent confusion by...sudden and general disturbances of equilibrium. The *more we know of the ideal conditions of equilibrium*, the better we shall be able to control or prevent these crises.

(Walras: 355–6 and 380–1; italics added)

Chapter 3's discussion of the economic development literature illustrated the now-ingrained nature of Walras' latter dictum on 'control'. Likewise, Chapter 7 explained how the Walrasian perspective affected the course of US antitrust policy.⁶ Perhaps nowhere has Walras' dictum on the impediments to welfare maximization had a greater impact than in the profession's approach to 'the doctrine of "excess capacity" ...[which] affords some reasons for interfering with the "free play of competitive forces" ...' (Kaldor 1935:33). Kaldor, however, was cautious. He recognized that 'it is impossible to tell how far people prefer quantity to diversity or visa versa', hence the mere existence of excess capacity 'far from warrants the advocacy of [interventionist] measures' to reduce the degree of product heterogeneity (Kaldor 1935:50). But later writers were more stridently Walrasian in their recommendations. Boulding, for example, whose intermediate-level textbook was a leader during the 1940s and 1950s, explained that a hypothetical enlargement of the plant size of each firm in the field (and a concomitant reduction in the number of firms) would result in lower unit cost and hence was desirable (Boulding 1966:514). And Samuelson complained of 'excessive prices' and the 'chronic excess capacity and waste' which result from 'too many sellers, each producing too little' (Samuelson 1980:485). The outcomes yielded by the invisible hand, by implication, are suboptimal and should be improved upon by mechanisms directed by the visible hand of government:

If consumers were willing to sacrifice the differentiation in product, a lower equilibrium price would be possible as fewer firms were used more intensely to produce a more standardized output.

Even if, as Chamberlin insists, people may want some of the extra variety of differentiated products that [monopolistic competition] provides, [the excess capacity] pattern cannot be ideally efficient. For it can be shown that whenever P exceeds MC anywhere, there definitely exists a new configuration (possibly involving subsidies...) in which *everyone* can be made better off [by eliminating unused capital].

(Samuelson 1980:486 and 487, fn. 11)

Other writers have echoed Samuelson's sentiments. Robert Bishop, for instance, suggested that the 'New World of inefficient resource

allocation' (caused by excess capacity) may require central planning in some instances, such as when 'a regulator is convinced that the various products or brands are really identical', in which case the regulator should 'overrul[e] the delusions of consumers' (Bishop: 254–6). And Tibor Scitovsky's early work⁷ complained of 'too many retail outlets' in a given area, such as gas stations and drug stores: 'The economic loss caused by such excess capacity consists in the use of more manpower, equipment, and space than is necessary. This clearly constitutes a social cost, which must be judged excessive...' (Scitovsky 1951:390, 392). Scitovsky attributed the 'competitive waste' to consumers' 'inability to shop more rationally'. According to his original position, the market does not provide consumers with genuine choice: 'The public...can never choose between more brands...and higher prices on the one hand and fewer of them but lower prices on the other hand. Having no such choice available, it can hardly be said to *reveal*, by its market behaviour, a *preference* for the first alternative over the second' (Scitovsky 1951:391–2; this argument was originally put forward in Kaldor 1935:50). Lipsey and Steiner have correctly summed up the situation: 'Economists have often assumed that product differentiation is not worth it, that consumers would be better off with single brands and somewhat lower prices' (Lipsey and Steiner 1981:908). Yet, as soon as incomplete knowledge and unpredictable happenstances are introduced, the entire picture of what is 'best' is recast:

Even a single individual's willingness to pay for a certain commodity is subject to random elements such as weather, one's state of health, and the flow of new information. People's ability to take advantage of these idiosyncratic factors implies that a large set of alternatives is valuable *even if there is no taste for diversity as such.*

(Suen: 217; italics added)

From the preceding discussions, one can appreciate that, when compared to, say, Marshall's circa 1920 treatment in his *Principles and Industry and Trade*, the model of perfect competition has indeed caused economists 'to see the world differently'. It must be noted, however, that the Walrasian ideal has not been accepted without reservation by all leading equilibrium theorists. Baumol, for instance, has explained that if the amalgamation of firms and curtailment of variety required to create homogeneity and perfect

competition leads to a reduction in consumer satisfaction, then there is no reason to prefer the lower-cost outcome yielded by perfectly competitive firms (Baumol 1977:404). For, as Richardson and others have pointed out, Lerner's celebrated efficiency rule ($P = MC$) 'ceases to be a desideratum' as soon as product variants intrude. Lerner's optimum conditions were 'derived under the assumption of a fixed list of goods and become very difficult to apply once this assumption is relaxed' (Richardson 1960:117; and K.Hagen: 443, 457, 458).

In 1977, Dixit and Stiglitz published an article which demolished 'the folklore of excess capacity'; that is, the findings of these authors undermined 'the common view concerning [the welfare-reducing role of] excessive diversity...'. But for those with an interventionist bent, Dixit and Stiglitz also found that the limited production of differentiated goods with highly elastic demands and 'significant consumers surpluses' (such as opera) causes a net loss in opera lovers' utility that could otherwise be harvested through a subsidy financed by a tax, say, on utility-rich football fans. Hence, within a pro-transfer framework, monopolistic competition plus laissez faire yields socially inefficient results which can be improved upon with governmental tinkering. Nonetheless, the mainstream position toward the excess-capacity proposition was largely reshaped. The waste-theorem devil, theoretically at least, was finally excised (Dixit and Stiglitz: 297, 299, 301, 304, 306–8). But old ideas, entrenched for decades in price-theory textbooks, die hard. Hence many neoclassical economists continue to view the issue of consumer welfare through Walrasian lenses, which serves to reinforce the strong bias favouring outcomes that promote movement toward the perfectly competitive ideal.

International trade theory

The stocking producers of England, before the invention of the stocking frame, had only Englishmen as consumers; since that invention, until the moment when they were imitated outside their island, they have had as their consumers the whole Continent.

(Sismondi: 264)

The heart of the process perspective—the creation and exploitation of knowledge—has become prominent in the literature on

international trade over the past twenty-five years. The notion of Heckscher and Ohlin—of an historically given national endowment (capital/labour ratio) as the cause of a country's trading opportunities and hence of its subsequent division of labour—has been supplemented by Adam Smith's observation that, 'the very different genius which appears to distinguish men of different professions, when grown up to maturity, is not upon many occasions so much the cause, as the effect of the division of labor' (Smith 1937:15). Smith was saying that a nation's trading pattern is shaped by the nature and depth of its division of labour, which *creates advantages* and thereby stimulates exchange. (For a growth model based on Smith's analysis, see Yang and Borland, particularly pp. 460–1, 475, and 478–9.) Smith's point is distinct from the contribution of Krugman, who alerted the profession to the trade advantages flowing from the convex production-possibility curves facing nations that manufacture different variants of the same basic product (under increasing *internal* returns to scale). Since most of these cost curves have very gradual downward slopes over the increased range of output spurred by trade, the 'direct scale efficiency effects are small'; therefore, welfare gains accrue not primarily from the mutual realization of lower average cost, but rather from the fact that trade under conditions of monopolistic competition 'gives consumers access to a richer menu' (Tybout: 440–3).

The most recent literature has highlighted the internal returns to scale derivable from a production process that is very expensive to originate but very cheap to replicate. (See the discussion of Paul Romer's 1990 article in Ch. 9, p. 262.) Analogously, a firm's marketing acumen—its seasoned skill in making consumers aware of the utility uniquely derivable from its particular product—is often an important factor. This 'seasoning' (the learning-by-doing aspect of human capital) creates increasing returns by enabling the firm to boost output along the declining portion of its average cost curve via its international market-penetration advantages, just as in Romer's cheap-to-reproduce techniques idea:

The possession of superior knowledge allows the investing firm to create differentiated products...with psychological differences (deriving from marketing skills) that distinguish them from competing products. In this way the firm gains a degree of control over product prices and sales that enables it

to obtain an *economic rent* on its knowledge assets. In brief, the investing firm with differentiated products controls knowledge that can be *transferred* to foreign markets *at little or no cost*.

(Root: 623; italics added)

In addition to the insights of Romer, we should also consider those of Robert Lucas, who begun to study the potentially profound impact on our trade theory of viewing the market in process terms instead of the perfectly competitive terms of the H-O model:

What I want to [consider] is an environment in which new goods are continually being introduced, with diminishing returns to learning on each of them separately, and with human capital specialized to old goods being ‘inherited’ in some way by new goods. In other words, one would like to consider the inheritance of human capital within ‘families’ of goods as well as within families of people.

With a fixed set of goods,...[t]he comparative advantages that dictate a country’s initial production mix will simply be intensified over time by human capital accumulation,⁸ but I conjecture that a more satisfactory treatment of product-specific learning would involve modeling the continuous introduction of new goods.... There is no doubt that we observe this kind of effect occurring in reality on particular product lines. If it could be captured in a tractable aggregative model, this would introduce a factor continuously shaking up an existing pattern of comparative advantages.

(Lucas: 28, 41; also see 35–9)⁹

The perspective which grew out of the model of perfect competition and the writings of Heckscher-Ohlin can explain only the trade observed between heterogeneous economies, but the volume of such exchange has been a declining percentage of total world trade. Our attachment to the model of perfect competition created a formidable level of intellectual inertia which even the Leontief paradox was unable to overcome.¹⁰ The challenge was to formulate theories that would explain the fact that the preponderance of First-World exports are sold to First-World nations:

The neo-classical theory of trade follows Ricardo and excludes the possibility of increasing returns. It explains comparative

advantage by presupposing the existence of international differences in climate, resources, technology and factor endowments. Trade between similar countries, or trade in manufacturing, therefore, cannot be explained by the neoclassical theory, while almost two-thirds of world trade is between large industrial areas that are very similar. Smithian theory, on the other hand, can explain extensive trade between similar industrial areas, since it considers comparative advantages to be created by divisions of labor [and their resultant scale economies] induced in export industries by the large world market. Comparative advantage is, therefore, not the cause, but the result of international trade.

(Negishi 1989:95)

Our supplemental survey of the impact of perfect competition on the fields of comparative systems, industrial organization, and international trade is now complete, so we shall turn to the fourth and final unanswered question: *Did any influential economists voice concern when the classical notion of competition was discarded?*

FAINT, LONELY CRIES OF WARNING

The demise of process thinking did not go unnoticed, but its loss was not marked by a chorus of lamentations. During the 1920s and 1930s, five highly respected economists (J.M. Clark, Lerner, Edgeworth, Marshall, and Young) expressed concern over the ultimate effect of the wholesale displacement of the classical approach to competition. Clark, for example, complained in 1935 that, due to the triumph of equilibrium modelling, ‘there has been a tendency to...draw the boundary line so as to classify as a monopoly all situations which do not have the characteristics of ‘pure’ or ‘perfect’ competition...’ (quoted in Chamberlin 1937:571). Abba Lerner also noted the quandary being created by the world-of-monopolies perspective. When Lerner derived his famous ‘index of monopoly power’, $P/(P-MC)$, he worried aloud that ‘every specialized gradation of every particular quality of every “commodity”’ was coming to be seen as a monopolized product. ‘This splitting up of the conception of a “commodity”,’ said Lerner, ‘multiplies the number of commodities indefinitely, and seems to create monopolies in the most unexpected places’ (Lerner

1934:169). But the most effective arguments against a wholesale adoption of the Walrasian paradigm were offered by Edgeworth, Marshall, and Young.

Edgeworth

Francis Edgeworth, the brilliant mathematical economist whom Stigler rightly credits with delineating the state of affairs which define perfect competition, had reservations about its foreign nature when employed as a tool of market analysis. Edgeworth wrote that '[perfect competition] seems not to be competition pure and simple' (Edgeworth 1925:53). According to Jaffé, '[Edgeworth] recognized the importance of Leon Walras' systems of simultaneous equations...; but he continued to deny that these systems furnished any clues whatever to the way that equilibrium actually emerges in real markets' (Jaffé 1965, vol. II: 432, fn. 2, para. 2). Thus it appears that Edgeworth's dissatisfaction with the concept of zero profit was not based, as Schumpeter has asserted, on 'a complete failure to understand' the special nature of economic profit and its elimination at Walrasian equilibrium (Schumpeter 1954:1049, fn. 59). Rather, Edgeworth's aversion was rooted in his realization that the new package of semantics *and ideas* attending the model of perfect competition were affecting how leading economists were reasoning about the market process.

Edgeworth's complaint about the Walrasian vision was not centred on the basic idea of a general equilibrium, nor on Walras' zero-profit state of affairs, *per se*; rather, Edgeworth objected to *how* these results were attained in Walras vs how they are attained via the market's process of discovery. I suspect that he did not want Walras' description to become, in the minds of economists, a model of reality. Yet this is exactly what happened.

Edgeworth understood that the system portrayed in the *Elements* was not representative of the market as it actually functions, that is, as a sequence of trials undertaken to acquire information that enables participants first to choose a specialty and then to map-out their courses of action within that specialty. 'This is what Edgeworth meant when he referred...to "the complexities introduced by [the] division of labour" (1925, vol. II:281)' (Newman 1990:127). In Walras, each agent's field of production is *given* at the outset (so the radical uncertainty of the *what-to-produce* problem is obviated); moreover, the crying-out scheme makes known to each firm, *in*

advance, the quantity and price of its output. By way of contrast, each real-world agent, ‘on the basis of *expected* prices..., *must decide* not only how much to produce... *but also...*what products to produce’ (Newman 1990:126; italics added). People who conceive of the market in the latter terms, that is, as characterized by radical uncertainty, see a world populated with far fewer devils than the world as seen through Walrasian lenses.

Edgeworth’s critical review of Walras’ second edition had provoked an indirect reply from Walras through his admiring disciple, Ladislaus von Bortkiewicz, an undergraduate at the University of St. Petersburg (Newman 1990:123–4). In his rejoinder to Bortkiewicz, Edgeworth contended that the market’s equilibrium price vector could not be ascertained with the relatively simple differential calculus; rather, the formidable calculus of variations is required because *several* optimization decisions are made via the market’s complicated discovery process, which Edgeworth compared, for simplicity’s sake, to the plotting of the course of a ship along two linear, right-angled subroutes, ‘so that the voyage may be accomplished in the shortest possible time’. Putting aside the abstract mathematical functions that had become his trademark, Edgeworth explained in plain English that ‘*a series of tentatives* may be required to determine what combination of right lines affords the quickest passage’ (Edgeworth 1925, vol. II:311; italics added). He apparently understood that a model in which the discovery of new information is eliminated—by admitting as normatively acceptable only those entrepreneurs who are at equilibrium (after the fruit of initiative has been exhausted)—leads the analyst to divorce himself from the omnipresent *necessity* of the ‘obscene’ profits (and bankruptcies) which constitute the Smithian transaction costs, so to speak, of the disequilibrium process of search:

It is not a matter of reproach to mathematical economists to have stopped short of these complexities. But economic theory, as distinguished from mathematical expression, does require the recognition [that these complexities exist].... Walras’s peculiar doctrine of an entrepreneur who makes neither gain nor loss cuts him off from this essential principle.

* * * *

Walras describes *a* way rather than *the* way by which economic equilibrium is reached. For we have no general

dynamical theory determining the path of an economic system from any point assigned at random to a position of equilibrium.... Walras's laboured description of prices set up or 'cried' in the market is calculated to divert attention from a sort of higgling which may be regarded as more fundamental than his conception.

(Edgeworth 1925, vol. II:311)

Edgeworth evidently understood that the permanence of profit was rooted in the unfathomable and hence inexhaustible supply of discovery opportunities. In a world of asymmetric information, for example, arbitrage gains are always available by promoting unconsummated exchanges. The unbounded possibilities for the application of alertness means that the diminishing-marginal-product theory of input value does not apply to the entrepreneur, who claims the residual after paying all other factors, including capital (Edgeworth 1925, vol. I:28). Therefore, Edgeworth 'argued against the simple elimination, *à la* Walras, of the entrepreneur from the explanatory scheme' (Barreto: 51–3).

Walras was initially reluctant to concede anything to Edgeworth. He simply did not understand the nature of the problem Edgeworth had posited. Blinded by the elegance of his determinate mathematical system, Walras could not see the market in process terms. Nor did he possess any knowledge of the calculus of variations, which was blossoming in the late 1800s, and is today employed to address 'nasty...problems in what we would now call optimal control theory' (Newman 1990:127). Of course, as usual, most of Edgeworth's arguments had been cast in terms of sophisticated partial derivatives. Consequently, in a letter to Charles Gide, the irritated Walras accused Edgeworth of being 'a past-master' of 'mathematical empty phrases and charlatanism' (see Jaffé 1965, vol. II:370, quoted in Newman 1990:128). However, after Bortkiewicz came to understand and appreciate Edgeworth's objections, he recommended that his mentor should stop attacking 'this man of talent and of science...' (letter from Bortkiewicz to Walras, in Jaffé 1965, vol. II:430, quoted in Newman 1990:129). Walras accepted the advice of his trusted surrogate, and the debate faded. Unfortunately, Walras was not the only economist who has failed to comprehend Edgeworth's insights, and hence the misunderstanding of Edgeworth's complaint

grew over the years as [Edgeworth] said less about [his own

conception of the market process] and more and more about the ‘oddity’ of Walras’s entrepreneur who made neither profit nor loss. In time, he became merely tiresome on the subject. So it is no surprise that historians of thought...have severely criticized his treatment of the Walrasian entrepreneur. George Stigler’s dismissal is typical: ‘Edgeworth’s view of the entrepreneur has been shown to be definitely inferior to that of Walras for the purposes of economic analysis’ (1941:128). Not true of course, but Edgeworth had only himself to blame.

(Newman 1990:129)

Marshall and Young

Our survey of the responses of early twentieth-century economists to the rise of the model of perfect competition will conclude with a look at the warnings sounded by two leading theorists, Alfred Marshall in the UK and Allyn Abbott Young in the US. Marshall’s reputation has followed him beyond the grave, but Young’s influence in his own time is not appreciated today. Young was internationally acclaimed, so much so that he was selected, ‘after a prolonged search of the English-speaking world’, to chair the economics department at the London School of Economics, an unprecedented event in the annals of British academe (see Newman 1987:937–8).

In a market with voluminous, timely feedback on prevailing buy/sell prices (such as grain and stock markets), the assumption of perfect knowledge and perfect competition, said Marshall, ‘causes no great departure’ from reality (Marshall 1920:540). However, he repeatedly noted the pitfalls inherent in classifying markets as monopolistic versus competitive via equilibrium analysis when imperfect knowledge is the norm, as recounted above in Chapter 8 (page 243, plus note 4). Marshall felt compelled ‘to insist again that we do not assume that competition is perfect’. Nor did he believe that the classicals had reasoned in perfectly competitive terms: ‘Perfect competition requires perfect knowledge’, and the ‘older economists must have known this well enough;...’. Yet, explained Marshall, ‘Partly for brevity and simplicity, partly because the term ‘free competition’ had become a catchword, partly because they had not sufficiently classified and conditioned their doctrines, they often seemed to imply that they did assume this perfect knowledge’ (Marshall 1920:540). More direct in his complaint was Young:

New products are appearing, firms are assuming new tasks, and new industries are coming into being.... No analysis of the forces making for economic equilibrium...will serve to illumine this field....

[T]he counterforces which are continually defeating the forces which make for economic equilibrium are more pervasive and more deeply rooted in the constitution of the modern economic system than we commonly realize.

(Young: 528, 533)

Young correctly foresaw that 'the apparatus which economists have built up' was going to 'stand in the way of a clear view of the more general or elementary aspects of the phenomena of increasing returns...' (Young: 527). He wrote to Knight: 'I have yet to see that the method of general equilibrium gives us anything that *gets us anywhere*.... We have to depart from it somehow' (Young, in Blitch, 1983b, 363–4). Dominion by the new paradigm required that this temperament be expunged. And it was. As a result, the habits of thought implicit in the process-oriented definition of a market system 'gradually disappear[ed] from notice' (Bowley 1973:174). Five prominent figures were fully aware of what was happening. The Old Guard viewed the transformation with alarm, whereas most of those who had inherited the mantle of leadership welcomed the victory of the technically superior arsenal of theory. The benefits of determinate outcomes were deemed to be worth the cost of losing the explanatory power of process reasoning, hence the equilibrium juggernaut rolled forward with no regrets among the new generation.

CONCLUSION

The tilt in pedagogical emphasis toward equilibrium analysis came about rather precipitously in the 1920s; it was not the result of a gradual, on-going shift throughout the rank and file. In 1920, the centre of gravity in the US, the UK, and even more so on the Continent, was grounded in process thinking, not static analysis. However, with Knight's book the movement in the intellectual tide began to quicken and the centre of gravity began shifting, pronouncedly so after Sraffa's exorcism of Marshall via his series of articles from 1926 to 1930. The early mathematical economists'

infatuation with endpoints chiselled in stone fuelled the transformation of economics into an empirical science of comparative statics within which the notion of process could find no shelter.

One of the few economists who continued to swim against the tide was John Maurice Clark. In 1936, concerned about the overpowering dominance of the model of perfect competition, he attempted to redirect some attention back to a more classical understanding of the market: 'The importance of this shift from the search for [equilibrium] levels to the study of processes can hardly be overemphasized;...' (Clark: 203). In a letter written in 1954, Clark expressed his fear that the victory of static modelling was so complete that any indeterminate approach to competition would be ignored: '[M]y biggest and most difficult job is to establish that the [process] approach *is* theory; and to show how existing [equilibrium] theory is biased and limited by built-in static preconceptions in ways that most exponents probably don't realize' (in Shute: 215).

It was obvious at the time that Clark's struggle was hopeless, as evidenced by the 1937 observations of a contemporary, who wrote that Clark's resurrection of the notion 'of workable competition remains at best a protest...against the unqualified application of the standards derived from the [perfectly] competitive model' (Mason: 327). Clark continued for the rest of his life to champion the role of process over equilibrium, and his work culminated in *Competition As a Dynamic Process*, published by the Brookings Institution in 1961. But the reception of the profession was at best indifferent—just as Clark had feared. After the uprising spearheaded by Sraffa, Robinson, and Chamberlin, the static approach to competition had assumed unassailable command of the theoretical landscape. Thereafter, the intellectual wars were waged between the proponents of the models of perfect and monopolistic competition, thereby establishing the equilibrium paradigm as the only acceptable tool of market analysis. The process approach was essentially banished to the economic hinterlands by benign neglect; moreover, as we proceed into the 1990s, the mainstream's commitment to equilibrium analysis is apparently unshakeable (see, for instance, Baumol 1988:324).

STYLIZED ASSESSMENT OF GAIN VERSUS PAIN

[Through our research we] consistently transmit...those theoretical developments of contemporary economic analysis which emphasize imperfections of the market system. Unfortunately, [we] never examine the costs and consequences of alternatives to the market system, alternatives which are always presented in idealized form.

(Bauer 1979:63)

For a long time the above quotation accurately reflected the mainstream approach to private versus public solutions to market imperfections. This short chapter will describe some of the unmeasurable yet horrendous costs attributable to the lure of public-sector options that were 'always presented in idealized form'. This is not to deny the host of formidable contributions of neoclassical economics, particularly at the micro level, such as the recent wave of deregulation in the United States, which was clearly the fruit of empirical measures of the welfare burden of managed competition. The entry barriers that formerly protected the American airline industry, for instance, led to a supra-competitive price premium of nearly 20 per cent by one estimate (Clarkson and Miller: 129). With the removal of federal protection, selling prices (and GDP shares) of the formerly regulated sectors dropped considerably (Winston: 123). The establishment of a free-trade zone between Canada, Mexico, and the United States is another noteworthy accomplishment of economic theory. On balance, however, I contend that the costs of modern theory, especially the costs borne overseas, have far outweighed the benefits.

We must recall, for example, that the Walrasian mode of thinking imposed dynamic costs on the US economy (via myopic

antitrust policy) that likely outweighed the efficiency gains from reducing ‘monopoly’: ‘No one will ever know what new products, processes, machines, and cost-saving mergers failed to come into existence, killed by the Sherman Act before they were born’. The effect of neoclassical thinking on the enforcement of US antitrust statutes ‘has kept [American] standards of living lower than would otherwise have been possible’ (Greenspan 1961:63).

I am not suggesting that no static efficiencies were reaped from antitrust enforcement, for this is not the case, particularly in situations where a small number of producers can garner control of a key input. However, static-efficiency benefits, whatever their size relative to dynamic-efficiency losses, have largely accrued to the developed economies, whereas the costs of neoclassical thinking have been paid disproportionately by those who live in the Second and Third Worlds, whose economies became repositories for the destructive programmes propagated by the ‘conceited men of system’ who were so derided by Sir James Steuart (1805, vol. I: xii, xv, 218), Adam Smith (1976:231–4), and Edmund Burke (149–55, 267). Of course, modern theory cannot be held entirely accountable for unrealized GDP potentials, much of which are traceable to the dearth of growth-enhancing sociopolitical institutions in the Second and Third Worlds. Communist regimes intentionally destroyed them in the former, while in the latter, primitive market institutions either were non-existent or were subverted by colonial rule and the home-grown despots who succeeded to power. (For the African institutional experience, see either Ayitteh 1990:27 and 30–1, or Ayitteh 1992:66–9.) Nonetheless, the *prolongation* of this institutional void was not a random historical event. Neoclassical economics must be accorded a sizeable measure of responsibility for the widespread and long-lasting suffering attributable to the affinity for central planning. This affinity has saturated intellectual and public-policy forums throughout the Third World (and the First World!), and has thereby promoted the growth of state bureaucracy at the expense of the institutional matrix required to facilitate capital markets and the free exchange of goods. As Mancur Olson has correctly observed, ‘it takes an enormous amount of stupid policies or bad or unstable institutions to *prevent* economic development’ (Olson: 175). Due to the substantial assistance provided by the Walrasian-rooted prescription of mainstream development literature, neoclassical economics stands easily indicted on this score.

Latin America and other regions were philosophically ‘betrayed by the West, including the United States’,¹ whose theorists had begun to have ‘second thoughts’ about their own pro-market traditions. As a result, a new message began to be heard, ‘according to which the free play of economic forces...must ...be regulated by the state, supposedly ever wise and ever beneficial’ (Rangel: 293–4). The chimerical central-planning propositions of Argentinean Raúl Prebisch, for example, promoted huge foreign debts through the extravagant borrowings of unproductive government-owned industries, thereby arresting development in Latin America for an entire generation—for which Prebisch was heralded on his continent and in the UN, where he was appointed to a lucrative and influential post (in the area of economic development, of course).

In most of the developing world the story was much the same. As late as 1970 in India, for example, it ‘was taken for granted that socialist planning is indispensable’ (Bauer 1979:63). Equally instructive are the observations of an Indian scholar writing in 1987, who correctly identified ‘the power of arbitrary decision’ as the key source of corruption in his country. He was bewildered over the indecisive approaches taken by those who should have known better: ‘I have never understood why *even expert committees* have hesitated to recommend a virtual bonfire of [India’s] industrial licensing system...’ (Patel: 217–18; *italics added*). These unchallenged (and hence implicitly abetted) collectivist approaches have propagated endemic rent seeking and ‘agricultural misery’, but, ‘most importantly, they have resulted in falling standards of living for people who were already poor...’ (Krueger: 12, 58).

I concede that, in the Third World, the cards were initially stacked against the market due to the temperament acquired through the understandable (yet mistaken) intellectual mingling of colonialism and capitalism. However, during the 1940s and 1950s, when the soon-to-emerge leaders of the colonies were studying in Europe and the US, the non-Marxist portion of the economics curriculum was dominated by the Walrasian tradition, *which rationalised, and thereby gave legitimacy to*, the anti-market prejudices derived from living under colonialism. I am not charging that modern economic theory is single-handedly responsible for the anti-entrepreneurial frame of mind that came to dominate Third-World universities, literary figures, and government officials. After all, as Henry Petroski’s book tide proclaims, ‘To Engineer Is Human’, and the dominance of Continental-Enlightenment

principles (versus Scottish-Enlightenment principles) among men and women of letters has demonstrated that the proclivity of our species for social planning is deeply rooted. Unfortunately, mainstream economists, in general, failed to forthrightly challenge the seductive vision of the postwar planners. Worse still, our discipline was not neutral on this issue. Our endorsement of the theoretical reasonableness of the Lange model fuelled a deepening of the interventionist biases of those who would later assume the reins of Third-World leadership. (A key exception to the trend must be noted. While opposition from the American academic community was generally light, intense criticism emanated unremittingly from members of the Austrian School, as well as the strongly pro-market departments at Chicago, Rochester, Virginia, and the University of California at Los Angeles, often referred to pejoratively in the 1950s and 1960s as the leading 'fringe outposts' of the discipline. For many years, these faculty were lonely voices in the profession).

With respect to the Second World, the analytical record of economists was perhaps even more abysmal. The largely uncritical, velvet-gloved, 'scrupulously balanced' treatments of the performance of communist economies (especially by American writers of principles texts) was shameful. Paul Samuelson and William Nordhaus, for instance, blindly swallowed the statistical manure published in the USSR, for they wrote, during the late 1980s, that the Soviet Union has proven 'that...a socialist command economy can function *and even thrive*' (Samuelson and Nordhaus: 837; italics added). Judgments such as the one by Samuelson and Nordhaus (which were typical of the leading principles texts in the 1960s, 1970s, and 1980s), failed to consider that Soviet GNP accounting entries for goods that provided zero utility, such as 'unusable tools, unwearable shoes'—and numerous other unwanted commodities that remained on the shelves of state shops—should not have been counted as evidence of thriving (see Sikorski: A14).

Over the years, a chorus of such naive assessments from economists has served, unintentionally, to enhance the credibility of those who were preaching collectivist gospels at home and abroad. Most surprising was the appalling record of the so-called Soviet-studies experts, including those in the US intelligence community, who steadfastly refused to meaningfully incorporate the claims of Russian émigré economists that the condition of the Soviet

economy was far worse than indicated in the appraisals of Western economists, including the estimates of the Central Intelligence Agency. For example, Western analysts turned a deaf ear to the sharp rise, (post-1965), in adult mortality in all seven Warsaw Pact countries, including reformist Hungary, where the death rate for men in their forties doubled between 1966 and 1989. ‘These grim mortality statistics should have cast considerable doubt on the West’s rosy assessments of economic performance’ in Russia and Eastern Europe, (Eberstadt: 47–8). The failure to provide a hint of the imminent collapse was due, perhaps most of all, to the fascination with what historian Richard Pipes has derisively characterized as ‘value-free models’, which were built and employed with the assumption ‘that all...societies were fundamentally identical because they were called upon to perform identical functions...’ To nearly everyone’s surprise, ‘the Communist regimes vanished in a puff of smoke. And what remained? A tormented people who the Sovietologists had not even noticed were there’ (Pipes: 33).

The seductive promise of government planning lulled the profession into an uncritical mode that, in Schumpeter’s eyes, bordered on intellectual malpractice. In particular, the failure of American economists to confront the widening of government direction of the US economy, which was continuing despite the end of World War II and its wartime controls, prompted Schumpeter to rebuke the profession in his final presentation to his peers. He noted that the only dissenting voices were those of the newly formed Mont Pélérin Society (established to combat the pro-collectivist trend in the world). Most of its founding members were of Austrian persuasion or adherents of the Chicago School’s philosophy. But among the profession at large, the growing list of ‘anathemata [government intrusions] have not...provoked attack’ (Schumpeter 1950:449). Of course, during the next twenty years there eventually arose in the US a groundswell of opposition to regulation, followed by the removal of government subsidies and licensing barriers in many industries; *however*, the profession originally was disinclined to actively resist ‘these anathemata’, and this initial response—from the heirs of Adam Smith—was curious to those, like Schumpeter, who did not yet comprehend the noetic impact of the Walrasian model.

The shared award of a Nobel Prize to Hayek did not dampen our fascination with rational constructions based on perfectly-

informed, state-led improvements to market outcomes. The cost of government intervention has been implicitly priced at zero, hence the managed solution always appears seductively superior. Keynes' overworked sentence from the final chapter of his *General Theory* is particularly germane to the issue being raised here, for the ideas of economists *are* more influential, and hence more powerful, than is commonly understood. The pro-interventionist stances provided to the Third World contributed more heavily to human suffering than we care to admit. Instead of challenging the hostility to markets bred by colonialism, modern economic theory unwittingly nurtured it. In the final balancing of the books, the Walrasian rescue of all deadweight losses,² combined with the averting of consumer surplus redistributions to producers³—in all the reasonably competitive economies on this planet—would amount to an anthill when dimensioned against the mountain of physical and spiritual distress endured unnecessarily by the peoples of nations whose development has been sidetracked by the grandiose schemes of men of system, schemes about which our profession was relatively silent because it fastened itself to the study of idealized results and totally ignored the relevance of process. Mainstream economic theory cannot easily distance itself from a sizeable share of guilt, for ‘[t]he overriding purpose of the human enterprise, the purpose that controls every subordinate “game” in which humans engage,...is to maintain and/or improve the conditions of life of some human population’ (Meehan: 36). Insofar as the neoclassical paradigm has helped to solidify the intellectual foundations of the proponents of social engineering, economics has failed to satisfy its own utilitarian criterion.⁴

12

SUMMARY AND CONCLUSIONS

I suggest than an accepted understanding of the economy as an order of interaction constrained within a set of rules or constraints, leads more or less directly to a normatively preferred minimal intervention with the results of such interaction.

(Buchanan 1989:88)

THE TRANSFORMATION THESIS (IN A NUTSHELL)

The central thesis of this book is that the adoption of perfect information modelling as the heart of neoclassical economics transformed the way economists were trained to think about the institution known as the market. Under the classical regime (and into the early 1920s), economists saw the market as a process through which entrepreneurs earned profit to discover what to produce and how to produce. Under the perfect-information regime, what and how become the known ends and means, and the market became a computer for providing the equilibrium magnitudes of same. This new mental framework led to a pro-government disposition in several key areas that were described fully in preceding chapters and will be summarized below.

NEW MODE OF THINKING: INSPIRED BY IDEOLOGY OR TECHNICAL TRAINING?

[W]hy did ‘the wrong guys’ win [the market-socialism debate]?

(Blaug 1993:1570)

Coase shares Hahn's belief that models determine our thinking, and he is concerned about the profession's 'habits of thought', which have *not* been shaped by an 'understanding of how the real economic system works' (Coase 1992:11, 12). In a recent summary of Coase's achievements, Posner wrote that, in Coase's view, concepts like "externality" ...and "market failure" ...seem like invitations to interventionist prescriptions'. The mainstream solutions conjured up by these terms 'assume the fragility of markets and the robustness of government...' (Posner 1993:201). But Posner disagrees with the logical direction of Coase's arguments. He says that Coase has confused cause and effect: 'It is not that formal economic theory inherently favors public intervention; it is that economists predisposed by temperament or life experience to favor a large and aggressive government will be inclined to formulate theories congenial to their preferences' (Posner 1993:202). Except for a subset of committed true believers, Posner is mistaken. Highly trained mental faculties, tempered by mathematical models and econometric evidence, cannot be systematically blinded by political passion. *This* is the supreme advantage of formal theory: its transparent, standardized results are precise and objective, which helps to prevent 'muddled' conceptions (McCloskey 1991:6; and Caldwell: 27).¹ Evidence abounds to sustain this position, including the bi-partisan support for deregulation, the conversion of old-learning advocates to the new views on antitrust, and the widespread adoption of the domestic and international prescriptions of monetarists (i.e., cautious monetary expansions and freely-floating exchange rates).

Therefore, the longevity of the interventionist bias in economics is not ultimately traceable to the inherited political persuasions of practitioners, nor to methodological formality, *per se*; rather, its taproot is the perfect-knowledge assumption of core theory—'the most important and pervasive single simplification, bearing more logical weight than any other, in the whole range of economic... analysis...' (Hutchison, in Katzner 1991:20). It has had a profound hysteretic effect on sociopolitical perspective that was unimagined by most pioneer model builders. Specifically, the perfect-knowledge postulate tilts the intellectual software to yield results that provide a basis for state activism, thereby *reinforcing*, with rigorous logic, any pre-existing pro-government temperaments of the analyst. This has been 'the main source of the crisis of abstraction', for we economists have been frequently 'misled by our assumptions', and

hence we have not been ‘immune to being fooled by the questions we ask...’ (Katzner 1991:20, 22).

Real-world activity requires the continued existence of entrepreneurial profit (distinct from capital returns) to fuel the discovery process through which human ignorance is ameliorated. Walras formulated a convenient model which enabled economists to avoid the key constraint imposed by life: the diffusion of knowledge. Through his construction we could focus on a set of what-if questions whose equilibrium context smuggled a pro-interventionist bias into all subsequent bordered-Hessian analyses. This was a revolutionary development, in that the new non-market portrayal of the market generated a plethora of policy recommendations that were incommensurable with Adam Smith’s spontaneous-order vision of society (see Smith 1976:231–4; and 1937:423). Walras’ adoption of the perfect-knowledge postulate was rejected by Marshall, who was thus deemed unscientific and lost the mantle of leadership.

In a letter written in 1885, Walras explained that an ideal system of social justice must ‘preclude...the presence of any income that is not a functional return’ (as summarized by Jaffé 1980:537). In the omniscient world of Walras’ model, the entrepreneurs of classical economics serve no purpose, hence the systemic existence of profit is explicable only in terms of actions that are harmful to consumer welfare (Jaffé 1980:530–6). As it turned out, the neoclassical employers of the general-equilibrium model came to see the market through the eyes of Walras and to share his perspective on the non-functional role of entrepreneurship, along with its anti-social implication for the *permanent* presence of pure profit. This, in turn, destroyed the notion of the market as a knowledge-discovery process and led directly to the catalogue of conceptual problems elaborated upon in this volume.

THE ‘COASE FALLACY’ AND GOVERNMENT

Joseph Stiglitz has contended that, ‘in general, the assertion that the government can do no better than the market is simply false ...’ (Stiglitz 1989:37). This position is very congenial to the Walrasian paradigm. On the other hand, Avinash Dixit has expressed the new and growing view: ‘there is no market failure so bad that the US government and political process could not do even worse’ (Dixit: 182, fn. 7).

The Coase Theorem has been employed to promote the market efficiency theorem, namely, *if* the costs of negotiation are manageable, then private parties facing externalities and other market failures will transfer property rights in a manner that is mutually beneficial to all affected parties. The implication is clear: private solutions can do just as well (and usually better) than a solution imposed by a public agency, hence *laissez faire*, *in general*, is the prudent path to follow. However, Coase had implicitly acknowledged (via his original assumption of zero transaction costs) that *large* private transaction costs—rooted either in the gathering of cost/benefit information or in the administering of negotiations—will likely counteract the forces favouring a private solution. Therefore, the government has a definite cost advantage in solving *certain* types of market failures (Coase 1992:8–9). And honest estimation differences over the magnitudes of unmeasurable variables will always cause different conclusions to be drawn on the efficacy of state intervention, especially where contentious distribution issues are involved.

The infrequency of opportunities for beneficial state solutions does not lessen their significance when the situation is ripe. For example, recent US environmental policy has established an aggregate emission ceiling for coal-burning power plants, which, together with the auctioning of ‘pollution licences’, ensures an efficient interfirm allocation of the maximum allowable effluents. Since power-plant emissions in the Ohio Valley were damaging lakes and forests in New England (and Canada), the number of potential litigants, and the inability to access precisely the liability of specific electric companies, presented an insurmountable transaction-cost problem that necessitated the intervention of the state to facilitate the control of harmful particulants through the creation of transferrable discharge rights within a fixed set of emissions. (See ‘Chicago [Board of] Exchange Will Trade Smog Rights: Utilities Can Deal in Pollution Credits’, an Associated Press dispatch, without a byline, in *The Atlanta Constitution*, 26 September 1992, p. C3).

Another example of a problem that could not be settled without government arose during the eighteenth-century enclosure movement in Britain. By the early 1700s, most small plots had been consolidated, but many large tracts remained divided and hence were still being farmed inefficiently as scattered plots. Why? Because recalcitrants had ensnarled the negotiation process, thereby

preventing tide transfers by those who were anxious to sell at the offered price (medieval custom had required 100 per cent concurrence). The holdouts believed that their refusal to sell would yield a higher bid, but a higher offer to one farmer also meant a rise in the offers to all farmers. The resultant additional investment made the deal unprofitable and hence deadlocked the process. So Parliament resorted to its right to coerce, a useful power granted only to government (as noted in Stiglitz 1989:21). Legislation was passed in 1760 to establish an 80 per cent super-majority threshold as sufficient to finalize an enclosure. Holdouts were then required to fence-in their *irregular*-shaped plots *at their own expense*. This broke the Gordian knot of enclosure (McCloskey 1975:131–4, 158–60; and 1976:126–7. See also the excellent general discussion of the holdout problem and the Coase Theorem, in Epstein: 559–67).

Even when the Coase Theorem is inapplicable, the scope for effective state intervention remains limited. It is now generally accepted that the government's ability to gather and objectively employ allocational information is inferior to that of the market over a wide range of activities. But some economists feel differently, so this shall remain a point of irresolvable disagreement. It is interesting to note, however, that the proponents of broader state action never mention that the quest for the holy grail of social engineering is what draws many high-level people to government 'service'. Consequently, the policy-making bureaucracy is afflicted with an irremediable problem of adverse selection—a serious public-sector failure that militates against the notion of unbiased governmental designs. Coase himself offered the following advice: Government solutions *are* more advantageous than market solutions in those cases for which the government's transaction costs are lower; therefore, we should study public-sector transaction costs by 'studying...what real governments actually do' (Coase 1992:9). The Public Choice School *has* been studying what real governments do, and the picture has not been flattering to government. Given the slothful nature of the governmental beast and the adverse-selection problem afflicting its top posts, the hopeful range for truly helpful government does not appear large, even when transaction costs inhibit a private solution. As Hahn has reminded us, 'to demonstrate [the large-scale existence of market failures] is not in itself a demonstration of the desirability of Government intervention.... [I]t remains to be demonstrated that "Government failure" is less damaging than market failure' (Hahn 1982:8, 9).

The monistic pedagogical employment of Walras' model has given rise to a 'non-understanding' of real-world market processes (Hutchison: 42–3). We should not underestimate the damage wrought by Walras' entrepreneurless and hence non-market vision of the economy, a vision which has made intrusions by government appear efficacious in far more areas than would otherwise be the case. In a short article in 1993, Stiglitz offered what is perhaps the most realistic assessment of what we should expect from the public sector: '[W]hile markets are imperfect, the appropriate response is a limited reliance on a relatively small number of well-designed government interventions, taking into account the limitations of government, *including its limited information...*' (Stiglitz 1993:113; italics added; also see Stiglitz 1989:38).

RECAP OF HIGH POINTS

[T]he characteristics of 'perfect' competition (notably the conditions which ensure price-taking behavior) are often read back, illegitimately, into classical discussions of competition.

(Eatwell: 537)

Kuhn has described a paradigm as a particular framework for analysis—'a disciplinary matrix'—'the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community [of practitioners]...' (Kuhn: 92–5, 151–2). Through its paradigm a profession defines the problems with which it is concerned (Kuhn:76). The replacement of one paradigm by another is a revolution, and the displaced paradigm is, in time, expurgated from the discipline (except for the possibility of overlapping paradigms due to intellectual inertia). Thus in Kuhn the disciplinary matrix is changed neither incrementally nor through a Hegelian process of thesis-antithesis-synthesis. If an antithesis paradigm succeeds in a revolution, it becomes, in time, the new disciplinary matrix; little or no synthesizing is involved.

The model of perfect competition did not evolve gradually in a series of stages dating from Adam Smith, but rather, perfect competition is a legitimate example of a Kuhnian revolution—a sharp discontinuity in the profession's approach to the ideas connoted by the term 'competitive market'. During the 1920s, Sraffa's attacks on the efficacy of Marshall's constructs and on the new model of perfect competition pushed static analysis to the

front burner. In this atmosphere, *the process* of competition was irrelevant; the final limiting position of the firm (its equilibrium) became the measure of whether competition did or did not exist. This was a revolutionary notion for it dramatically altered the definition of antisocial conduct.

Throughout the preceding chapters, I have endeavoured to present topics as accretions of evidence in support of my contention that the pattern of thinking promoted by perfect competition changed the way economists have come to see the world. The adoption of a purely equilibrium framework led us to ignore the disequilibrium reactions governing price formation. Only the final prices mattered—calculated in advance. Also, since the market process was extraneous to the description of the equilibrium state of affairs, the market's sociopolitical constitution could be ignored. As a result, neoclassical theory abstracted away from the classicals' abiding appreciation for the critical role of the institutional womb in fostering the behaviours that are assumed (as given) in our models. The sum total of these and other factors was that the equilibrium paradigm had a profound impact on our discipline in four areas: the theory of the firm; economic development; comparative economic systems; and international trade. To strengthen my case, this essay has examined the revolutionary influence of neoclassical thinking on each of these fields.

- First, equilibrium economics provided the precise tools of efficiency analysis with which to compare the allocative states emanating from various static forms of industrial organization, a development that redefined monopolistic (anti-social) behaviour, and, thereby, significantly damped our receptivity toward classically competitive behaviour (as best evidenced in US antitrust policies).
- Second, microeconomic welfare appraisals—in which bureaucratic failures were ignored while market failues were magnified via static analyses—created a strong predisposition in favour of planning in the literature of economic development. With the exception of a few heretics (such as P.T.Bauer, for instance), the writings in this field have reflected the anti-free market, 'world-of-monopolies' biases engendered by the promise of maximum welfare under a regime of perfect information. At this salient junction, Walras' exhortation bears repeating: '[S]ince the factors which interfere with [perfect competition] are obstacles to the attainment

of [utility maximization], they should, without exception, be eliminated as completely as possible' (Walras: 256). In his correspondence, Walras wrote that he believed in *limited* state intervention (see Jaffé 1983:273, 280). Nonetheless, his criterion for public action has opened the door to widespread state interference to remedy the imperfections of a free-market economy. In short, the effect of the model of Robinson and Chamberlin was to convince many economists that perfect competition was unattainable, but that its results were—through central planning!

- Third, the new paradigm afforded the misleading promise of ideological neutrality via an assemblage of value-free production functions that provided instructions to obedient Walrasian overseers. This, in turn, led to acceptance within the comparative-systems literature of the technically coherent but patently unworkable (and sociologically naive) vision of Oskar Lange, which continues to draw support from believers in market socialism. It is easy to forget that, during the 1920s and 1930s, 'it was uncertain whether market supporters or critics would be more apt to make use of the neoclassical structure to better articulate their ideas' (George: 96). The point of this book is that it is still uncertain.
- Fourth, to explain foreign-trade patterns, neoclassical economics came to depend entirely on the factor-proportions theorem. The advantage-gaining implications of entrepreneurial initiative, and the Smith-Marshall-Young concept of long-run economies of scale—those that gradually emerge from the externalities inherent in the inter-industry specialization patterns that accompany growth—were completely discarded because they were incompatible with the assumption of constant returns needed to generate predictive outcomes. In the field of international trade, as elsewhere, we became averse to proposals that were irreconcilable with the keystone role of the perfectly competitive firm. Until the 1970s, when the weight of the historical reality of First-World trade patterns cried out for an explanation, we were disinclined to turn to explanations that were inconsistent with the idealized determinate model on which many of our tools of positive science depended.

The loss of the Smithian vision meant that the benefits that trade bestows on a country's growth rate were no longer appreciated, which, in turn, reinforced the post-Walras, *persona-non-grata* status of Adam Smith throughout the Third World. This was

'unfortunate', said Hla Myint, because 'Smith's free trade policy is based not only on the static theory of the efficient allocation of resources, but also on a thorough going exploration of the dynamic effects of foreign trade on long-run domestic economic development' (Myint: 247). By subsuming 'the analysis of foreign trade and the analysis of the domestic economy' into the general equilibrium system, 'the great issues raised by Adam Smith concerning the [interdependence between trade and development] dropped out of the ken of the international trade theorists' (Myint: 246). The short shrift given by neoclassical economics to the impact of trade on development 'can be traced to the fact that modern international trade theory [until recently was] still based on...the assumptions of perfect competition' (Myint: 247).

Despite the harm done to Third-World growth by the divorce of foreign trade theory from domestic development theory, the loss of classical insights on the sources of trade gains has had less damaging consequences in the world economy overall than the loss of classical insights in the other three areas enumerated above. This is because virtually every non-Marxian economist accepts, religiously, that free trade enhances welfare. This faith has been unshakeable, regardless of whether it was acquired from Smith-Marshall or Hecksher-Ohlin or both. Strategic-trade models have convincingly demonstrated that an optimal-tariff policy can theoretically produce greater welfare than free trade; however, the optimal tariff, like all designed systems, is subject to the law of unintended consequences. Since these systems can be taken hostage by prisoners' dilemmas and tariff wars, economists have been mistrustful of their outcomes. We have believed that 'governments are unlikely' to be able to execute such policies successfully, hence 'free trade may not be optimal', but it is 'the best policy we are likely to get'—because it is 'simple enough to be negotiable and enforceable' (Krugman 1993:365).

Unlike the rest of economics, the field of international trade was not contaminated by the potentially superior outcomes available through the employment of government-directed policies. The frequent elaborations upon 'trade failures'—such as Bhagwati's famous article on immiserizing growth for a nation whose exports *do* affect the world price—have not weakened the profession's stalwart defence of free trade. Hayek has explained this irony: '[A]ll the exceptions to the rule that free international exchange will benefit both partners have been discovered by convinced advocates

of free trade, which did not prevent them from continuing to advocate universal free trade, because they also understood that it is hardly ever possible to establish the actual presence of those unusual circumstances which would justify an exception' (Hayek, in Moldofsky: 183). Yet it is difficult to understand the lust for public action within the domestic sphere by the same discipline that rejects governmentally-directed policies in the international sphere.

WHAT IS TO BE DONE?²

The most damning criticisms of general equilibrium theory are aimed, not at its structure, but its function. The 'why' of the theory transcends the 'what'.

(Kuenne 1956:247)

The neoclassical attachment to equilibrium models undermined the willingness of economists to focus on what should have been the heart of economics: the process of exchange. The convenience of the perfect-information postulate precluded the need to dissect the nexus of social institutions through which knowledge is discovered and employed to facilitate the coordination of human action. The single-minded emphasis on the conditions defining equilibrium soon reshaped economists' perception of the market; to reinvoke Frank Hahn: 'it is the models that lead people to view the economic system as they do' (Hahn 1970:1). But this unfortunate methodological outcome was chosen, not predestined. Early mainstream discussions of two concepts suffice to demonstrate that it could have been otherwise.

First, consider how we explain the consequences of a change in factor prices in the two-dimensional isoquant model. One option is to describe a frictionless jump from one equilibrium to another. Another option is to employ Ragnar Frisch's notion of an expansion path, in which 'the firm is conceived either to estimate the demand price and (lowest) cost of various outputs or to proceed by a process of trial and error (Dingwall: 449). The latter alternative—with student attention deliberately directed to the implications of the division-of-knowledge problem and the Coasian nature of a firm—reveals the need to *induce* someone to discover price and cost information that is now presumed (through the use of a 'given' production function) to be a free good. This type of presentation, when complemented with Hayek's concept of 'time-and-place'

advantage, would reinforce Smith's point that 'every individual,...can, in his local situation, judge much better than any...lawgiver can do for him' (Smith 1937:423). Looking at the picture this way creates a disposition away from state intervention. So the pedagogical slant that accompanies the employment of an equilibrium model does make a difference in how the sociopolitical-economic system is perceived. An eclectic approach—carefully preserving classical entrepreneurial insights while harnessing the illustrative splendour of the modern production function—would have been a far better route to have pursued. A relaxation of the 'purely formal' option was suggested in 1944 by an economist who favoured the 'introduc[tion] of process propositions' to explain to students how the totality of decentralized individual actions is moved toward an equilibrium (Dingwall: 448). Although the expansion-path concept has survived in price theory texts, its anti-central planning implications are never addressed in print, and rarely in class discussions. Hence the expansion path has become a diagrammatic auxiliary devoid of process content.

Next, consider the idea of the optimal size of a firm in a given industry. When is a firm too big or too small? Stigler's analysis of this issue in 1958 relied on a process insight, namely, J.S.Mill's observation that, in an industry with various-sized firms, the most efficient will be the one that 'carries on the production at the greater advantage [and hence] will be able to undersell the other'. (In Stigler 1968:73). Mill's sentence implies that the classical economists did not perceive the economy in equilibrium terms, with firms selecting from *known* production functions. Rather, the market was seen as a process of discovery through error-correction, in which firms search for the best combination of inputs. Therefore, concluded Stigler, an efficiency analysis based on a snapshot of survivors at any specific point in time could be misleading: 'Entrepreneurs may make mistakes in their choice of firm size, and we must seek to eliminate the effects of such errors either by invoking large numbers of firms so errors tend to cancel out or by utilizing time periods such that errors are revealed and corrected...' (Stigler 1968:74).

Stigler's discussion is especially relevant to the irreplaceable contribution offered by process thinking, which forces the student to focus on the implications of the unfathomed nature of knowledge and the role of specialists whose comparative advantage lies in their superior ability in plumbing this knowledge. Looking at

a successive series of equilibria through neoclassical lenses (as in the current use of the notion of an expansion path) does not improve matters because any given equilibrium is viewed as an algorithmic response to *past* forces, whereas, in process analysis, attention is directed to the forward-looking eyes of the entrepreneur, who probes ahead for an improved allocation of his resources; that is, he searches for an opportunity that others have not yet detected. (Rizzo 1979:4–6). From this perspective, the entrepreneur’s creation and perpetuation of the Walrasian demon of pure profit (the unavoidable cost of knowledge) comes to be seen as a socially beneficial exercise rather than one that reduces the consumer’s surplus, as in static models.

I must stress that I am not suggesting that a cosmetic, afterthought addition of some real-world cases to traditional expositions will be worthwhile. I am advocating a continuous, thorough integration of process currents; in fact, instruction should regularly be framed with questions like, ‘How does the firm know that it should do this?'; and, ‘Does the consumer always know what he or she wants?'; and ‘Should the law mandate that both parties to a transaction must reveal to each other *all* they know about the commodities to be exchanged?'; and most importantly, ‘What condition is required before pure profit can be driven to zero? Can this condition ever be satisfied?' (For a principles text which has made praiseworthy strides along these lines, see Paul Heyne, especially chapters 7, 10, 11, and 13, including the thought-provoking discussion questions following each chapter).

Lukewarm appendages, on the other hand, will do more harm than good. We must *begin* the study of economics with the idea of the market as an ignorance-arresting process, and, at every appropriate juncture, doggedly reemphasize the entrepreneur’s role in enlarging our stock of knowledge, so as to successfully foster a clear portrait of the true nature of a market economy. Otherwise, the comparative statics of traditional expositions will transmit the sterile, non-market images that have plagued instruction for over fifty years—and have led discerning minds to dream of attaining the perfection embedded in the model by centralizing all information and decision-making to ensure the attainment of optima in production, consumption, and investment. Maloney has offered the following warning about the degree of commitment that will be required:

[the] qualification of [static] theories does [nothing] to dislodge them from their readers' minds. Faced with, say, a standard account of the neoclassical theory of the firm, with a few half-hearted, 'real-life' exceptions tacked on to it, the reader may merely congratulate the writer on his realism, open-mindedness and intellectual honesty, and take the paradigm as being all the more authoritative.

(Maloney: 215)

The approach I am suggesting will help avoid the learning traps of perfect-knowledge reasoning. There exist far too many economics majors on our campuses, as well as some professors, 'who cannot think about entry' and who cannot grasp the entrepreneurial agency through which information is produced to assess the opportunity cost of a given action. Whatever the merits of the argument for static allocation, it has had dismal [pedagogical] defects' (McCloskey 1991:14–15). McCloskey's complaint was also raised in 1984 by Teece and Winter: 118.

The preceding arguments should not be interpreted as saying that Austrian economists believe that equilibrium reasoning is always misleading. Quite the contrary. Austrian economists, for example, emphasize the market's regular patterns and its movement toward equilibrium, hence in a significant way they are within the neoclassical tradition. On the other hand, to the extent that Austrian literature is highly critical of the cognitive dispositions and associated public-policy outcomes flowing from the entrepreneurless method by which Walrasians *arrive* at the notion of equilibrium, Austrian economics remains outside the mainstream. The process perspective has thus far been shunned by the profession because it clearly suggests a normative standard, namely, the necessary fostering of a sociopolitical climate conducive to the evolution of institutions that compensate not only for traditional technical imperfections (such as negative externalities and incomplete futures markets), but also for congenital defects such as asymmetric information and moral hazard (Thomsen: 27). From an Austrian perspective, therefore, the on-going research of today's leading-edge model builders has been promising, for it has embodied an implicit recognition of the crucial link between discovery and success, and hence strongly suggests that economics must endorse institutions that protect and thereby encourage the agents of discovery (Romer 1994:20–1). This is a far

cry from the current state of theory, in which the agents of discovery are portrayed as reducers of welfare.

In addressing this issue, Paul Romer has stressed three points. First, ‘the aggregate rate of discovery is endogenous’; second, ‘discoveries...typically are partially excludable [from users other than the innovator]...for at least some period of time’; and third, entrepreneurial firms *must* earn ‘monopoly profits because information has no opportunity cost’. Unfortunately, our Walrasian mindset has ‘postponed consideration’ of Romer’s third insight because the public-good assumption of the neoclassical model implies that knowledge is shared in real time, but ‘this is clearly inconsistent with the evidence...that individuals and firms earn profits from their discoveries’ (Romer 1994:13). ‘The ...distinction between excludable and nonexcludable goods’, concludes Romer, ‘[is] of absolutely fundamental importance in modeling and in policy formulation’. (Romer 1994:16). Romer remains convinced that a free-enterprise economy serves people very well, but the traditional argument employed to explain the market’s benefits, ‘the one based on perfect competition and Pareto optimality, is becoming untenable’. He notes, quite correctly, that ‘[s]omething more interesting and more complicated is going on here’ (Romer 1994:19). The problem, he concludes, is in our rigid adherence to a paradigm that considers non-verifiable hypotheses as uninteresting: ‘the fact that people make discoveries’, writes Romer, ‘does not come with an attached *t*-statistic. As a result, these kinds of facts tend to be neglected in discussions that focus too narrowly on testing and rejecting models’. By setting our standards of evidence too high, we have ‘enshrine[d] the economic orthodoxy and [made] it invulnerable to challenge’ (Romer 1994:19–20).

CONCLUSION

According to Kuhn, the rise of a new paradigm must be accompanied by the destruction of the currently reigning paradigm. A Hegelian synthesis is rejected in a Kuhnian world. However, I believe the profession is poised for such a non-Kuhnian synthesis; in fact, it is already underway, as evidenced by the Nobel Prizes awarded to Simon, Buchanan, Coase, and North. This trend has testified to the insights of the neo-Schumpertarian (pro-discovery) model builders of recent genesis, as well as the more established

work of the new institutionalists, transaction-cost theorists, and Austrians (the I-T-A group for short).

Some Austrians will be unhappy with my loose aggregation of the Austrians with most new institutionalists and the transaction-cost theorists, for it suggests a methodological kinship that, it will be charged, is nonexistent. Their objection would go something like this: The mainstream's interest in institutional and transaction-cost problems derives solely from its concern with removing barriers to the development of deterministic models, hence the new work remains linked to the neoclassical paradigm's exclusive focus on the endstate *results* of optimizing activity. Austrians, on the other hand, focus on the optimizing activities themselves, namely, the profit-making venues through which men and women create the wealth of nations, expand the knowledge base, and thereby shift the economy to new equilibrium trajectories. Part of this process, of course, is the spontaneous, incremental building of institutions³, the better-known of which reduce transaction costs, while others subtly compensate for the faulty human wiring that otherwise would distort the making of choices for which benefits and costs are in different time periods.⁴

From the perspective of my more pessimistic Austrian colleagues, the mainstream's continuing emphasis on the results of optimizing behaviour will cause the study of institutions and transaction costs to be relegated to a subordinate category of impediments to equilibrium, hence the inherently entrepreneurial nature of the market process will continue to be ignored (and obscured). This, in turn, will mean that the functional necessity of pure profit will remain unappreciated because strategic information asymmetries will continue to be portrayed as the malignant source of unjustified returns. Worst of all, government will continue to be seen as the curative ointment for all the ills that inhibit the attainment of the Walrasian bliss point. Despite all these concerns, I remain optimistic about current theoretical developments. The novel work in institutions, law and economics, etc., has enriched the process perspective by offering numerous concrete illustrations of the precise sociopolitical framework required to enable entrepreneurs to search out new organizational patterns for producing and exchanging goods at less cost. Moreover, Romer's reflections are highly welcome. Therefore, I sense that the new direction in mainstream theory is generating a positive externality for Austrian economics by awakening the profession to the precise role of the long-neglected entrepreneur.

In the late 1950s, a revolution in the teaching of secondary-school mathematics was launched in the United States. But the ‘new math’ (as it was called) was revolutionary only in its classroom presentation. The old subjects (geometry, algebra, trigonometry) were not displaced. Unfortunately, the new math failed to improve students’ math skills because it replaced heavy doses of traditional problem solving—which had fostefed learning via repetitive doing to discover solution patterns—with a more formal, abstract approach that, it was hoped, would enhance understanding. The opposite occurred, and hence the new math, which dominated the curriculum for two decades, began to lose favour.

The purpose of the new-math story is not to backhandedly criticize the formal nature of neoclassical economics; rather, it is to demonstrate that a concerted change in research and classroom direction *is* possible—though admittedly more difficult in a discipline where many practioners have invested all their capital in technical model building, and hence care little for anything that cannot be easily incorporated into the elegant calculus of constrained optimization. Eventually, however, the new contributions will also become formalized. As Coase has explained, ‘once we begin to uncover the real factors affecting the performance of the economic system, the complicated interrelations between them will clearly necessitate a mathematical treatment,...and economists like myself, who write in prose, will take their bow’ (Coase 1992:12). My tripartite projection is that the ascent of the I-T-A triad will continue; the serious changes that are afoot will become a permanent and positive addition to the landscape; and hence the way economists have thought and taught about the market will be altered.

The antagonism that sometimes erupts between Austrians and mainstream economists is unfortunate and unnecessary, because the notions of equilibrium and process are complementary, not contradictory; one without the other impoverishes analysis. (Brandt: 97, 102, 113–14). Equilibrium modelling is indispensable to anyone seeking to understand the process of competition. The addition of concrete, perfect-information models should have served to enlarge the classical perspective, for one cannot fully comprehend the market process unless its theoretical, perfect-knowledge option can be described with precision (Schumpeter 1954:1050, fn. 59). As Baumol has explained, ‘[the perfectly competitive] model does what it was designed to do and does it

well' (Baumol 1968:67). But equilibrium models alone are insufficient. By their very nature, they are unable to illuminate the means by which disequilibrium situations are resolved. Therefore, 'the general equilibrium construction ...may be *the wrong starting point* from which to approach a substantive explanation of the workings of an economic system' (Blaug 1988:38; italics added). The profession's focus on the state of affairs attending the consummation of the process discouraged research for many decades on the classical generative principles that promote exchange. Only relatively recently have we begun to pay closer attention to the emergence of specific institutions that aid or inhibit the competitive process. For the most part, research on the conditions describing the process of adaptation have lost out to the search for the conditions describing the state of perfect adaptation (Coddington: 552). The cost of this methodological development (in terms of a misleading intellectual framework) has been substantial, for the critical issue in the course of human events is *not* the final pattern of resource allocation, 'but how it is to be achieved...' (Loasby 1976:190–1). In matters pertaining to domestic as well as foreign trade, the task facing us today is no different from the task faced by Adam Smith in 1776, as best framed by Algernon Sidney in 1698: 'Our inquiry is not after that which is perfect, well knowing that no such thing is found among men; but we seek that human Constitution which is attended with the least, or the most pardonable inconveniences'.⁵

NOTES

2 STATEMENT OF THE PROBLEM

- 1 The finite learning capacity of the *time-constrained* human being is the pivotal factor in the entrepreneurial promotion of equilibrium. If the brain could process data so as to produce information at lightening speed, the system would *not* be equilibrative—as suggested by frontier research on the next generation of so called thinking computers. The newest technology has introduced ‘the possibility of “artificial intelligence agents” that can...improve their actions as they receive feedback from their environment, make sudden discoveries, and “learn to learn” at a meta level, much as humans do’. The hypothetical existence of such software has allowed experimenters to replace ‘perfectly rational agents within standard neoclassical models with “calibrated agents” that behave in a more human-like way’. The objective of the experiments was to see ‘how the outcome...might change if the “rationality” assumed in the model replicated human rationality’. If learning and follow-on action were instantaneous, the economy would have no discernable trajectory; that is, ‘the number of possibilities for actions and expectations in the system would become so large that there may be no natural end to the “discovery” or “emergence” of new structures or patterns’ (Stoneman: 125). Of course, since the real-world economy runs at a speed far slower than a super computer, the actions of entrepreneurs yield a movement toward a discernible endpoint.
- 2 Over the past two decades, Douglass North has pioneered the study of what Hayek referred to as ‘the forms of legal institutions [that] make the competitive system work efficiently...’.

According to North, institutions are regularities in repetitive interactions among individuals or, to be more precise, humanly devised constraints which structure political, social, and economic interaction. The purpose of these devices is to create order and reduce uncertainty in exchange....

Institutions arise and evolve because of growing specialization and division of labor in a society. The interaction of individuals

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involves transaction costs; they are *the key* to the performance of economies.... In less specialized economies, with dense social networks in which people have close personal contacts with each other, costs of transacting are low. Cheating, opportunism, theft, etc., are uncommon...because they do not pay off....

As economies develop and become more specialized it is necessary to develop institutional structures that enable power to become involved in more complex relationships [*with strangers*, which].... requires the establishment of formal rules (such as...property rights)....

(Gunnarsson: 60)

3 A Hayekian would reply that the success of the US Constitution was rooted entirely in the experiential basis of its construction. The Founding Fathers were avid students of political history; therefore, they were fully cognizant of those unsuccessful societies whose governing power was not decentralized and hence not tempered with checks and balances. Aristotle, for example, had made a comparative study of constitutions of the ancient world. Thucydides also wrote on this subject. In addition, the contributions of Roman legal scholars and John Locke were influential. The US Constitution did not spring from a grand system that appeared in someone's mind *ex nihilo*; rather, it was the product of the multi-millennial trials and errors of many other societies. In this sense, its features arose spontaneously (albeit slowly); the Articles and the Bill of Rights were not designed from *a priori* logic, a point that was specifically emphasized (as a general principle) by Edmund Burke (150–6). Burke, who was cited approvingly twenty times in *The Constitution of Liberty*, explained that a workable set of rules requires both 'conservation and correction', because 'the liberties and the [self-imposed] restrictions vary with times and circumstances, and admit of infinite modifications...' (Burke: 106, 151).

The very existence of *The Constitution of Liberty* demonstrates that Hayek believed that building the constitution of any society is an incremental, on-going process, during which we correct our past mistakes. He specifically underlined that 'the decisive factor' in *social* evolution is 'the selection by imitation of successful institutions and habits....—in short, the whole cultural inheritance which is passed on by learning...' (Hayek 1978:59). His implication is clear: the sociopolitical-economic constitution must gradually change to shed generally counterproductive rules, because 'the end of the law [adherence to the rules] should be the welfare of the people...' (Hayek 1978:159). Therefore, Buchanan's 'counsel-of-despair' comment is undeserved.

4 The really unfair feature of Leveraged Buy Outs has been the capture of labour's legally-'excess' pension funds, which, after a takeover, become a source of cash to be deployed elsewhere. Consequently, if the newly created, highly indebted firm goes bankrupt, the workers lose an asset which they had perceived, mistakenly, to be their

properly through vesting rights they had presumed to be in place but which never actually existed. These misinformed workers thereby sacrifice all the deferred compensation to which they should have been entitled, for they had accepted lower lifetime wages, implicitly in lieu of what they had believed to be a protected pension plan.

- 5 The word *tâtonnement* was first employed by Turgot (see Rothschild: 1198).
- 6 A more detailed exposition of this theme will be included in *Adam Smith and the Scottish Enlightenment*, currently being written by this author, and targeted for publication in late 1996.

3 THE MAGNETIC LURE OF MARKET SOCIALISM

- 1 'Economic growth' and 'development', of course, are not synonymous. The former is necessary but not sufficient for the latter. Development cannot proceed without changes in a nation's sociopolitical constitution, for development implies 'not only more output, but also...improvements in technical capabilities and institutional arrangements by which output is produced and distributed' (Pourgerem: 365). The most needed institutional change is the adoption of practices that will foster a healthy capital market:

This requires a gamut of policies: an end to interest and dividend controls; a legal and administrative framework to guarantee investor protection; a system of company law which sets standards for accounting and disclosure; training of accountants and auditors; reductions in the cost, complexity and bureaucracy of [stock issuance]; an end to tax discrimination against [stockholder] corporations as a form of business organization compared with private firms; incentives to encourage institutional investment and opening markets to foreign capital. It is a long agenda. Without these instruments neither sufficient supply of equity, nor sufficient demand is likely to emerge for new issues and secondary trading.

(Aylen: 25)

Without these changes privatization will remain an elusive goal, for the abundant domestic capital that is already available in the Third World—as evidenced by the informal yet large-scale activities that successfully acquire funding through *personal* contacts—cannot be harnessed to underwrite big projects funded *impersonally* through a formal credit market (see the examples in Aylen: 27). Finally, on the matter of regulated prices, developing economies could benefit from studying Germany's 1948 policy shift, which fueled a 'turnaround [that] was nothing short of a miracle':

From one day to the next, productive forces were unleashed to let recovery and growth proceed at breakneck speed. The move from a socialist control economy to the free market was bold. One Sunday...while the Allied supervisors were not watching, Economics

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Minister Erhard lifted summarily all price controls. [The British and French economies remained mired in rigid controls, while in West Germany], from then on, nothing but growth. Even if there were tight spots,...reconstruction went faster and further than anyone would have predicted.... [T]he success was such that it could not stay an orphan. Free market economics claimed paternity.

(Dornbusch: 881-2)

It is important to note that the German miracle occurred because the pre-existence of market-conducive institutions enabled free prices to perform their allocative magic. Second and Third World economies which lack the requisite institutions to encourage trade cannot harness the immediate fruits of price decontrol. *However, the freeing of prices ignites a spontaneous quest to mould the very institutions needed to reduce transaction costs and thereby facilitate exchange.* Therefore, the decontrol of prices is the crucial first step in sparking the emergence of growth-enhancing institutions.

- 2 After an extensive visit to the United States in the early 1830s, a French observer feared that democracy's emphasis on equality would ultimately produce governments which envelop

the surface of society with a network of small complicated rules, minute and uniform, through which the most original minds and the most energetic characters cannot penetrate, to rise above the crowd. The will of man is not shattered, but softened, bent, and guided; men are seldom forced by it to act, but they are constantly restrained from acting. Such a power does not destroy, but it prevents existence; it does not tyrannize, but it compresses, enervates, extinguishes, and stupefies a people, till each nation is reduced to nothing better than a flock of timid and industrious animals, of which the government is the shepherd....

I have always thought that servitude of the regular, quiet, and gentle kind which I have just described might be combined more easily than is commonly believed with some of the outward forms of freedom, and that it might even establish itself under the wing of the sovereignty of the people.

Our contemporaries are constantly excited by two conflicting passions: they want to be led, and they wish to remain free. As they cannot destroy either the one or the other of these contrary propensities, they strive to satisfy them both at once. They devise a sole, tutelary, and all-powerful form of government, but elected by the people. They combine the principle of centralization and that of popular sovereignty; this gives them a respite: they console themselves...by the reflection that they have chosen their own guardians. Every man allows himself to be put in leading-strings, because he sees that it is not a person or a class of persons, but the people at large who hold the end of his chain.

(Tocqueville, vol. II:319)*

- 3 These paragraphs were supplied to me by George Martin, Chairman of the English Department at Wofford College.
- 4 In 1893 Pareto succeeded Walras to the chair of political economy at the University of Lausanne, but he eventually turned 180 degrees from the Walrasian view. In later writings, ‘Pareto noted...the theoretical deficiency of the doctrine of equilibrium...’. His complaint was that ‘economic reality...is not polarized around an ideal configuration, but moves incessantly in an eternal change, under the action of external and internal forces...’ (Amoroso: 1, 6).
- 5 It has been claimed that Walras developed the general equilibrium model to wield a scientific tool in favour of a more equal distribution of wealth via socialism. Whether or not such motivations inspired Walras has been thoroughly debated. In any case, he did subscribe to the idea that a socially efficient outcome was not dependent on private property (Walras: 78–80, 254). For a survey of the debate on his motivations, see the following: Knut Wicksell, *Lectures on Political Economy*, E. Classen, translator (London: Routledge & Kegan Paul, 1934 [1901]), vol. I:20–77; *Correspondence of Leon Walras and Related Papers*, William Jaffé, ed. (Amsterdam: North Holland, 1966), vol. III, Letter No. 1365 (from Wicksell to Walras, 1898), 28–31; William Jaffé, ‘The Normative Bias of the Walrasian Model: Walras Versus Gossen’, *Quarterly Journal of Economics*, August 1977, 375–8 and 383–5; William Jaffé, ‘Walras’s Economics As Others See It’, *Journal of Economic Literature*, June 1980, 532; two articles by Renato Cirillo: ‘The “Socialism” of Leon Walras and His Economic Thinking’, *American Journal of Economics and Sociology*, July 1980:295–303, and ‘Leon Walras and Social Justice’, *American Journal of Economics and Sociology*, January 1984:52–60; and Donald Walker, ‘Is Walras’ Theory of General Equilibrium a Normative Scheme?’, *History of Political Economy*, Fall 1984:445–67.
- 6 Adam Smith noted that hired managers will not exercise the ‘anxious vigilance’ one would expect from an on-site owner (Smith 1937:596, 700). Nevertheless, a division of labour between ownership and superintendence has spontaneously arisen because properly chosen specialists, in general, possess greater managerial competence than most investors, who are ill-equipped by temperament and experience for the day-to-day tasks of management. (See Rosenberg and Birdzell: 231; and Saunders: vii, 52–8). However, a firm’s agents (its employees, both on the shop floor and in the boardrooms) often find opportunities to act in ways that benefit themselves at the expense of the firm’s owners. Consequently, superintendence *by owners* is required to minimize shirking by white-collar employees, as noted by J.S. Mill. (See fn. 2 and the related discussion in Stiver: 16–17 and 140–5.) If a small number of people control a large block of shares (which is not rare), abuse by employees is a minor problem because

*I came to better appreciate the wisdom of Alexis de Tocqueville (and Edmund Burke) through my conversations with David Tyner, Chairman of the Government Department at Wofford College.

oversight is more concentrated (Stiglitz *et al.*: 1989:25; also see Pulliam: C1). Elsewhere, organizations have developed an effective web of hierarchical, contractual, and incrementally-acquired tenure institutions to reduce the agency problem. (Stinchcomb: 15–16, 200–7; an interesting case study of measures taken by the Hudson's Bay Company to ameliorate the agency problem appears in Carlos and Nicholas: 243–56.) If internal safeguards fail, owners are protected by the ultimate sanction: a hostile takeover by new agents who feel that *their* management program will yield a higher return to investors (Seism 1993: C1). For an analysis of new concerns over agency problems, see Hu: 1273–1317.

There is no silver bullet for cheaply ensuring that agents faithfully serve the interests of their principals. This is a classic Stiglerian information problem; that is, the cost of reducing abuse by employees determines the optimal amount of oversight by owners. Even Japan's much vaunted keiretsu system is showing signs of strain: its encumbering distribution costs have begun to exceed its savings from reductions in agency problems, as evidenced by the growing list of highly profitable Japanese mavericks who do not belong to keiretsu and thus are operating 'in defiance of the rules of the game ...' (Shill: A14; also see Ono: A1, A8; and Assael: 474–5). As suggested by the Coase Theorem, if entrepreneurs discover that the transaction costs of a given system have grown to exceed the savings being realized from the act of monitoring, then ownership rights and associated oversight responsibility will be reconstructed. Hence new institutions to contain agency costs will evolve, as was the case in the United States with the proliferation of franchising in the motel and fast-food industries (Lafontaine: 263–8, 281–2).

A system's ability to adapt—to develop new, more efficient institutions—appears to have much to do with whether or not its social contract is rooted in private property *and* unfettered rights for individuals to accumulate wealth. In such systems, the institutional rules will evolve based on what works; that is, whatever inhibits the individual's pursuit of material betterment will be discarded. Whereas, in theocracies, the institutional rules will *not* be developed spontaneously. Instead, the rules will be commands issued from the top in accordance with the power base's desire to maintain an ideological design—rooted in some social, political, or theological vision—which, in turn, shapes the path of development or the lack thereof. Spain, Latin America, rigidly Islamic states, Russia under the Czars, and Russia under communism, all come to mind. Most important here is that if the people embrace the values of the ruling theocracy, then entrepreneurial minorities who seek institutional change will be greeted with hostility, and the society will remain 'stuck' in an economically undeveloped condition (see North 1994: 363–7).

7 Tocqueville worried that the unbridled pursuit of wealth might someday turn Americans away from their strong sense of community spirit, which he greatly admired. He noted that an

American's self-interest includes not only the pursuit of wealth, but also an immersion in voluntary associations that cement interpersonal bonds and serve his desire to affect community goals (Tocqueville, vol. II:123–4). Tocqueville warned of 'a most dangerous passage in the history of a democratic people'. This juncture is reached when people focus so narrowly on 'what they call their own business, [that] they neglect their chief business, which is to remain their own masters' (Tocqueville, vol. II:140–2). *Crossing onto this dangerous passage requires an inadvertent push from government.* Specifically, the diminution in community interest (and the concomitant enlargement of material self-interest) could be fed by the government's undermining of the numerous voluntary associations through which men and women commit themselves to projects of common interest, such as the activities of church groups, athletic leagues, the Girl Scouts, and civic clubs like the Rotary, etc. These organizations are the heart and soul of the social (and hence the human) experience:

To be attached to [a] subdivision, to love the little platoon we belong to in society, is the first principle (the germ as it were) of public affections. It is the first link in the series by which we proceed towards a love to our country and to mankind. The interests of that portion of social arrangements is a trust in the hands of all those who compose it; and...none but traitors would barter it away for their own personal advantage.

(Burke: 135)

Tocqueville's warning was prescient: 'The more [that government] stands in the place of associations, the more will individuals, losing the notion of combining together, require [state] assistance...Will the [government] ultimately assume the management of all manufactures ...?' (Tocqueville, vol. II:108). Although Tocqueville observed evidence suggesting that 'centralization will be the natural [path]' of democracy, he did not believe that this trend was inevitable: 'I am the last man to contend that these propensities are unconquerable, since my chief object in writing this book has been to combat them' (Tocqueville, vol. II:293, 296).

4 CLASSICAL COMPETITION & ENTREPRENEURSHIP

- 1 This chapter owes a debt to the entrepreneurial perspective in the unpublished doctoral dissertation of George M.Umemura, 'Marketing Ideas of the Classical School', Indiana University, Bloomington, 1952. Most of my passages from Malthus, McCulloch, and J.B.Say were adapted from citations in Umemura.
- 2 This insight resulted from an exchange of views with Israel Kirzner

during an Austrian Economics Colloquium at New York University in February 1994.

- 3 Miller shared the Nobel Prize in economics in 1990. See the description of Miller's contribution (and the contributions of co-Laureates Harry Markowitz and William Sharpe) in Varian: 159–68.
- 4 Paul J. McNulty disagreed with Hollander on this point. McNulty downplayed Smith's passage on how competition encourages 'new divisions of labor and new improvements in art'; McNulty noted that this 'passing comment' appears in Book V and thus is 'subsidiary' to Smithian competition, 'the essence of which was the effort to undersell in the market by lowering price' (McNulty 1968:648). In Hollander, however, improvements in method are interpreted as being motivated by the Smithian need to cut price.
- 5 For an interesting study of a real-world necessity case, see the story on the need to cool President Garfield's bedroom (after he was shot in the sultry, hot summer of 1881), which gave rise to modern air conditioning (R. Friedman: 20–32).
- 6 My awareness of this quotation stems from the alertness of my highly supportive departmental colleague, Richard Wallace, with whom I have profitably discussed my research program on numerous occasions.
- 7 Irving Fisher also saw the market in modern contestable terms. Although his supply-and-demand model of price determination was based on perfectly competitive firms, he added that firms usually possess 'a partial monopoly', and thus the real world was characterized by 'imperfect competition'—a situation in which prices were 'not quite "all the traffic will bear"' [because] potential competition has an effect similar to real competition' (I. Fisher: 260–1, 303–8, 330). Marshall's analysis was the same. He explained, in terms evocative of contestable markets, that an innovator is constrained by the threat of 'competitive supply "following quickly at his heals"' (Marshall 1923:196, 396–8, in Liebhafsky: 340). For an identical bottom-line analysis, see Schumpeter 1976:85. For an insightful survey of the circa-1900 theory on potential competition (in the fields of law and economics), see Hovenkamp 1991:323–30.
- 8 Often overlooked is the fact that a lack of barriers in industry A is only half of the contestability story. Capital must also be releasable from industry B. Since 'ease of exit is a vital factor in facilitating ease of entry', the use of extortion tactics by unions and local governments—who insist on various severance-payment schemes to forestall plant closings—acts to impede capital switching (Davies and Davies: 51).
- 9 The *absence* of contestability, however, will not always be conducive to supra-normal returns, because the hysteresis of certain sunk costs—'effects that persist after the causes that brought them about have been reversed'—may generate profit-constraining conditions. Specifically, although sunk costs deter entry when times are good, they sometimes also create a source of surge capacity that is cheap for incumbents to maintain but expensive for newcomers to replicate. This lingering surge capacity—a product of a strategic decision not to scrap plants

during bad times—tends to hold prices down as demand rises, for an underutilized assembly line can be quickly and relatively inexpensively shifted into high gear. In such cases, long-run average profit rates will be ambiguous, because the higher-than-normal profits predicted by contestability theory during upswings (fed by the deterrent impact of sunk costs) will be partially offset by the additional supply brought forth by the holdover excess capacity. Furthermore, the price declines that accompany recessions will be worsened by the presence of the same hysteretic capital that has remained in the industry (Lambson: 125–6, 138).

- 10 My explanation was patterned after the treatment in Rima: 167–8.
- 11 These entries in Hobbes were brought to my attention by David Tyner, Chairman of the Government Department at Wofford College. Curiously, Marx concurred with Hobbes' statement on pp. 151–2, yet the two statements together (151–2 and 208) imply a utility theory of value (see Marx, 1952a:81, fn. 2).
- 12 Bastiat provided an excellent description of the market process with which Marx was apparently grappling: '[S]elf interest is that indomitable individualistic force within us that urges us on to progress and discovery, but at the same time disposes us to monopolize our discoveries. Competition is that no less indomitable force that wrests progress, as fast as it is made, from the hands of the individual and places it at the disposal of all mankind' (Bastiat: 289).
- 13 Steuart's liabilities were rooted in his political loyalties and in his economic theory. He was a Jacobite, i.e., a supporter of James II, the English and Scottish king who was exiled in 1688 after the Glorious Revolution. (The fifth and final attempt of the Stuarts at restoration ended with the defeat of a Jacobite army in northern Scotland in 1746.) Compounding Steuart's problems was his endorsement of state regulation over international trade, which was overshadowed by Smith's support for free trade, hence his reputation suffered greatly in his own time (Gherity: 365–6). However, Steuart's suggested controls (mainly financial) were targeted at creating a surplus of bullion; he did not directly 'emphasize the aim of protecting domestic manufacturers...' (Kobayashi: 5–6). Therefore, his advocacy of 'the statesman's constant superintendence over [foreign] trade' did not diminish his appreciation for the invisible hand's valuable role in 'bridling' the regulatory power of the king in domestic commerce. (See the extended quotes from Steuart in Skinner 1981:36–7.) In general, Steuart was a well-known figure in Scotland whose 1767 principles text contained valuable (though long-ignored) commentary on the market as a discovery process.
- 14 Malthus' interest in the need to adapt output to better suit the wants of consumers was driven by his misunderstanding of Say's Law, particularly his belief that aggregate demand may be insufficient to purchase aggregate supply, due not to the precipitous appearance of hoarding driven by some new omnipresent uncertainty, but rather due to the widespread preference for leisure over labour when consumers are faced with unappealing goods (L.Dow: 56, 58–62). For an

explanation of money's role in undermining Say's law, see Mill 1967a:262–3, 276–8). For an excellent summary of most of the early nineteenth century writers who understood the macroeconomic impact of hoarding, see Sowell 1974:48–63. Alfred Marshall addressed the subject on pp. 710–11 of his eighth edition (1920). Also see Sismondi: 262 and 269 (fn. 3), plus the insightful thoughts of George Scropes on the need for a central bank that is responsive to declines in velocity, in Blaug 1991b:25.

15 I became aware of Mangoldt's work through correspondence with Dieter Schneider of Ruhr-Universität Bochum. Schneider generously shared his knowledge of Mangoldt's unique contribution. William Mount (of the Wofford College Religion Department) assisted me in translating the cited portions of Mangoldt's book.

16 Kirzner has built upon this 'finders-keepers' theme to fill a significant lacuna in Nozick's entitlement theory of justice (see Kirzner 1979: chapter 12; and 1989: chapters 2 and 5–7).

17 A formal model of Say's suggestion that a final product emerges from successive rounds of trial variants can be found in Jenner 1966, particularly pp. 786, 791, 795, 797, and 799.

18 Veblen agreed with Senior's assessment: '...the propensity for emulation—for invidious comparison—is of ancient growth, and is a prevailing trait of human nature.... With the exception of self-preservation, the propensity for emulation is probably the strongest and most alert of the economic motives proper' (Veblen: 110). Most latter-day admirers of Veblen (such as Galbraith) have attributed to nurture what Senior and Veblen attributed to nature. Also, see Whately's remarks on emulation, as quoted in Chapter 3.

19 Malthus apparently 'borrowed' heavily here, without citation, from Steuart 1805, vol. II:214.

5 UNCERTAINTY & CLASSICAL ENTREPRENEURSHIP

1 Barreto's book was brought to my attention by Sanford Ikeda of the State University of New York at Purchase.

2 Plato was unsympathetic to the dealers' plight. Plato wanted a law mandating a single price on a single day, so as to deny sellers the right to adjust their prices to unanticipated market conditions. Plato also advocated a comprehensive set of consumer protection laws and a fair-profit law. See Law XI in *The Dialogues of Plato*, Benjamin Jowett, translator, in *Great Books of the Western World*, (Chicago: Encyclopedia Britannica, 1952), vol. VII, pp. 772–5.

3 For an excellent analysis (à la Arrow) of precisely how a monopolistic competitor learns that its demand curve has shifted, see Carlson: 6–7.

4 Wicksteed later employed the idea of a producer's reserve price to bitterly attack the Marshallian supply curve (Wicksteed, vol. II:784–8). For a diagrammatical exposition of Wicksteed's conception, see Stigler 1966:96–7; for a more detailed analysis of Wicksteed's model, see Creedy: 689–701.

5 For a modern-day application of the entrepreneurial tasks described

by Dupuit, see the excellent case study of men's and women's fashion prices, in Pashigian and Bowen: 1016–20 and 1035–7.

6 This section is a product of the insights garnered through my participation in an autumn 1992 Liberty Fund colloquium on Adam Smith's *Theory of Moral Sentiments*.

7 Edmund Burke was a political philosopher, Member of Parliament, and Cabinet Minister, but not an economist. However, his ideas on institutions and constitution-building reflected the tenor of the Scottish Enlightenment. In particular, he was in complete accord with Adam Smith's warning on the danger presented by the mischievous proposals of the men of system, whose 'intoxication of their theories...[for the] design of change' make them unable to understand that wholesale, *a priori*-based reconstructions of society generate 'very plausible schemes, with very pleasing commencements, [that] have often shameful and lamentable conclusions' (Burke: 152, 155). Also see Burke's astute comments on the futility of artificial, directed-from-the-top programs that promise to foster a real sense of community (Burke: 267). Late in life, Burke profusely praised Smith's contributions to British philosophy, and 'Burke's principal economic dictum, *Thoughts and Details on Scarcity*, might well have been written by Smith, so similar are they to his essential theses'. In short, Edmund Burke and Adam Smith were 'complementary contemporaries' (Dunn: 58, 65, 66).

8 For more on Jonathan Swift and the Laffer Curve, see Bartlett: 745–8.

9 The tantalizing image of the alleviation of human suffering—via an equal sharing of the abundance of the commonwealth—is an example of the potential danger from the misuse of the 'art of words, by which some men can represent to others, that which is...evill, in the likenesse of Good...' (Hobbes: 226).

10 To explain the great income differences *amongst* those who work for wages (as opposed to the income differential between capitalists and labourers), Smith highlighted the implicit returns to the human capital of highly skilled workers, which is routinely yet deceptively lumped together with the smaller sweat-and-toil component when total earnings are calculated (see the final sentence of Smith 1937:111, plus fn. 23).

11 Marx saw fully-matured communism as the final socioeconomic system to be employed by men and women, but its onset was not seen as the end of development. Rather, Marx envisioned communism as the foreordained beginning of a new epoch of progress in which the absence of classes would preclude conflict as people continue to improve their material and spiritual welfare (Sowell 1976:183).

12 Bakunin's injunction was based directly on the practices of the very early communal Christians, who believed in the imminence of the second coming of Christ (and his prophesied thousand-year reign of peace and plenty on earth). See the Book of Acts: ch. 2, verse 45; ch. 4, verse 35; and ch. 11, verse 29. Also see First Corinthians: ch. 7, verses 27–30.

13 John Gray shares Kurer's assessment: 'Mill's political thought...

expressed...his constant search for methods which alleviate distress...while restricting personal liberty to the minimum practicable extent.' Consequently, despite Mill's novel and sometimes radical ideas for promoting equality and harmony, 'it is plainly mistaken to count Mill among the precursors of Fabianism...' (Gray: 3–4).

14 Unfortunately, in most situations of this sort, such as property acquired during the seventeenth, eighteenth, and nineteenth centuries through either slave labour or the usurpation of aboriginal lands, later generations face an insoluble Gordian knot. Token compensatory measures for descendants are possible, of course, but perfect justice remains elusive due to the web of inter-generational complications that present themselves. The Czech Republic's new finance minister addressed precisely this issue in 1991. During his address to a Mont Pélérin Society conference, Václav Klaus explained that establishing the truly 'rightful owners' of much of the property in his country was impossible because successive layers of injustice have been visited upon it, such as the massive redistributions that followed the flight of the Protestant (Hussite) Czechs after the Catholic victory during the Thirty Years' War; and more recently, the expropriations carried out by the Nazis during the late 1930s, followed by the ethnic cleansing that occurred immediately after World War II (expulsion of Germans, Hungarians, etc.); and finally, the widespread (but not total) communization of private assets after 1948. Perfect justice would require records on genealogy and title transfers that would strain any nation's bookkeeping.

Mill's recommendations in this area reflect his concern over the importance of not worsening the problem of uncertainty:

according to the fundamental idea of property,...nothing ought to be treated as such which has been acquired by force or fraud, or appropriated in ignorance of a prior title vested in some other person; but it is necessary to the security of rightful possessors, that they should not be molested by charges of wrongful acquisition, when by the lapse of time..., the real character of the transaction can no longer be cleared up.... Even when the acquisition was wrongful, the dispossession, after a generation has elapsed, of the *bonâ fide* possessors, by the revival of a claim which had been long dormant, would generally be a greater injustice, and almost always a greater private and public mischief, than leaving the original wrong without atonement.... With the injustices of men, as with the convulsions and disasters of nature, the longer they remain unrepaired, the greater become the obstacles to repairing them, owing to the aftergrowths which would have to be torn up or broken through.... [T]hese reasons for not disturbing acts of injustice of old date cannot apply to unjust

systems or institutions; since a bad law or usage is not one bad act, in the remote past, but a perpetual repetition of bad acts, as long as the [practice] lasts.

(Mill 1864, vol. I:280–1)

6 THE PERFECTLY COMPETITIVE MODEL

- 1 Stigler would have responded that *domestic* debate over trade policy (as opposed to professional debates between mainstream economists and, say, Prebischians, etc.), reflects the exercise of political power to forestall income redistributions via tariffs, not a deficient understanding of Ricardo's principle of comparative costs. 'We live in a world that is full of mistaken policies, but they are not mistaken for their supporters' (Stigler 1982:10).
- 2 Coase's investigation of intrafirm organization sparked a bountiful literature which is surveyed in Beth V. Yarbrough and Robert M. Yarbrough, 'The Transactional Structure of the Firm', *Journal of Economic Behavior and Organization*, vol. 10, 1988, pp. 1–28. The classical German precursors of some of the key parts of this new literature are covered in Dieter Schneider, 'Unternehmer und Unternehmung in der heutigen Wirtschaftstheorie und der deutschsprachigen Nationalökonomie der Spätklassik,' *Studien zur Entwicklung der ökonomischen Theorie V. Schriftenreihe des Vereins für Socialpolitik*, 1986, New Volume 115/V, pp. 29–79.
- 3 By 'equilibrium in production', Walras meant price equal to minimum average cost in all industries. If price does not equal average cost, inter-industry capital movements will ensue until equilibrium is attained (Walras: 224–5).
- 4 Baumol's writings here and elsewhere have explained the conflicting ideas from economists and businessmen that are evoked by the word competition. But he has pointedly reminded his readers that his explanations of these semantic differences 'constitute no criticism, not even an attempt to reprove mildly the [perfectly competitive] model of the firm' (Baumol 1968:67).
- 5 Hayek, a colleague of Hicks during the 1930s at the London School of Economics, reemphasized this point in an *Economica* article in 1937: 'Correct foresight...is the defining characteristic of a state of equilibrium' (Hayek 1948:42).
- 6 See Joseph Bertrand's 'Théorie mathématique de la richesse sociale, par L. Walras', in the *Journal des savants*, 1883, pp. 499–508.
- 7 Walras had assumed that in a world of more than two goods, multiple equilibria 'are, in general, not possible...' (Walras: 200). The work of Wald, von Neumann, Samuelson, Arrow, and Debreu eventually established that a unique, stable, non-negative general equilibrium price vector exists. The assumptions required to prove existence and uniqueness are unrealistically restrictive, but the three Nobel Prizes which emanated from the pioneering efforts of these five men serve as indisputable testaments to the technical difficulties that had to be overcome. (See Katzner: 11–18, 257–91; and Kuenne 1963:19–20, including footnotes 19 and 20. The best plain-English explanation of the higher mathematical problems unresolved in Walras is in Schumpeter 1954:967–71 and 998–1009.)
- 8 My concession on this point is open to challenge: 'It is not satisfactory ...to...assert that path-dependent or hysteresis effects may be small.'

What is required is a *proof* that they are small, and this we do not have' (F.Fisher: 16).

9 The phrase 'higgling of the market' was used by Thomas Malthus in his *Principles of Political Economy* (London: John Murray, 1820), pp. 73–4.

10 It must be noted that the Chicago School has rejected the view that utility maximization requires perfect competition in all industries. See, for example, the pervading flavour in Brozen 1982, and Harold Demsetz, 'Industry Structure, Market Rivalry, and Public Policy', *Journal of Law and Economics*, April 1973, pp. 1–9.

11 The term monopolistic competition was coined by Pigou to mean oligopoly; it appears as the title of Chapter XII in the 1920 edition of *Economics of Welfare*.

12 In his reply to Kaldor, Chamberlin denied he had redefined monopoly (Chamberlin 1938:536).

13 For a dissenting voice, see Thomas C.Schelling, *Microeconomics and Macrobbehavior* (New York: W.W.Norton, 1978). Schelling's unique book explores the problems of cooperation created by contingent behaviour, that is, behaviour which 'depends on what others are doing', such as seating ourselves in a theatre, or exiting the theatre during a fire (pp. 17–19). 'Most of these activities are substantially free of centralized management in many societies, including our own, or subject to sanctions and proscriptions that work indirectly.... And though people may care how it all comes out in the aggregate, their *own* decisions and their *own* behavior are typically motivated toward their *own* interests, and are often impinged on by only a local fragment of the overall pattern' (p. 24). The omnipresence of situations requiring contingent behaviour has led Schelling to argue that 'there is no presumption that the self-serving behavior of individuals should usually lead to collectively satisfying results' (p. 25).

14 Chamberlin made a technical error in his analysis of advertising. He claimed that a perfect monopolist, 'in possession of the entire market', would never advertise (Chamberlin 1956:127). But this is wrong: Natural gas companies, for example, advertise to entice the users of oil, as do state-owned railway monopolies which face bus and auto substitutes. In short, a rise in demand is always welcomed by *any* firm.

15 Boulding's criticism, rooted in a Veblenian aversion to everything connected to 'conspicuous consumption', was answered effectively in Knight 1964:262.

16 My endorsement of Hovencamp's position will be unpopular with those legal scholars who have deemphasized the relative importance of economic theory in the evolution of the law: 'The extent of political economy's influence on jurisprudence, and the mechanisms through which that influence was obtained and manifested, remain obscure' (Cushman: 969).

17 Edward Mason passed away in 1992 at the age of 93.

18 The compelling need to integrate vertically to ensure the 'high-volume throughput' required to seize significant scale economies—and the

resultant dilemma for US antitrust policy—is manifest in the present-day restructuring of America’s pork industry. See the excellent case study in Barkema and Cook: 49–65.

7 COMPETITION & THE LAW

- 1 The article by DiLorenzo and High was recommended to me by Peter Boettke of New York University.
- 2 Voluntary arrangements evolve because they prove to be socially advantageous. Over time, however, the precise rationale that had originally inspired any particular arrangement may fade from consciousness and hence can no longer be articulated by those who continue the practice. Nonetheless, the tacit knowledge embodied in customary practices remains a powerful ally in the pursuit of happiness (Hayek 1978:26–8). For example, children have long been smacked or otherwise berated for putting their fingers in their mouths. When youngsters ask why they cannot do so, some parents cannot offer a scientific explanation, so they say, ‘Because I told you so!’ However, after a Seattle toddler died in 1993 from ingesting the fecal matter of a playmate who had eaten a contaminated hamburger at a national restaurant chain, the real reason underlying the no-fingers-in-the-mouth custom became readily apparent. (For another example of this concept, see Note 3 of Chapter 12.)
- 3 Gellhorn’s conclusion was based on cited works by Bain, and Kaysen and Turner, prominent old-learning theorists whose writings fortified the market-structure paradigm.
- 4 The only practice not covered here is predatory pricing, the theory of which is unsettled. Although the debate is turning against those who see predatory pricing as a likely demon, viable arguments remain to explain its possible use as an anti-competitive weapon (see Bork: 148–59; LeBlanc: 493–4, 504–5; Phlips and Moras: 315–21; and Posner 1992:173–8).
- 5 In 1955, frustration with the then-prevailing antitrust policies of the USA prompted a classical answer to the question that was posed thirteen years later by McNulty:

If competition is viewed as a dynamic process, competitiveness cannot be gauged by the study of firms’ *positions* but only by their *conduct through time*. Competition consists of movement and change—of alterations in prices, products, market areas, methods of attempting to reach new customers. In a broader sense it consists not merely of the making of such changes but of the ability and readiness to make them if and when new opportunities or pressure arise. If this is the essence of competition, then its antithesis is the freezing of a situation which would otherwise be fluid and dynamic. It is not uniqueness or superiority *per se*, but the maintenance of an advantageous position through restraints on the freedom of competitors or would-be competitors—in other

NOTES

words, the employment of power to...obstruct or exclude competition that would otherwise occur.

(Abbott: 193)

- 6 According to a recap by the *New York Times*, thirty-one thousand merger deals were 'simply ignored' during the Reagan years. In addition, bemoaned the *Times*, restraint-of-trade cases fell from 225 to 77, with similar percentage declines in monopoly and merger investigations. 'About the only thing the [government] did was to go after price-fixing conspiracies...' (Labaton: F8). For a new-learning critique of the old-learning arguments against the conglomerate-type mergers of the 1980s, see Bork: 246–52.
- 7 Some of the others in the new law-and-economics circle who made significant contributions were Robert Bork, Yale Brozen, Harold Demsetz, Frank Easterbrook, John McGee, Richard Posner, Lester Telser, and last but not least, Aaron Director, who stimulated the Chicago rethinking. My apologies to those whom I have overlooked.
- 8 Adam Smith put it this way: When the law does not enforce the performance of contracts, it puts all borrowers nearly upon the same footing with...people of doubtful credit.... The uncertainty of recovering his money makes the lender exact the same unsurious interest which is usually required from bankrupts' (Smith 1937:95). An institutional perspective on transaction costs was also evident in the principles text of the father of the Austrian School, Carl Menger. Various costs such as insurance premiums, correspondence, the expenses of middlemen, the maintenance of a commercial banking system, and 'the loss of time', wrote Menger in 1871, 'are required for the conduct of exchange...'. He further noted that '[e]conomic development tends to reduce these economic sacrifices, with the result being that...more and more economic exchanges become possible which previously could not have taken place' (Menger: 189–190).
- 9 A mention in Williamson (1992:139) alerted me to the contribution of Commons.
- 10 Some firms prefer to take greater risk with their *borrowed* capital than their creditors would find prudent. Banks mitigate this moral hazard by adding funds-usage covenants to loan contracts, including the right to call the loan if the covenant is violated. To ensure compliance, bank officers sometimes sit on the borrower's board of directors to ease oversight of allocation decisions (Milgram and Roberts: 183, 495).
- 11 For a detailed description of European Community policy on mergers and antitrust, see Frazer 1–53 and 67–93.
- 12 The fixed-cost problem that precluded non-cooperative solutions was of special interest to Arthur Hadley, a nineteenth-century theorist who had studied cooperative solutions in the railway industry. He argued in favour of differential mileage rates for short hauls versus long hauls, and for pooling arrangements (dividing traffic) to avoid long-haul rate wars. Hadley noted that every nation

in the world (except the USA) had sanctioned these practices for its rail systems. Potential new entry and water transport (where available) will ensure that 'inordinate profits' are not sustained over the long run, though Hadley conceded their appearance from time to time. Despite the existence of occasionally excessive returns, Hadley was convinced that public welfare would be better served over the long term by pooling and differential pricing than by their statutory prohibition. The establishment of the Interstate Commerce Commission protected railroads from rate competition by mandating uniform changes for short and long hauls. The ICC sanction was more effective than cartel arrangements, hence after 1840 consumers lost the benefits from long-haul rate wars (Cross and Ekelund: 227–30, including footnotes 14 and 18). Of course, other forms of rate cuts (such as the provision of free shipping and the granting of extended payment plans) have been employed to mask competition, but the ICC has punished such activity with fines when uncovered (Brozen 1982:131–2).

13 The Japanese keiretsu system is sometimes seen, mistakenly, as an example of an institutional trade barrier because its existence, it is alleged, raises the costs facing foreign competitors. In reality, the keiretsu shareholding ties between banks and their borrowers minimise agency problems and thereby yield lower interest rates to keiretsu members. Hence US exports are impeded because the keiretsu ownership schemes reduce 'members' costs of transacting *with one another* and *not* because they raise *rivals' costs* (Flath: 24; italics added).

On another front, regional higher-education accrediting agencies in the USA have begun practising a non-deliberate yet effective strategy of raising rivals' costs by adopting accreditation standards based on a new generation of egalitarian objectives in curriculum and hiring, such as 'equitable' representation of all 'oppressed' groups on the faculty, plus the selection of teaching materials for courses that *must* be established to 'sensitize' all students to politically-correct stances on matters relating to race, gender, sexual orientation, and physical disability. The accrediting agencies are largely staffed by professional bureaucrats from the education departments and administrative hierarchies of large, state-run universities, which are already burdened with many layers of politically-correct 'programs'. Imposing these same 'multicultural' standards on private schools (via the accreditation process) creates new layers of bureaucratic oversight and fosters new tensions on campus due to the new privileges created. These new costs will weaken the competitive advantages now enjoyed by the many small liberal arts colleges not yet poisoned by the bitter acrimony introduced by the order-by-design quota norms. Unfortunately, these 'friends of diversity' advocate a strange type of diversity that specifically excludes quota protection for any minority not deemed to be 'oppressed', such as Jews, fundamentalist Christians, and fundamentalist Islamics who reject radical Western feminist

principles. To learn which colleges and professional groups have taken legal action to resist this Orwellian trend, see the Winter 1993–4 Newsletter of the National Association of Scholars (pp. 1 and 4), or the lead editorial in the *Wall Street Journal*, 29 December 1993, p. A8.

14 The promise of retirement security has already become unfulfillable. The shrinking birth rate (which has reduced the number of young wage-earners) has combined with the increased longevity of the aged to undermine the young-to-old redistributive basis of the modern Western scheme of social security. But there is hope. Thirteen years ago, Chile converted to a private, fully funded (investment-based) retirement system because Chileans 'became fed up' with the rising tax burden being imposed on current workers to pay benefits to retirees. The transition is now complete and nearly everyone has opted out of the state system. A similar conversion is also underway in Singapore. (See Becker and Ehrlich: A16; also see Seism 1994: A1, A4.)

15 The turn-of-the-century Congress also supported high tariffs, which constrained the growth of the welfare of consumers; however, tariffs prevent the income redistributions wrought by free trade. The Friedman-Savage Hypothesis explains why voters fear random, selective reversals in their standard of living far more than they love general increases in living standards via lower prices. Hence the existence of tariffs does not diminish the strength of Bork's claim, for the pursuit of trust-busting policies does not, *in voters' eyes*, augur a potential decline in anyone's real income.

16 During the formulation of the Sherman Act, one senator sought to insert a proviso that would have exempted from prosecution, first, any cost-saving action taken by combinations that did not cut wages, and second, any means taken by large firms to 'reduce the price of the necessities of life...' (See Grandy: 365). The final compromise version of the bill deleted these caveats, which one writer sees as evidence that Bork's broad concept of social welfare was not a serious factor affecting Congressmen in 1890 (Grandy: 366–7).

17 When another vacancy on the Court occurred in 1994, the President's first choice, activist Interior Secretary Bruce Babbitt, was passed over because of fierce Republican opposition, and Clinton's second choice, a liberal judge and friend from Arkansas, lost the nod due to his illness from cancer. 'So he settled, almost grudgingly, for his third choice', Judge Breyer, and thereby avoided a bitter nomination battle in the US Senate. (See the lead editorial in the *Wall Street Journal*, 23 May 1994, p. A14.) Breyer was easily confirmed, despite the objections of Senator Howard Metzenbaum and 'consumer-advocate' Ralph Nader to his new-learning views on antitrust.

8 EVOLUTION VERSUS REVOLUTION

1 For an excellent discussion of the classical growth model and its consequences, see Baumol 1977:580–4.

- 2 A present-day economist imbued with the optimism of McCulloch and Whately is Julian Simon, whose book, *The Ultimate Resource* (Princeton University Press: 1981), explores the unbounded nature of growth in an entrepreneurial economy.
- 3 Marshall defines his long-run supply curve as the locus of the outputs associated with the minimum average cost points of an industry's representative firm (based on the input prices associated with various permanent levels of market demand), multiplied, of course, by the number of firms in the industry. Since Marshall's market supply curve is an aggregation of the individual firms' long-run supply curves, product homogeneity is clearly implied. In addition, *since economic profit is zero at every point on Marshall's long-run supply curve*, marginal cost must equal average cost at every point, hence the demand curve facing the firm must have been assumed to be horizontal. Finally, if diminishing marginal returns to inputs cannot be offset via returns to scale or improved methods, then, said Marshall, the long-run supply curve will slope upward (Marshall 1920:342–4, 517, 849–50).
- 4 Several classical economists included the differentiated product as an example of the competitive process at work, as described in Chapter 4. Also see Marshall's discussion of competitive firms who face downwardly sloping demand curves, in Marshall 1920:287, 392–3 (fn. 2), 458, and 501. Contrast the treatments on these pages with Marshall's separate coverage of genuine monopoly on p. 502. Marshall's discussion of small, spatially separated fish and vegetable stands within a given neighbourhood (on p. 616, fn. 3) prompted one writer to claim that Marshall presaged the tangency equilibrium of monopolistic competition (Skykolt: 251). For additional concrete cases of product differentiation as a tool of competition in Marshall, see the relevant passages from *Industry and Trade*, as examined in Liebhafsky: 349. Although Marshall was fully aware of the phenomenon known later as monopolistic competition, 'he did not exaggerate its importance' (Schumpeter 1976:78, fn. 8).
- 5 In an address to the American Economic Association in 1970, Kenneth Boulding challenged the appropriateness of assuming that modern economic theory is an embodiment of all previous achievements. Unlike physics, chemistry, and biology, our theory has discarded many insights possessed by our forefathers: 'past writers have things to say which no present writer is saying.' More importantly, the modern paradigm 'leads to a rejection of any information which cannot easily be fitted into [mathematical models]...'. This limitation can be partially offset by studying the great books: '[T]hey expose the students to whole areas of thought which have become unfashionable and hence help him to transcend limitations which are imposed...by the fashions of his own time.' Unfortunately, complained Boulding, 'one can become a full-fledged, chartered Ph.D. economist without ever reading anything that was published more than ten years ago' (Boulding 1971:232, 233, 235). Boulding's lamentation only barely exaggerated the pedagogical

problem under discussion. For example, most of the leading universities in the United States do *not* require a course in the history of economic thought to receive a doctorate in economics. (Boulding's 1971 article is reprinted in Blaug 1991a.)

9 MARSHALL, INCREASING RETURNS & COMPETITION

- 1 Marshall misread Cournot on one point. In the first paragraph of his extended footnote on page 459 of his *Principles* (1920), Marshall wrongly accused Cournot of failing to see that falling costs for just one firm in an industry will lead inevitably to monopoly. Cournot's text leaves no room for such an interpretation. In light of Marshall's other eighth-edition footnotes (391, fn. 2, para. 3; and 392–3, fn. 3), plus his letter to Flux, all of which interpret Cournot correctly, the footnote on page 459 remains totally inexplicable. This oversight in Marshall was caught by Sir John Hicks, as mentioned in Kaldor 1934:64, fn. 3.
- 2 On pp. 537–8, Young provided a concrete, detailed illustration of the sprouting of a more roundabout process of production prompted by an extension of the market.
- 3 The terms of trade may lead to complete specialization in only one of the partners.
- 4 Ironically, Knight acquired his hostility to Marshallian external economies from Young himself, who, in a 1913 article, had tersely dismissed Pigou's defence of Marshall's position. By 1920 Young had changed his mind, but Knight had not (see Newman 1987:938–9).
- 5 The quoted passages were drawn from a reprinted 1903 letter which was supplied to me by Donald A. Walker (of Indiana University, Pennsylvania) and translated by Caroline Cunningham of the Wofford College Foreign Language Department.

10 PERFECT COMPETITION

- 1 By 'free competition' Sraffa meant a world of perfect competitors at equilibrium (see Sraffa 1930:93).
- 2 Sraffa's shrewd use of Marshall was mentioned in Robertson: 85.
- 3 Most of the events leading to the abandonment of Marshall's falling long-run supply curve are chronicled in Frank James Howard, 'The Theory of Long-Run Industry Supply Curves: From Marshall to the 1940s', Ph.D. dissertation, DeKalb: Northern Illinois University, 1977, pp. 91–101. Also, see the brief but on-target discussion in Schumpeter 1954:1945–8.
- 4 As it turns out, Marshall's system may be definite (see Romer 1986:1002–37).
- 5 The continuing problem here is that by merging the 'right' package of institutions into the known-technology term of the Cobb-Douglas

production function, neoclassical economics can avoid the Darwinian adaptation process through which people learn to choose conventions that are better suited to their optimising behaviour—and thereby preserve an exclusive focus on endstates. Hence I disagree with North's contention that we cannot 'abandon neoclassical theory...'. Given its propensity to deal only with the measurement of results, neoclassical economics *in its present form* is unable to satisfy North's challenge: 'to come to grips and deal with an entire range of issues heretofore beyond its ken'. Without a major change in the way we think about and teach about the market system, the structure of neoclassical theory is incapable of incorporating the *discovery-process nature* of institutional evolution, without which the study of institutions will ultimately be reduced to the assemblage of a laundry list of exchange-facilitating customs to be henceforth assumed as given, somehow, to all agents. (The quotations were drawn from North 1978:974, and North 1992:3.)

- 6 The minority view, that the process of competition may lead to industrial structures that serve consumers better than the atomistic model, is ably presented in J.Fred Weston, 'Implications of Recent Research for the Structural Approach to Oligopoly', *Antitrust Law Journal*, vol. 41, 1972, reprinted in Brozen 1975:86–93.
- 7 Scitovsky's recent analyses, by contrast, have been pronouncedly sympathetic to the process perspective. See, for example, Scitovsky 1985:517–36, and 1990:135–48. Scitovsky is one of several leading equilibrium theorists who have recast the debate on the presumed inefficiency of imperfect competition (see Lipsey, Steiner, Purvis, and Courant: 270–1).
- 8 Contrary to conclusions reached in earlier studies, an increase of one percentage point in the income tax rate 'causes the long-run stock of human capital to decline 0.97 per cent.... Although there is a good deal of imprecision in this estimate, the qualitative conclusion that taxation significantly discourages investment in human beings is robust' (Trostel: 328). Trostel cited Lucas' work as part of an 'emerging line of research' which highlights the role of human-capital accumulation in economic growth and development (Trostel: 327–8, including fn. 2).
- 9 An excellent summary of the new ideas on the interactive roles of increasing returns, trade, and development has been compiled in Krugman 1991:651–4.
- 10 'In the original explanation of the Leontief paradox, Leontief maintained that the United States is labor abundant when labor is measured in productivity-equivalent workers'; that is, a technology correction factor can be employed to equate one high-tech American worker to, say, two lower-tech British workers, thereby illustrating that the USA is relatively rich in labour *productivity*, hence it should export goods whose manufacture requires an intensive amount of highly skilled labour. Such a hypothetical adjustment factor, reasoned Leontief, would probably explain the unexpected US trade pattern found in his study. It appears that Leontief's gut feel was

correct. Recent empirical research has revealed that ‘a simple productivity-related modification of the Hecksher-Ohlin-Vaneck model explains much of the factor content of trade....’ (Trefler: 962). But this result leaves unanswered the more perplexing question: Why is US trade linked primarily to nations whose workers, when compared to the world as a whole, share with American workers the status of being relatively productive (i.e., technology enriched)?

11 STYLIZED ASSESSMENT OF GAIN VERSUS PAIN

- 1 The Kennedy administration’s Alliance for Progress supported government activism in Latin American development, a change of direction in US policy that surprised officials throughout Central and South America (Glade: 509–10).
- 2 Early deadweight-loss estimates of under one per cent of GNP were challenged by proponents of the market-structure school of antitrust, whose measures were as high as six per cent of GNP (Carlton and Perloff: 104–6). The larger estimates are exaggerated on two grounds. First, they categorized advertising expenses as a ‘cost of monopolization’; that is, advertising was counted as part of society’s deadweight loss because it was classified as an unproductive expenditure whose purpose is the ‘creation and preservation of monopoly power’ (see the history and discussion of the rationales in Martin: 38–40). The larger estimates are further exaggerated by their employment of the elasticity of the demand curve facing the dominant firm instead of the elasticity of the aggregated demand curve abstractly facing the industry. Using the dominant firm’s demand generates an inflated calculation of deadweight loss by assuming that monopoly-inspired output cutbacks by the dominant firm generate no reactions from rivals, when, in fact, the manufacturers of competing brands are ready (and eager) to expand their productions to provide acceptable substitutes and thereby reduce the market share of the leader. The only case in which the dominant firm’s demand curve is relevant is when consumers are loyally tied to the dominant firm’s brand (Worcester: 1015–22).
- 3 The efficiency defence in antitrust cases is weakened considerably if transfers from consumers to producers are counted as a net welfare

loss. Not surprisingly, therefore, old-learning advocates prefer to stress the effects of market power on the distribution of wealth (net worth). Specifically, one study claimed that about 50 per cent of the share of wealth accruing to the top 0.25 per cent of all US households is attributable to transfers rooted in the monopoly power of their assets. Removal of this monopoly power would enable the bottom 28 per cent to move from a situation of negative net wealth to a small degree of positive net worth. Analyses such as these, when employed as judgment criteria, make it much more difficult to win approval for mergers (Martin: 40-1, 274-8).

These analyses are potentially misleading, for two reasons. First, the wealth estimates that are employed are usually exclusive of home-equity wealth, yet much of the net worth of most of America's lower and middle-class families is invested in their residences. (For example, 57 per cent of American family units earned less than \$30,000 in 1989, but over half of this group owned their own homes, the equities in which largely accounted for a median positive net worth of \$27,000 for the entire group. With residential wealth included, even the bottom 20 per cent had a median positive net worth of \$2,300 in 1989.) Second, in 1992 about 40 per cent of America's corporate stock was owned by pension plans, not individuals; therefore, a sizable *and growing* share of the transfers (from consumer surpluses to producer surpluses) is ultimately reaped by American workers through the dividends and capital gains earned on their pension portfolios. (From Tables 751, 753, and 787 in the *Statistical Abstract of the United States* 1993, pp. 476, 477, 506, plus Exhibit 6-8 in Rose: 161. Also, see the trend chart in Saunders: 67.)

Pension funds (50 per cent of which are invested in stocks) are held by institutional investors instead of directly by individuals and hence are often inadvertently excluded from the calculations of family wealth employed by those who oppose mergers, thereby further distorting the claims of distributional inequity levelled by the old-learning camp. 'America, in other words, has socialized ownership without nationalizing it' (Drucker: 191). Consequently, the long-run *net* welfare of consumers (who are, for the most part, also employees) is being enhanced, not harmed, by mergers that yield efficiency gains which, in turn, fuel higher dividends and higher stock prices. This conclusion becomes even stronger if one assumes that the working class and middle class also own a non-trivial share of America's mutual funds, which held eleven per cent of total stock value in 1992. Unfortunately, the ownership distribution of mutual fund shares is not tracked by either the Commerce Department's census reports or the Federal Reserve System's Flow-of-Funds Balance Sheets. Even without the quintile data on mutual funds, however, the conclusion is unambiguous: the social-injustice claim of the old-learning school, based on changes in consumer vs producer surpluses, is becoming increasingly irrelevant for purposes of antitrust policy.

4 I have assumed that the overwhelming majority of the economists of today and yesteryear have shared Adam Smith's quest for a set of principles that will 'enable people [not only] to provide a plentiful subsistence for themselves;...[but also] sufficient [to fund] the public services'. Walras sharply disagreed with this goal: 'The primary concern of the economist is not to provide a plentiful revenue for the people or...the State..., but to pursue and master purely scientific truths' (in Pokorný: 399–400).

12 SUMMARY AND CONCLUSIONS

- 1 The rate of diminishing marginal returns to increased levels of formal sophistication is an unsettled, highly charged subject. See the symposium in *Methodus*, June 1991.
- 2 This oft-asked question was first posed in the titles of two nineteenth-century Russian works, one anti-socialist, the other pro-socialist (Harris: 157).
- 3 'For the Austrian, only the individual is real; society is the net result of individual actions.... Individuals act to promote their own self-interest, and the net result is an outcome that [unwittingly] harmonizes the subjective energies of the individuals.... [F]or Austrians, institutions and society *are effects and not causes....* [I]n no way is the individual's [economizing] behavior the result of the socialization process' (C.Clark: 375–6; italics added).
- 4 The heavy discounting of future benefits and costs served primeval men and women very well, but these same 'irrational' propensities ill-serve us today. However, an offsetting package of moral sentiments (to counteract our myopia) has evolved and has become part of our tacit knowledge. That is, we have learned through experience that those of us who possess certain moral sentiments can compensate for the now-faulty wiring that governs decisions involving a mix of present payoffs and future costs. This success has led parents to instill certain behavioural rules that partially insulate their offspring from the otherwise counterproductive impulses inherited from our primeval past (when it was rational to discount future events heavily). Consequently, family and society reinforce—without knowing precisely why—a package of values through which our time preferences (adaptively selected during a long-past epoch) are tempered to facilitate our modern-day needs. Consult Frank, especially 23–42, 47–56, 71–95, 152–7, 161–2, and 257–9. (N.B. In Frank, 'self-interest' is defined very narrowly, as *material* self-interest; see, for example, pp. 47, 51, and 258.) A writer in 1881 perhaps summed it up best: The reverence for the rule, impressed upon him by past experience, checks the impetuosity of his passion, and helps him to correct the too partial views which self-love might suggest.... Even should he after all give way to his passion, he is terrified, at the moment of so doing, by

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the thought that he is violating a rule which he has never seen infringed without the strongest expressions of disapprobation ...’ (Farrer: 90–1).

- 5 This quotation was used on the title page of *The Constitution of Liberty*; the full bibliographic citation appears in Hayek 1978:419.

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