Chapter 8: The Critique of Neoclassical Economics and its Influence on Policy Decisions

> Adam's Smith's invisible hand may be invisible because, like the Emperor's new clothes, it simply isn't there; or if it is there, it is too palsied to be relied upon…But let us be quite clear about the epistemological basis of the neoclassical proposition: It is not a deductive proposition…The neoclassical synthesis was put forward as dogma, an article of faith.
> — Joseph Stiglitz[1]

> Hitherto men have constantly made up for themselves a false conception about themselves, about what they are and what they ought to be. They have arranged their relationships according to their ideas of God or normal man, etc. The phantoms of their brains have gained the mastery over them. They, the creators, have bowed down before their creatures. Let us liberate them from the chimeras, the ideas, dogmas, imaginary beings under the yoke of which they are pining away.
> — Karl Marx[2]

Where Are We Going?

Until now, I have confined my account to a critique of the historical, philosophical and scientific foundations of economic fundamentalism, pointing to general concerns about the practical value of economic theorising and the tradition of political and moral theorising of which it forms part. It is now time to turn more directly to the content of that theorising and its impact on economic policy. In this chapter, I propose firstly to make some further preliminary remarks about the influence of mainstream economics on economic policy settings. I then propose to draw attention to the long-running critique of neoclassical economics and the tendency of economists to run up the shutters in defence of their 'normal science'. The account will then turn to the nature of the knowledge that is involved in public policy making and the stubborn search for *epistēmē* rather than for practical wisdom among policy advisers. The account will then move to a description of the consequences of that search for *epistēmē* in the form of the idealisations and unrealistic assumptions of neoclassical economics. These are falsely supposed to result in an analytical situation analogous to the experimental situations of the natural sciences.

We will then take a brief diversion into the normative consequences of that idealisation—the fact that the idealisations assumed have become normative

ideals. We will then return to a more detailed description of those flawed assumptions and their implications for faith in unregulated markets. From there, we will move to the formal ontological critique of neoclassical economics, which brings together the above ideas. In the absence of a secure theoretical foundation for economic policy making and the irrelevance of recent dabbling in game theory, I will describe briefly the appreciative justification for competitive markets that the above theoretical story is supposed to underpin. We will then move to the absence of a convincing growth theory in neoclassical economics and then to a brief description of alternative approaches to economic analysis. The chapter ends by drawing attention to proposals for the reform of economic teaching.

Mainstream Economics

It is important to note as a first step that mainstream economics is divided into two streams of theorising: macro and microeconomics. Macroeconomics is the study of the behaviour of the economy as a whole. It studies such things as aggregate trends in national income, unemployment and inflation. Microeconomics takes a bottom-up view of economic activity, abstracting from the institutional framework within which the economy operates and attempting to study the demand for goods and services, the formation of prices and the allocation of resources. It provides one of the central intellectual underpinnings for economic fundamentalism and its worship of markets.

Economic fundamentalism has influenced macro and micro policy—for example, influencing the willingness of governments to run budget deficits and to finance infrastructure investment through borrowings, the degree of independence given to monetary authorities, the policy emphasis given to monetary stability over full employment and the heed paid to the views of the financial industry and financial journalists on policy settings more generally. Perhaps the most pernicious recent influence of economic fundamentalism in Australia has been in the area of microeconomic policy, where it has motivated a wholesale restructuring of our institutional arrangements under the mantra of microeconomic reform.

The mainstream economist might ask what I am complaining about given that the Australian economy has been performing very well lately. It is important to acknowledge the enormous economic growth and improvement in material living standards achieved in developed countries and some developing countries in living memory and more broadly since medieval times. Economic fundamentalists are quick to attribute our recent good performance to the impact of their favourite microeconomic reforms. The current Secretary to the Treasury, Ken Henry, recently claimed that this much better performance was due overwhelmingly to the numerous economic reforms that were implemented progressively in response to the policy failures of the 1970s.[3] Henry points in particular to what

he believes to have been the importance of flexible labour markets. He goes on to suggest that reforming the supply side of the economy will remain an enduring feature of Treasury advice. The question that these claims gloss over is whether Australians and their families want to be the servants of 'the supply side of the economy', and whether the claimed benefits of flexibility translate into real improvements in social welfare—properly conceived and measured. Furthermore, are any so-called efficiency benefits more important to Australians than fairness, stability and leisure?

There have been other things going on that have probably been much more influential, including the biggest mineral boom in our history. In the past 50 years, we have witnessed the extraordinary growth of Japan, South Korea, Taiwan and more recently China and India. As these countries are the major markets for our commodity exports, Australia has benefited enormously from that growth. Along with the rest of the Western world, Australia has also witnessed extraordinary change in educational attainment, health standards and the movement of women into the paid workforce. In addition, we have witnessed extraordinary technological changes in recent decades.

Then there has been the relatively successful record of the Reserve Bank in managing monetary policy after the Keating recession of the early 1990s, which finally killed the inflationary psychology of the previous two decades. That relative success in the face of its limited policy instruments has enabled low inflation and continued growth despite, in particular, the Asian meltdown. In addition, there have been positive influences from the numerous recent pragmatic departures from economic fundamentalist policy prescriptions; and there has been some benefit from the progressive removal of tariff protection in encouraging a more competitive economic environment. Those tariff policies were, however, particularly badly designed in the first place—being entitlement policies directed towards import replacement rather than export-driven growth. Their failure was inevitable given the lack of even a minimum commitment to strategic planning or enforceable industry investment commitments. The consequence was the development of production capabilities that lacked internationally competitive scale and were unsustainable in the long run.

In short, in my view, our recent good economic growth results from a complex of factors and good luck, and cannot be sheeted home solely or primarily to economic 'reform'.

That relatively good growth record has helped blind us to the costs involved in specific policies—particularly the costs of increased economic insecurity throughout the community, the increased intensity in our working lives, the heavy environmental costs and the uneven distribution of the benefits, often as a result of the abuse of market power, but also as a result of the reluctance of governments to invest in public goods. Recent research has demonstrated that

most Australians want a reversion to regular working hours.[4] Further, while it is a cause for rejoicing, it is questionable whether Australia's current relatively low unemployment rate is a record low. More significantly, little attention is paid to the particularly tight definition of unemployment used in the headline unemployment rate—a definition that conceals the true level of unemployment and underemployment.

Our recent relatively good record has also blinded us to the opportunities that have been forgone as a result of our under investment in infrastructure and education and our reluctance to embrace more active and effective innovation and industry policies. Preferring the mantra of the level playing field, recent Australian governments have refused steadfastly to learn from history and, in particular, the recent strong growth of the Asian Tigers and a number of smaller European countries. That history has demonstrated the benefits of more effective coordination of economic activity through a partnership between the public and private sectors. Rather, we have pursued a utopian dream of separating roles and trying to perfect markets in the image of the neoclassical idealisation of those markets under the positivist illusion that doing so will maximise welfare—instead of the more sensible, practical task of learning how to compete and prosper in the very imperfect, fallible world of contemporary, oligopolistic, mercantilist capitalism with high levels of coordination by the State.

Let me emphasise the point. Policies that would optimise resource allocation in the perfect, static, predictable, mechanical, fantasy world of neoclassical economics have little to do with competing successfully or maximising real welfare in the very imperfect, uncertain, dynamic, oligopolistic and somewhat dishonest, manipulative and thuggish real world. Furthermore, self-flagellation over past policy failures—including industry-policy failures—provides no substitute for serious policy analysis and policy learning. In a world of Knightian uncertainty, such failures are inevitable and are to be planned for and learned from, not commiserated over. Relatively rich though we might be, why would we not want to improve real general welfare still further? Why would we be satisfied with crude national income and growth estimates as a measure of real welfare? And why would we not want to share that good fortune nationally and internationally? In this regard, Donald Horne warned us in 1964 against the complacency that our good fortune had bred—a warning we have largely failed to heed. I have already expressed my concern about the increasingly selfish nature of our society and the associated adulation of consumption, wealth and selfishness legitimised by economic fundamentalism and the excessive focus on economic values at the cost of other, more important values. It is no accident that *Business Sunday* has replaced *Divine Service* on our Sunday television sets.

The Long-Running Critique of Neoclassical Economics and its Limited Relevance to Policy

Notwithstanding its dominance as an economic policy tool, neoclassical economics has been the subject of devastating criticism from leading economists directed at its scientific standing, its lack of methodological rigour, its lack of empirical testing, its unnatural fascination with mathematical formalism, the grossly unrealistic and normative nature of its assumptions and the irrelevance of its conclusions for policy analysis. Even Alfred Marshall (1842–1924), an astute mathematician and leading microeconomist, expressed considerable reservations about the use of mathematics in economics. Hayek, a member of the Austrian school and an opponent of neoclassical economics, complained in 1945 that:

> [M]any of the current disputes with regard to both economic theory and economic policy have their common origin in a misconception about the nature of the economic problem of society. This misconception in turn is due to an erroneous transfer to social phenomena of the habits of thought we have developed in dealing with the phenomena of nature.[5]

He went on to criticise the scientific standing of economics in his Nobel Prize acceptance speech in 1974, warning us that market processes were so complex that the knowledge of them by economists was incomplete and virtually impossible to measure.

> While in the physical sciences it is generally assumed, probably with good reason, that any important factor which determines the observed events will itself be directly observable and measurable, in the study of such complex phenomena as the market, which depend on the actions of many individuals, all the circumstances which will determine the outcome of a process…will hardly ever be fully known or measurable.[6]

Hayek also warns us against a strong tendency in the social disciplines to focus exclusively on factors that are measurable—arbitrarily excluding factors that are not measurable. One important policy consequence of this focus on the easily measurable is the current obsession with growth in national production to the detriment of better measures of human welfare. The focus on growth in production has helped blind economists to the broader criticism of the capitalist system and its effects from the environmental and anti-globalism movements and from Marxists. Nevertheless—and somewhat inconsistently—Hayek remains the darling of economic fundamentalists because of his advocacy of a minimalist state arising primarily from his fear of political tyranny. This inconsistency reflects the inconsistency between the two primary sources of economic fundamentalism: libertarian political philosophy and neoclassical economics.

Similarly, another Nobel Prize-winning economist, Wassily Leontief, told us in 1983:

> Not having been subject from the outset to the harsh discipline of systematic fact finding…economists developed a nearly irresistible predilection for deductive reasoning. As a matter of fact, many entered the field after specialising in pure or applied mathematics. Page after page of professional economic journals are filled with mathematical formulas leading the reader from sets of more or less plausible but entirely arbitrary assumptions to precisely stated but irrelevant theoretical conclusions.[7]

In fact, Leontief made numerous attacks on the poverty of a priori theorising in economics, and on the neglect of adequate statistical work.

Similarly, in his Nobel Prize lecture in 1991, Ronald Coase criticised in particular what he saw as the narrow focus in economics on market-price determination—a criticism that is relevant particularly to the fundamental theorems of welfare economics. Coase claimed:

> The concentration on the determination of prices has led to a narrowing of focus which has had as a result the neglect of other aspects of the economic system. Sometimes, indeed, it seems as though economists conceive of their subject as being concerned only with the pricing system and that anything outside this is considered as no part of their business. What is studied is a system which lives in the minds of economists but not on earth. I have called the result 'blackboard economics'. The firm and the market appear by name but they lack any substance. The firm in mainstream economic theory has often been described as a 'black box'. And so it is. This is very extraordinary given that most resources in a modern economic system are employed within firms, with how these resources are used dependent on administrative decisions and not directly on the operation of a market. Consequently, the efficiency of the economic system depends to a very considerable extent on how these organisations conduct their affairs, particularly, of course, the modern corporation. Even more surprising, given their interest in the pricing system, is the neglect of the market or more specifically the institutional arrangements which govern the process of exchange. As these institutional arrangements determine to a large extent what is produced, what we have is a very incomplete theory.[8]

More recently, Coase confirmed: 'Economics, over the years, has become more and more abstract and divorced from events in the real world. Economists, by and large, do not study the workings of the actual economic system. They theorise about it.'[9]

Of course, Coase is too kind to neoclassical economics: because neoclassical economics largely ignores the role of the corporation, it does not have an adequate

account of price formation. Ironically, Coase can also be accused of the above sins. Despite recent discussion of transaction costs, moral hazards and information asymmetries, mainstream economics on the whole makes do with a primitive reductionist view of the firm, ignoring the vast differences in their sizes and disparate goals, assuming that they are profit maximisers. Apart from recent contributions from new institutionalists—a movement within neoclassical economics focusing on transaction costs—this view largely ignores the internal organisation of firms, the practical difficulties of coordination and assumes that they are run as if they had a single owner. It is assumed that firms choose between different inputs in a manner analogous to consumer choice.[10] This simply lacks credibility.

In the same spirit, leading contemporary economic methodologist Mark Blaug told us in 1997:

> Modern economics is sick. Economics has increasingly become an intellectual game played for its own sake and not for its practical consequences for understanding the economic world. Economists have converted the subject matter into a sort of social mathematics in which analytical rigour is everything and practical relevance is nothing…Economics was once condemned as 'the dismal science' but the dismal science of yesterday was a lot less dismal than the soporific scholasticism of today.[11]

In short, the conceptual foundation of neoclassical economics and economic fundamentalism is a shambles. If it were not for its institutional momentum and ideological usefulness it would long ago have been abandoned.

The consequence for Blaug is that we now understand less of how real markets work than did Smith or even Leon Walras (1834–1910). Consistent with Leontief and Coase, he suggests that the real trouble is a belief among economists—going back to Ricardo—that economics is essentially a deductive science in which economic behaviour is inferred on the basis of some assumptions about motivations and some stylised facts about prevailing institutions, suppressing the temptation to ask whether these are realistic assumptions or accurately chosen facts. Contemporary economic teaching and the associated textbooks reinforce this focus. Whereas economics consists of a plurality of conversations, most of today's textbooks are dogmatic, one-dimensional and neoclassical, crowding out other and more fruitful forms of analysis.[12]

The Mainstream Reaction to this Torrent of Criticism

These criticisms are not new. They are echoes of criticisms that were directed against political economy, Ricardo and Mill and then neoclassical economics from its beginnings with Walras, William Jevons (1835–82) and Carl Menger (1840–1921). These criticisms came in particular from the German and English

historical schools in the nineteenth and early twentieth centuries. These schools attacked the claimed universalism and abstract scientism of these economic schools, seeing economic phenomena as dependent on their historical, social and institutional context. They therefore saw the study of economic phenomena as a normative, historical and social discipline. The transition from classical to neoclassical economics brought a new mathematical formalism and the abandonment of interest in the institutional and historical underpinnings of the market system—and an intensification of the belief in the ahistorical, scientific and value-free nature of economic discourse. While neoclassical economics exercised a strong influence from its beginnings, it was only in the post-World War II period that it established itself finally as the dominant school across the profession. These criticisms have failed to dent the enthusiasm that economic fundamentalists and economists more generally have for that school. Rather, the response to the torrent of criticism has been to reassert belief in the hard core of the neoclassical research program—acceptance of which is now mandatory for any 'true' economist.[13]

None of this would matter if economics were merely an academic game for theorists fascinated by the intellectual beauty of their formal systems. Very few, however, study economics as an intellectual game. Rather economists are looking for insights into how to manage economic affairs. That is what they claim to have found. Consequently, this descent into scientism and scholasticism is simply not good enough. By default, neoclassical economics now provides the underlying political legitimisation for our market system and for the drift to the political Right to which I drew attention in Chapter 1. Consequently, it is unreasonable for economists to ignore the fundamental flaws in the dominant school of economics—flaws that give a false view of how the economy really operates—as if they are of little account. Paradoxically, the criticism has inspired many economists to argue more strongly for action to perfect markets—and in particular for the removal of social constraints such as minimum wages—rather than to criticise their fundamental theoretical framework.

Nor is it good enough for economists to say that, while neoclassical economics could be flawed, it is up to the critic to provide a better account—particularly when there are competing perspectives struggling to get attention from mainstream economists and policy makers, and when dissenters are purged from the profession and the policy discourse. This is a scandalous attitude given the frequently realised potential for economic advisers to ruin the lives of their fellow citizens—particularly the most vulnerable. Why shouldn't economists want to have a better understanding of the operation of the economic system? Why wouldn't we want to have a better understanding of the sources of human welfare and happiness and to reflect that better understanding in our policy decisions?

Importantly, what mainstream economists generally mean by a better account is another set of mechanical, deterministic, linear equations that will not disturb their mechanical, deterministic world. Indeed, the desire for closure and certainty and an abhorrence of open, indeterminate systems probably accounts for some of the continuing attraction of neoclassical economics and its Newtonian metaphor. In any event, as Phillip Ball reminded us recently, the tenets of neoclassical economics—which are the starting points for economic training—are gross caricatures that have hardened into rigid dogma. '[N]eoclassical theory is such an elaborate contrivance that there is too much at stake to abandon it.'[14] Nevertheless, Ormerod believes that what is required is the reconstruction of economic theory virtually from scratch[15] —a reconstruction that abandons the core assumptions of neoclassical economics and its Newtonian metaphor. Furthermore, Australian political economist Evan Jones has suggested that the past century of economic conceptualisation has been a complete waste of time. Mainstream economics has simply failed as a predictive and explanatory research program.[16]

What we are confronting here is the struggle between an increasingly discredited but entrenched 'normal science' with its particular ideological baggage, and new economic paradigms offering fresh and hopefully more realistic and more fruitful insights. These insights could involve elements of the neoclassical program but those elements will be useful only in a significantly different conceptual framework. As Kuhn has warned us—and as Galileo's experience demonstrates—such struggles are not easily resolved, involving as they do significant threats to the intellectual, social and political standing of existing mainstream economists. In addition, it is hard to give up ways of thinking that have been central to one's professional life; and no one wants to be told that they have wasted their lives talking rubbish. The result is that abandoning such false beliefs requires something akin to a religious conversion. For most economists, this vehement criticism of their paradigm has led to a hardening of their commitment to the mainstream story, and a continuing search for *ad hoc* rationalisations to justify that continuing commitment.

The Newtonian metaphor at the heart of neoclassical economics has a particularly destructive consequence for economic fundamentalism, which is usually overlooked. It commits the theorist to viewing the person as reactive to and dependent on inputs from the environment. It stands in direct contradiction to the views of the libertarian philosophers, who stress the individual's autonomy.[17] There is, therefore, a fundamental conceptual inconsistency at the very heart of the economic fundamentalist project.

Furthermore, in its physical form, the Newtonian metaphor presupposed the existence of a prior harmony established by God, and its import into economics via Smith and Walras involved the assumption of a continuation of some

pre-established balance. The mechanical model cannot explain the emergence of a spontaneous order, but presupposes it.[18]

Economic Policy and *Epistēmē*

Classical economists claimed they had discovered nature's socio-economic laws—that is, universal laws of nature with the same status as those of physics. They assumed also that what was 'natural' was also good.[19] This moral assumption persists throughout economics. It is assumed implicitly that the capitalist market system is 'natural' and therefore good—despite the fact that the capitalist system is clearly a social and historical artefact. As we have already seen, this silly assumption flows from the Enlightenment's attempt to secularise God, along with the medieval concept of natural law, combined with an attempt to avoid moral responsibility for our institutions and conduct. Therefore, it is taken for granted by economists and economic policy analysts that economic policy analysis involves the search for—and the application of—unqualified, authoritative, universal, scientific laws and principles capable of providing unique, definitive and good answers to our policy questions.[20] As we saw earlier, this approach to policy analysis—this resort to *epistēmē*—has deep roots extending back beyond the Enlightenment to Christian transcendentalism and then to the central doctrine in Plato's philosophy: his 'Theory of Forms'. This transcendentalism was revived and reinforced by the Enlightenment's search for certain, ahistorical, positive knowledge. Aristotle warned us, however, that not all knowledge was of this type—nor could we have this theoretical certainty in every field. He made a distinction between *epistēmē*—or theoretical grasp—and *phronēsis*—or practical wisdom. In particular, Aristotle argued that the good had no universal form and, consequently, judgements about what was good for society and the individual had always to respect the detailed circumstances of the particular case.

Practical knowledge does not require a prior grasp of definitions, general principles and axioms, as in the realm of theory. Rather, it depends on accumulated experience of particular situations and this practical experience leads to a kind of wisdom— *phronēsis*— different from the abstract stories of theoretical science. Practical knowledge differs from *epistēmē* in that it is concrete, temporal and presumptive and might not hold true universally but only typically. Importantly, it involves judgement or wisdom. In contrast, theoretical statements can make universal claims that hold true at any time or place only if they are as idealised as the axioms or theorems of Greek geometry. At best, very little, if any, knowledge is capable of approaching the exacting demands required of *epistēmē*. Conservative political philosopher Oakeshott shared Aristotle's emphasis on *phronēsis* in his later works, in which he was highly critical of utopian rationalist projects in politics and stressed the importance of tradition and the

practical knowledge it gives us.[21] This emphasis is reinforced by Michael Polanyi's insight that most of the knowledge by which we get by in the world is tacit, rather than consciously known, and is acquired through experience.[22] One important consequence is that what counts as convincing evidence in practical matters differs from what counts in *epistēmē*. In particular, it legitimises reliance in policy analysis on accumulated experience, policy learning and anecdotal information rather than reliance on theoretical arguments.

Consequently, any reform of contemporary policy analysis needs to acknowledge that public policy decisions involve *phronēsis* rather than *epistēmē*. Despite the many warnings above, it is Plato's dream of *epistēmē*—as revived by the Enlightenment—that is privileged in contemporary economic policy debates in the form of the theoretical speculative stories of neoclassical economics, whereas the practical economic learning of the business person, consumer and policy administrator is dismissed arrogantly as anecdotal, unscientific and irrelevant.

Idealisation in Neoclassical Economics

This contemporary search for *epistēmē* in neoclassical economics involves a series of 'idealisations' of the economic agent and the setting in which 'he' operates. As we saw above, the particular idealisations were driven by a desire to describe human beings and their interactions as if they were a deterministic, mechanical system characterised by equilibrium—by the Newtonian metaphor. Smith was a great admirer of Newton and his moral analysis is thoroughly Newtonian and carries over into his understanding of self-interest as it appears in his economic analysis. Therefore, Smith, in the *Wealth of Nations*, speaks of the price of commodities 'gravitating towards the natural price'.[23] More broadly, those Newtonian tendencies dominated physics, which came increasingly to provide the model for science in general. The marginalist movement pioneered by Walras, Jevons and Menger in the nineteenth century strengthened these tendencies in economics, which were strengthened still further by the post-World War II fascination with formalism. All three claimed specifically that economics—as an exact universal natural science—resembled classical mechanics, involving a calculus of the natural 'forces' of pleasure and pain.[24] This reflected the utilitarian inheritance of neoclassical economics as well as the desire of economists to emulate the mathematical formalism of physics, which they saw as the archetypical science, whose prestige they wished to share. Although Phillip Mirowski distinguishes the physics that Walras relied on from that of Newton, he nevertheless objects strongly to the resulting mechanical nature of neoclassical economic reasoning.[25] He traces at some length the powerful influence of physics on Walras and his colleagues, criticising them for their misunderstanding of that physics and their misapplication of the associated equations to economics. Despite Mirowski's minor reservations, there can be little doubt that general equilibrium

theory is fundamentally Newtonian in concept. For example, Jevons claimed in 1871 that 'the theory of Economy…presents a close analogy to the science of Statical Mechanics, and the laws of Exchange are found to resemble the laws of Equilibrium of the lever as determined by the principle of virtual velocities'.[26]

This adoption of the equations of physics and the renaming of the relevant variables to give them an economic meaning was criticised by Mirowski in the following terms:

> The most curious aspect of this program to make economics more rigorous and more scientific is that not one neoclassical economist in over one hundred years has seen fit to discuss the appropriateness or inappropriateness of the adoption of the mathematical metaphor of energy in a pre-relativistic gravitational field in order to discuss the preferences and price formation of transactors in the marketplace.[27]

As Clark points out—following Guy Routh—these developments are intended also to support their political views. Asserting—on the basis of scientific credentials—that the economy is an equilibrium system regulated by nature in the same way as the solar system lends weight to the claim that such an economy exists in harmony and is best left to itself without government intervention. There were, however, non-mainstream economists who objected strongly to this identification.[28] Knight argued as long ago as 1935 that any reconstruction of economics had to reject this mechanical analogy.[29]

Within this mechanical framework, *Homo economicus*—economic man—created originally by classical economics, is a reductionist attempt to obtain an idealised creature defined by economic motives only—a machine for making decisions, an atomistic economic billiard ball on which economic 'forces' act, which at the same time remains perfectly 'rational'. This contradiction in terms is made only remotely credible by the instrumental mechanical understanding of rationality employed. This understanding is itself an unjustified and misleading idealisation to which we will return shortly. *Ceteris paribus*—the assumption of other things being equal—is then invoked on the unsafe reductionist assumption that this isolates successfully the influence of other phenomena. In the case of interdependent complex phenomena, it is now clear that this is far from true.

Importantly, Weber also believed that no conceptual system could do full justice to the complexity of social phenomena. Nevertheless, he believed that his methodology would enable claims made about the social world to be subjected to rigorous empirical verification, provided this tool was applied only to rational and goal-oriented behaviour. These idealisations were thought, falsely, to provide economics with an analytical situation analogous to those involved in the control of excluded variables in experimental situations in the natural sciences. Among the heroic simplifying assumptions used in neoclassical economics are

assumptions derived from classical economics—those of rational behaviour and consistent preferences. The claim that economic behaviour is so governed has allowed economists—drawing on Pareto—to claim that economics is the science of logical actions and of rational choice. Unfortunately, for mainstream economics, the empirical evidence shows that the preferences of real people are not consistent—that is, they are not transitive—and this undermines the claim.[30]

There is a deeper, more hidden motive for this idealisation. Acknowledging any diversity among economic agents further undermines the mathematical tractability of the analysis and has to be avoided at all costs.[31] This 'ideal' type is obtained by stripping out most of the ethical, religious, altruistic and other motives of real human beings.[32] The other idealisations are those involved in the setting, in particular, of the postulation of perfect competition, perfect information, complete markets and resource mobility. The particular idealisations have been subject to enormous criticism and it is a moot point whether the regularities detected by this procedure are artefacts of real economic affairs or of the analytical system. I hold the latter interpretation.

This approach to economics did not originate with Weber or Pareto. For example, John R. McCulloch (1789–1864), the leader of the Ricardian school after Ricardo, in his *Principles of Political Economy* published in 1825, gave an early defence of this practice.[33] Interestingly, McCulloch was trying to deal with objections to what he claimed to have been political economy's 'best established conclusions'.[34] Nevertheless, he thought that the conclusions of political economy applied only in the majority of cases, because special circumstances could differentiate particular cases. Even so, McCulloch believed that those conclusions were an appropriate basis for government policy decisions. In practice therefore, McCulloch avoided dealing with those objections. Mill, in turn, did the same, while drawing attention to the practical men who objected to what they believed to be the inappropriate conclusions that economists drew from invented assumptions. Mill rejected those objections on the basis that while Euclid's 'laws' were also true only in the abstract, they were, nonetheless, useful. He claimed that all 'phenomena of society are phenomena of human nature, generated by the action of outward circumstances upon masses of human beings; and if, therefore, the phenomena of human thought, feeling, and action are subject to fixed laws, the phenomena of society cannot but conform to fixed laws'.[35]

While aspiring to exactness, Mill nevertheless drew a distinction between exact sciences such as astronomy and inexact sciences such as the moral sciences, which he saw as lacking the necessary information. While Mill claimed to have a richer conception of human beings than Bentham, it nevertheless involved a deterministic view little different from Bentham's.[36] Any placidity in human nature operated in the longer term. Mill also drew a distinction between general

and specific causes and—going further than McCulloch—believed that the causes operating in political economy were laws of human nature, something he believed the individual could check for themselves by introspection. Consequently, he argued that political economy was an abstract and aprioristic science such as geometry. For him, economic conclusions—which are derived from assumptions that resemble real circumstances—are true in the abstract and express tendencies present in human behaviour. These 'truths' are applicable in practice when the influences of the neglected effects are added. Of course, these universal truths were said to be manifest most completely in Britain—the most advanced industrial country in the world. Importantly, however, Mill did not extend these claims to the distribution of production—this, in his view, being subject to the laws and customs of mankind.

Marx went further again, postulating a hierarchy of factors, believing that his law of value represented the deepest essence of society. These increasing levels of abstraction have an important consequence. Whereas for McCulloch the conclusions of political economy were generally valid, for Mill they were laws of human nature, while with Marx we finally arrived at something even more abstract: a Platonic form. Of course, neither Mill's abstract truth nor Marx's deepest essence was open to empirical falsification. Ironically, for those on the Right, it is this Platonic form— articulated most strongly by Marx—that unconsciously underpins economic fundamentalism and much neoclassical economic theorising.

The positivist movement associated with the Vienna Circle in the 1920s and 1930s strengthened these positivist tendencies in economics. For his part, Pareto sought also to develop a scientific economics based on what he thought were natural phenomena based on natural laws independent of social institutions and using an analogy with mechanics and the concept of general equilibrium. Nevertheless, Pareto was conscious of the limits of pure economics and saw a need to add back into the analysis the factors left out by these idealisations before one could make predictions about real phenomena, and before these analyses could be applied in the world. He also thought that the applied scientist should turn to other disciplines for those other analyses.[37] That was the reason why he turned to the study of sociology. Pareto tells us, for example, 'In order to judge whether customs protection is harmful to people, we need help not only from political economy but also from all those sciences which in their totality constitute that branch of human knowledge called social science.'[38]

The contemporary economist feels no such need before offering policy advice. Indeed, there is no greater insult for mainstream economists than to describe someone as a sociologist.[39] There is little doubt, therefore, that Pareto would have rejected the particular positivist use that economists now make of Pareto-optimality and the economic imperialism of many economists.

If we are going to use economic analysis as a framework to erect hurdles to policy initiatives, we have to have a great deal of confidence in that analysis. The confidence that is currently placed in the mainstream framework is, however, mistaken. That framework should be replaced by a framework demonstrating relevance to the continuing transformation of the economy and to the achievement of real improvements in social welfare—particularly among the disadvantaged. In this regard, it seems bizarre to look for regularities in human conduct by grossly exaggerating one aspect of the apparent reality, and then to claim that this exaggeration represents a simplification rather than a distortion. I doubt this is a fair description of what the natural sciences seek to do. In a scientific experiment, one can hold all other things as being equal through careful experimental design. In the social disciplines, in a non-experimental environment, it seems a wild leap of faith to assume that an idealisation enables one to ignore possible interactions with other influences. This reductionism is a fundamental mistake, as it is highly likely that when we are dealing with human beings we are dealing with non-linear dynamic systems; and if we are, such influences cannot simply be added together. It is an approach that also legislates higher-level systems out of existence. In any event, the uncorrupted layperson's complaints that the neoclassical assumptions and the conclusions drawn from them are unrealistic are simply dismissed—usually with a sneer.

The Normative Use of Neoclassical Economic Idealisations

Part of our problem arises because it is too easy to slip unconsciously between very different understandings of the word 'ideal' and to end up believing that—with Hirshleifer, Becker, Posner and Thatcher— the true nature of human beings is being described by *Homo economicus*. Similarly, it is too easy to make a similar slip in respect of the idealisation of the situation. What was justified initially as being a helpful analytical tool to get around some of the complexities of human behaviour has ended up being used as a normative ideal. Without a doubt, the most important policy sleight of hand in the neoclassical story—its reversal of the onus of proof—is a consequence of these idealisations. In neoclassical economics therefore we have an idealisation of 'THE MARKET'—another of Plato's forms and the god of economic fundamentalists. It is then easy to further assume that the market system is the ideal form of economic organisation and, for the true believers, the ideal form of social organisation. What Weber justified as idealisations to illustrate only one aspect of social phenomena and to enable empirical investigations have been turned into a normative ideal contrary to his intention and to good sense. This slide has been assisted by the fact—as we saw in the previous chapter—that it is simply not possible to separate the positive from the normative. All the talk about positive economics serves only as a smoke screen to hide the fact that economics is legislating one form of social organisation. One particular result is that most

government action is now categorised by economists as intervention in market processes, which has to be justified in terms of the neoclassical idealisations and the associated theology, rather than as collective action furthering collective goals.

Market failure

Of course, economists usually admit that the transactional situations we all face in daily life could be different from those assumed in their idealisation, but they leave it to us to demonstrate that those differences matter in the context of their particular flawed conceptual framework; that they result in 'market failures' and that government correction is less costly than maintaining the status quo. In the absence of any convincing empirical confirmation of the validity of this form of modelling, this reversal of the onus of proof—this demand that policy activists demonstrate that real markets are not perfect before they can act—is inconsistent with any reasonable interpretation of good scientific practice. This tactic also places the policy activist in an impossible position because, in the absence of action, it is impossible to demonstrate the benefits of any particular action or even the costs. It is also impossible to know what the economy—or particular sectors of the economy—will look like if there were complete and perfectly competitive efficient markets and free trade.

One further important effect of this search for market failures is that it endorses tacitly the above flawed conceptual framework. The result is a theoretical discussion couched in neoclassical terms even where the activists reject that neoclassical framework. It is like trying to persuade the Pope that birth control or abortion may be permissible in certain cases when one rejects the theological and authority claims of the Catholic Church. These concerns are amplified when economists and libertarians apply these flawed simplistic concepts to political systems and voting patterns as if they were economic phenomena and start talking about the dangers of 'government failure'. This is just pseudo-scientific nonsense—a very limited rediscovery of the concept of original sin. We all know that human beings are fallible, have questionable motives and make mistakes—but to refuse to do anything on the ground that we could be wrong is not prudence; it is simple cowardice.

The Flawed Assumptions of Neoclassical Economic Idealisation

Atomism

Among the flawed assumptions of neoclassical economics is its reliance on methodological individualism as its 'official' methodology. This is a research stratagem imported from Greek atomism via Descartes—with his atomistic system and mechanical rules—and then the individualistic political theorising of Hobbes

and Locke. In those stories, explanation was to be located in the actions of individual actors interacting in a mechanical fashion rather than in the complex organic interplay of social institutions, groups and individuals. As we saw in Chapter 5, the emerging dominance of theoretical reasoning in political and moral theorising through the Enlightenment marked a sharp discontinuity with the practical approach to political and moral reasoning that had been derived from Aristotle and which characterised the medieval world. One important element in this transformation was the abandonment of forms of explanation based on organic metaphors and the emergence of a mechanical Newtonian metaphor as the dominant form of explanation. This atomism is an essential feature of this form of explanation, in which causal relationships are seen as being analogous to the forces operating in the movement of the planets or in classical mechanics, with individuals taking the place of the planets or of billiard balls and interacting in a mechanical fashion. As we saw in Chapter 5, however, the Newtonian mechanistic world-view has been undermined. Newtonian physics has been completely discredited as an answer to any fundamental question about the nature of the world.

Physics has come to understand reality not in terms of atomism—of discrete particles that can be described independently of all others—but as a complete network, the most basic elements of which are not entities or substances, but relationships. The properties of things are no longer seen as being fixed absolutely with respect to some unchanging background; rather, they arise from interactions and relationships.[40] This abandonment of Newtonianism within its parent discipline should cause economists to pause and wonder whether the Newtonian metaphor provides an adequate master narrative for economics. Having stressed the fundamental importance of our social relationships and our socially constructed moral codes in Chapters 2 and 7, I don't believe methodological individualism can deal adequately with these continuing social relationships.

In any event, Kincaid warns us that individualism is a fuzzy doctrine: 'Sometimes it makes ontological claims, for example, that social entities do not act independently of their parts. Other individualists put the issue in terms of knowledge: we can capture all social explanations in individualistic terms or no social explanation is complete or confirmed without individualist mechanisms.'[41]

Kincaid argues that the debate about holism and individualism is primarily an empirical issue about how to explain society. The upshot for Kincaid is that individualism is seriously misguided: 'When individualism is interesting, it is implausible; when it is plausible, it is uninteresting.'[42] It should already be clear from Chapter 2 that the claim that methodological individualism provides the exclusive proper explanatory strategy in the social disciplines is deeply flawed. It mistakes the biological entity for the complete human. To use a modern

metaphor, it mistakes a discrete piece of hardware for the whole system, forgetting that the 'software' is an open social construct and that together they form part of a large network. In the spirit of narrative pluralism, this does not mean that methodological individualism might not be useful in some instances. It is up to the analyst using that assumption to demonstrate its usefulness and the 'validity' of the results. The Enlightenment tradition from Descartes and Locke onwards to contemporary mainstream economics has just assumed this question away. In economics, this strategy assumes that all individual choices are self-serving and promote individual welfare. Not only does it fail to acknowledge the social constraints on choice, it fails to confront the possibility of mistaken choices and the normative consequences of that possibility. In those cases, one could always respond that people should bear the consequences of their mistaken choices. This, however, is a normative judgement that is open to question and is something economists claim not to be making. It is also a judgement with which the rest of us might disagree—though not necessarily all the time. There is a dynamic element in choices as people learn over time what is important to them in the changing circumstances of their lives. Mistakes are an important part of that learning process.

Individual preferences again

The empty concept of revealed preferences is—as we have already seen, and as Sen confirms—simply 'a robust piece of evasion'[43] to avoid a serious examination of the formation and nature of 'preferences'. This is to preserve the ideological usefulness, analytical structure and mathematical tractability of mainstream analysis. Sen calls this theory and the associated rational-choice theory a remarkably mute theory. This is because it explains behaviour in terms of preferences, which in turn are defined only by behaviour. This circular reasoning has no explanatory power. It does, however, require consistency in choice—but that is something that is not observed in practice. Furthermore, there is much evidence, including in economics, to show that in practice people's choices are often not selfish. For most of us, this would seem to undermine the whole idea. Sen goes on to argue that, while choices based on sympathy for others could perhaps be accommodated in mainstream models, choices that are made on the basis of moral commitments are counter-preferential and cannot be so accommodated. Of course, this is something that most of us knew already, even if we did not know the jargon in which the argument is expressed. At most, only some choices are made on the basis of their contribution to personal welfare. As Sen points out, this conclusion is particularly important in respect of the provision of public goods and in work motivation. In the latter case, it would be impossible to run any organisation entirely on the basis of personal incentives—and they have necessarily to rely on moral commitments and social cohesion in order to operate at all.

Rational choices and optimisation

The above critique undermines the normative instrumental view of rationality used in mainstream economics.[44] This was a view of rationality that was rejected firmly in Chapter 5. Human judgement cannot be reduced to static optimisation. People do often act in a self-interested fashion, but it can be rational to do things that are not in one's personal interests. Indeed, it is normal to do so. It can be rational to make choices in accordance with moral values and it is normal to do so. It can also be rational to disregard the consequences in making choices. Some things are just not done and some things have to be done regardless. Some economists might respond to these arguments by making a distinction between short-term and long-term self-interest, and then try to accommodate our moral commitments to those long-term interests. Really, this is just further consequentialism and, as we saw in Chapter 7, it is an attempt to legislate a particular moral theory that is part of the same tradition of moral reasoning as mainstream economics. In that regard, it is now obvious that our moral principles cannot be reduced to a single conceptual system and that the moral rules that regulate life in contemporary Western society derive from several incompatible historical sources augmented constantly by contemporary cultural influences. These in turn are different from those operating in other societies. Consequently, the appeal to long-term interests is simply further evasion. One could play that game forever; but the average punter should just decline to play.

Nevertheless, mainstream economists continue to claim that economic agents in their choices optimise the benefits to be derived and that it is only rational to do so. Behavioural economists have, however, demonstrated successfully that everyday human economic behaviour is not consistent with this claim. This demonstration undermines much of the associated analysis. In particular, real human beings simply lack the cognitive abilities to maximise the benefits from their choices. Furthermore, the contexts within which we make decisions are such that optimisation—either *ex anti* or *ex post*—is simply not possible. This brings us back to the realisation that human choices involve a dynamic process relying on practical wisdom based on experience, learning about opportunities and tastes and balancing different attainable goals—rather than a crude optimisation process.

Among economists, this realisation has led to a long discussion of 'bounded rationality' and of 'satisficing'—concepts associated with Kalneman and Simon, more dissident Nobel Prize winners. For example, Tversky and Kalneman make a distinction between intuitive judgements and deliberative decisions, demonstrating that even statistical experts make systematic errors in their intuitive probability-based judgements.[45] Even significant research decisions are guided by flawed intuitions. Tversky and Kalneman have undermined the proposition that choices involving risk are made on the basis of a rational analysis

of the risks involved. Their prospect theory describes how such choices are made in practice involving a two-stage process: editing and evaluation. In editing, possible outcomes are ordered following some heuristic, choosing a reference point against which to evaluate the possible outcomes. In the evaluation phase, people choose an outcome with the highest utility based on the potential outcomes and their respective probabilities. Importantly, the way people frame an outcome subjectively in their mind affects the utility they expect or receive. What is more, it has been demonstrated empirically that people not only consider the value they receive, but the value received by others.

Similarly, Simon pointed out during a long career beginning with his first book in 1947 that real people have only limited abilities to formulate and solve complex problems. In particular, we have only limited abilities to acquire, process, retrieve and transmit information. In addition, we often have conflicting aims and frequently our goals and the means to achieve them are interrelated and cannot be separated. Furthermore, it is simply impossible to make a logical search though the myriad options open to us, and their consequences. Consequently, we use heuristics or rules of thumb and our emotions as well as logical analysis in our decision making. Any attempt to optimise in practice just leads to confusion. Therefore, we make decisions that are satisfactory rather than optimal. The 'normal science' of economics has tried to maintain its framework by introducing the concepts of search, deliberation and time costs into the decision-making process and claiming as a result that satisficing is effectively the same as optimising. In doing so, mainstream economists have trivialised Simon's devastating theoretical insights in the interests of their research program. To my mind, these are very different worlds and the above attempt to maintain the neoclassical framework is just another form of evasion.

Pareto-optimality and welfare

Neoclassical economics goes on to claim that, subject to a broad range of assumptions, a competitive market will allocate resources between competing uses in an optimal fashion. This is the contemporary version of Smith's belief in the 'invisible hand of the market'. Smith believed that God had so arranged creation and human affairs that self-interest balanced by sympathy for our fellow humans would produce the best of all possible worlds. Now, in the absence of God, mainstream economists would have us believe that the rational choices of the individual, exercised in perfectly competitive markets with perfect information and mobility of resources, will have the same effect. This idea of the theoretical primacy of competition and markets is developed in first-year microeconomic courses as an extension of the 'laws of supply and demand' and the properties of market equilibrium.

This scheme draws on utilitarianism's search for the 'greatest happiness of the greatest number' to propose that the consumer is motivated to purchase goods

by the 'utility' she or he derives from it—a reflection of her or his preferences. Then it is claimed that with competition in demand, the benefit or utility received by the individual consuming the last unit of goods—for example, an apple—equals the price she or he is willing to pay. Similarly, with competition in supply, it is claimed the resource cost to produce that last apple equals the price the producer receives. Voluntary exchange between the producer and consumers in a market-clearing auction will then yield a set of prices that equates the marginal benefit of each commodity with its marginal cost. This has the practical effect of assuming out of existence the problems for the achievement of the greatest happiness that result from the existing socio-economic order and its power relationships. To the limited extent that these problems are recognised, they are seen as constraints on preferences that disappear into the background. At one stage, it was hoped that utility might be measured and thus provide an objective measure of the benefit derived. This quickly proved an illusion, leading ultimately to the development of the empty concept of revealed preferences. As we saw earlier, this means that people buy only what they prefer and they prefer what they buy; and, as it turns out, they are not logically consistent in those purchases.[46]

There are even further technical problems with this most basic of models in the marginalist movement.[47] The model assumes that supply and demand curves are continuous and well behaved, but that is not necessarily the case. Prices can also be resistant to change. In any event, can this model be operationalised? The most damaging criticism of these models is that they impose impossible computational demands on individuals and firms. Real people cannot be making production and purchasing decisions on the basis of such computations. Consequently, in the real world prices cannot be established in this manner except in the crudest possible sense. The result is that it seems likely that the marginalism implicit in the model is an artefact of the analytical system rather than an accurate description of real behaviour. The whole model appears to exaggerate the influence of pricing signals on economic decisions, reducing all other influences to 'costs', however difficult it might be to attribute a monetary value to those costs. Nevertheless, these concerns are generally ignored.

The first fundamental law of welfare economics is then derived by generalising from such single-commodity models to general equilibrium of the economy, abstracting from much detail. This involves the unrealistic assumptions of optimisation in all other markets and independence from them. We are then told that under very restrictive and unrealistic assumptions, a competitive market equilibrium is 'Pareto-efficient' or 'Pareto-optimal' or 'socially optimal'—where Pareto-optimality is defined as that state in which it is impossible to improve the welfare of some members of society without reducing the welfare of others. In practice, those restrictive assumptions are quickly forgotten.

Although superficially attractive as a definition of maximum welfare, Pareto-optimality is more than deeply flawed; it is simply not true. As Blaug writes: 'Pareto welfare economics…achieves a stringent and positivist definition of the social optimum in as much as Pareto-optimality is defined with respect to an initial distribution of income. The practical relevance of this achievement for policy is nil.'[48]

Bromley is among the many other economists who have attacked the scientific objectivity of Pareto-optimality as a decision rule in policy analysis, seeing it as being inconsistent and incoherent with no special claim to legitimacy.[49] The claim that economic efficiency is an objective measure of objective scientists is simply wrong. Warren Samuels, for his part, has described in some detail the large number of normative assumptions underpinning the definition, showing that the concept of Pareto-optimality necessarily involves moral judgements about the existing distribution of wealth and power and the legal system, which enforces ownership rights.[50] Its imposition as a decision rule in economic policy making—the requirement that 'economic efficiency' ought to be the decision rule for collective decision making—is also a normative choice.[51] In short, it is nothing but a pseudo-scientific defence of the economic and social *status quo*.

This approach also prohibits interpersonal utility comparisons on the ground that there is no 'scientific' method for doing so, that interpersonal utility comparisons involve normative judgements and on the principle of consumer sovereignty. The fact that the principle of consumer sovereignty is itself a normative judgement and that we make such interpersonal comparisons every day seems to have passed the economics profession by. In doing so, it contravenes a fundamental insight of the marginal movement in economics: the everyday experience of declining marginal utility—that is, the experience that the benefit derived by any consumer from one unit of consumption declines as the total amount of that consumer's consumption increases.[52] It is possible, therefore, in practice, to improve welfare by taking from the rich and giving to the poor—regardless of what Pareto's disciples might claim.

Furthermore, this measure of welfare depends on the subjective judgements of individual consumers and producers; however, we all know from painful experience that not all subjective choices are welfare enhancing—and those exceptions are very important. Furthermore, as is readily conceded by most economists, the price system does not operate as an adequate signalling system for public goods or for goods where there are either positive or negative spill-overs. Those prices never reflect their real social and economic worth and cost. Importantly, while this is a well-recognised phenomenon within mainstream theorising, we give almost no policy attention to the negative externalities associated with advertising. The subjective willingness of individuals to pay for many advertised goods does not necessarily reflect their contribution to welfare.

Finally, in practice, beyond a minimum level, real people do not judge their well-being in absolute terms. Rather, we judge our subjective welfare by comparing ourselves with each other—particularly those in our immediate social circle. The net result is that in a world in which there are differences in individual welfare, there is never an occasion when it is not possible to improve our subjective welfare by redistributing income. Nevertheless, the search for efficiency is usually—and unreasonably—considered by mainstream economists to be the best available decision rule in the circumstances. In contrast—in concert with Blaug and Bromley—I argue that these fundamental flaws mean that Pareto-optimality is not a legitimate decision rule in public policy. Its continued use reflects an improper unwillingness on the part of policy advisers to undertake the messy, non-algorithmic task of judging the likely real welfare consequences of possible actions. This does not mean that welfare improvement is unimportant, only that this is not the way to judge it.

Of course, these criticisms are well known to mainstream economists, but they tend to pass over them in embarrassed silence as they press on with their normal science. The consequences for their normative prescriptions are simply ignored. A cynic might conclude that the whole idea of Pareto-optimality was invented to deflect a strong conclusion from marginalist theory in favour of redistribution to the poor.

General equilibrium

The strongest version of the contemporary economist's faith in competitive markets is the concept of general equilibrium—the core concept of neoclassical economics, that best of all possible worlds. The idea of a social equilibrium dates back to Smith's moral theorising, but the direct application of the idea to neoclassical economics originates with Walras. In its modern form it dates from the mathematical modelling of Arrow and Gerard Debreu in the 1950s. One cannot but wonder whether this particular development resulted from a need to find a 'scientific' justification for the claimed superiority of the capitalist system in the face of the ideological challenge posed by communism at that time. In any event, it follows from Kurt Gödel's work on mathematical logic that no such formal logical system can be self-contained and consequently such systems cannot contain within themselves the rules for their application.[53] Nevertheless, the basic idea in its present form is that the prices, consumption, production and distribution of all goods and services in an economy are interrelated, with a change in the price of one product affecting all others. Another way of saying the same thing is that the economy is composed of a set of interrelated markets. Of course, this simply ignores the large part of the economy that is not in the market sector and the social determinants of the operation of the market sector.

In a 'perfectly competitive economy', it is claimed, the economy operates so that at a unique set of prices there exists equilibrium of production and consumption

that is Pareto-optimal and in which there are no under-utilised resources. That assumption of perfect competition involves the idea that no economic agent has sufficient market power to affect the price paid for goods or services—that is, they are too small to affect the price. While it is central to the whole framework, this is clearly not true. Huge multinational corporations that have very considerable and enduring market power dominate modern economies. They also enjoy massive increasing returns to scale and scope, rather than the diminishing returns assumed in this theory.

In any event, leading British economist Joan Robinson (1903–83) argued in the *Impossibility of Competition* that there was a logical contradiction in the basic conception of competition as a state of equilibrium.[54] The tendencies for competition to make markets imperfect through product differentiation, towards oligopoly in the presence of economies of scale and for excess capacity to lead to collusion are all rooted deeply in the very nature of the competitive system. As a result, she strongly doubted that it was proper to treat competition as a normal equilibrium state. Further, she was a very strong critic of the value of this formalism and its 'thicket of algebra'.[55]

Nothing has really changed to undermine this early critique. Rather, it has been repeated regularly since that time. There has been a recent tendency for economists to claim that the potential for firms to enter a market guards us against the exploitation of market power. As entry into markets dominated by one or more large companies can be very costly, however, this claim simply lacks credibility. Similarly, Nicholas Georgescu-Roegen criticised the economic value of such general equilibrium modelling and even its value as a mathematical exercise: 'There are endeavours that now pass for the most desirable kind of economic contributions although they are just plain mathematical exercises, not only without any economic substance but also without any mathematical value.'[56]

In his more recent critique, Ormerod calls the model a travesty of reality, singling out the assumption of a 'continuum of traders', meaning an infinity of infinity of traders—an absurd mathematical assumption necessary for the solution of the equations in the model.[57] In any event, this formal system drastically over-simplifies the complexity encountered in real economies and abstracts from their differing institutional frameworks. In addition, firms in all their complexity do not appear in this model. Furthermore, it is simply assumed that the price system exists and that economic agents are simply price takers without any real freedom of choice. To get over this difficulty, the fantasy was invented of an auctioneer who would set prices but would disallow trade until equilibrium was achieved. In practice, however, people do buy and sell at prices that would not clear the market. Any such trade could undermine the possibility of any convergence towards equilibrium. Furthermore, any auctioneer—and economic

agents more generally—faces a task that is a computational impossibility. The whole idea is just more nonsense.

Importantly, it is far from clear whether the model will result in a single stable unique equilibrium.[58] Rather, multiple equilibria could exist and could be path dependent. This possibility alone undermines the generality of the policy conclusions of the mainstream model and opens the possibility of successful coordination by governments.[59] Furthermore, it is not clear how these prices and resource allocations are arrived at or whether, in the event of a shock, the economy will converge back to the same equilibrium. As we have seen, the theory involves the standard assumptions that economic agents are rational, that there are no externalities, that information is perfect and that there is a complete set of markets. The theory also requires consumer preferences to be subject to diminishing marginal utility and that there be no economies of scale. As we have seen, these assumptions are just not credible.

Much of the normal science in neoclassical economics therefore involves trying to relax these assumptions while retaining the fundamental conclusion of the Pareto-optimality of markets and the proposition that they will clear. None of this can deal successfully with the consequences of introducing uncertainty into the model. David Newbery and Stiglitz have shown that, in an uncertain world, a competitive equilibrium is in general not a Pareto-optimum. The real world is an uncertain world. This undermines the whole point of the model, except in extremely restrictive conditions.[60]

The attempt to relax the assumptions of the neoclassical framework looks like medieval scholasticism and is a waste of time. In this respect, Stiglitz sees 'the pervasiveness and persistence of unemployment' as the 'critical experiment which should lead to the rejection of the basic equilibrium model which [depending on how you view it] either predicts or assumes full employment'.[61]

The general theory of the second-best

Further, a powerful neoclassical qualification to the use of neoclassical economics as a policy tool—the 'General Theory of the Second-Best', which questions whether any incremental move towards the market idealisation will, in practice, produce an improvement in social welfare (still defined in positivist terms)—is ignored as being incapable of application in practice. Lipsey and Kelvin Lancaster have, however, demonstrated convincingly that all violations of the assumptions of the general equilibrium model would have to be removed in order to be confident that any move towards the market idealisation would lead to increased welfare.[62] Indeed, Lipsey confirms that Pareto and Paul Samuelson had a similar insight.[63] It follows that one cannot assume the contrary in practice. As we saw above, market failures are pervasive in the real economy—or, as Lipsey says, the proportion of economic space affected by distortions is close to 100 per cent.

Furthermore, there are no general policy rules that can be applied to piecemeal improvements. This undermines the policy usefulness of the whole idea of market failures.

Information economics

Information economists have unpicked the information assumptions underlying the fundamental theorem of welfare economics—undermining the long-standing presumption that markets are necessarily efficient. They have shown—using conventional analysis—that where information is costly, which it almost always is, appropriate government intervention could make everyone better off.[64] This alone undermines the standard presumption in contemporary policy discourse against government action. This has the effect of confirming the view that market failures are pervasive in real economies—further undermining the policy relevance of the whole framework. Nowhere are the insights of information economics more important than in respect of financial markets—a central mechanism for the allocation of resources in capitalist economies. Stiglitz argues from a mainstream and information theoretical perspective that since financial markets are concerned essentially with the production, use and processing of information, they are somewhat different from other markets: 'Market failures are likely to be more pervasive in [financial] markets; and…there exist forms of government intervention that will not only make these markets function better but will also improve the performance of the economy.'[65]

For example, given the casino-like atmosphere in stock markets, the prevalence of information cascades, misinformation, insider trading, booms and busts and downright fraud, how anyone can think that capital raising in these markets will maximise welfare is beyond me. If, however, financial markets are not efficient in the neoclassical sense, there is little prospect that the rest of the economy could ever be efficient either. Of course, some might claim that regardless of their short-term deficiencies, financial markets are efficient in the long run, but that is more evasion, as there can be little doubt that the short run does matter in the allocation of resources by these markets.

The separation of efficiency from distribution

One of the consequences of the neoclassical framework is that economists usually claim that issues to do with economic efficiency can be separated from distributional issues. This separation is used to justify their focus on efficiency issues and on the importance of economic growth in policy discourse—leaving it to governments to deal with distributional issues in a somewhat *ad hoc* and illegitimate manner. Stiglitz has, however, also undermined the practical usefulness of that distinction: 'Government cannot and does not rely on lump-sum taxes as a basis of redistribution…One of the central consequences of the second fundamental welfare theorem was the ability to separate efficiency issues from

distribution issues. In the absence of lump-sum taxes, this separation is not possible.'[66]

The practical consequence is that measures that are claimed to promote efficiency will inevitably have distributional impacts, while measures to promote equity will have efficiency impacts. This lack of separation complicates greatly the task of economic management. This complication has, however, usually been overlooked in the recent priority given to efficiency in the optimistic hope that the benefits of greater efficiency will somehow trickle down to the underprivileged. In any event, this inability to separate efficiency and distribution effects further undermines Pareto-optimality as a minimal measure of welfare.

It should be noted that because of its idealisation of the market and its absurd assumptions, neoclassical economics has almost nothing useful to say about the achievement of efficiency—defined in any realistic fashion—in real economies.

Game theory

In an attempt to bolster its shabby claims to credibility, mainstream economics has taken to playing games based on simple optimisation assumptions comparable with those of neoclassical economics but with uncertainty of outcomes thrown in—claiming that this is a scientific procedure akin to the natural sciences and that it throws light on how real humans behave. As Frank Stilwell confirms, game theory has shown that the focus in mainstream economics on rational individuals is internally inconsistent and descriptively inaccurate. What it really demonstrates is that real people—even in highly artificial games—tend to behave in an altruistic way, assuming that other people are guided by social norms. It has, therefore, strengthened the critique of neoclassical economics.[67]

The Formal Ontological Critique of Neoclassical Economics

Throughout this book and especially in the above chapter, I have been highly critical of the positive image of science that still pervades economics and the associated Newtonian metaphor. Similarly, in drawing attention to the historical emergence of the capitalist system and its institutions, I have been questioning the ahistorical nature of economic analysis and the ahistorical human nature it claims to investigate. Additionally, I have been critical of the narrow mathematical formalism of the neoclassical program and the fictional assumptions it employs to maintain the mathematical tractability of its analysis. In this, I am joining distinguished economic company, as we saw earlier in this chapter. Despite such objections, the use of mathematics has become the unifying feature of the neoclassical program and that modelling is often employed for its own sake—rather than for the light it is believed to throw on economic phenomena.[68] This formalism results from the unfounded belief that mathematical methods are an essential part of the scientific method—a belief derived from classical

physics and ultimately from Pythagoras via Plato and the Enlightenment. It is also an essential part of the illusion that neoclassical economics is a positive rather than a normative discipline. It is simply assumed that these methods can be applied irrespective of the nature of the domain being studied. As we saw earlier, however, the use of this method cannot be equated with 'science' in general.

Lawson, a critical realist, makes the same point in the language of ontology—that is: the study of the nature and structure of being, of the nature of what exists and, in the particular case, of the nature of social reality. To transfer mathematical deduction and the Newtonian metaphor successfully from classical physics to economics requires both domains to share underlying ontological characteristics—that is, that they are special cases of the same general thing. It is this sharing of characteristics that can allow parallel forms of analysis. Clark expands this point by suggesting that there are two types of analogy that involve shared characteristics that are used in this transfer. In the first, the formal structure of the model must correspond in some way with the phenomena being explained. In the second, the shared characteristics involve a material analogy—as in the assertion of a uniform invariant human nature.

Human economic behaviour does not, however, share characteristics with the physical entities of classical physics. They are very different things, not special cases of the same general thing. Lawson calls their confusion the abductionist fallacy. As Clark points out: 'Societies are not natural phenomena ruled by natural laws, nor created by natural forces. They are the creation of humans, as are their institutions, culture and history.'[69] Consequently, mathematical deduction is not a tool that is appropriate for the use to which it is being put.

To reiterate, there is a mismatch in most cases between the nature of social and economic phenomena and the nature and structure of reality presupposed by mathematical deductive modelling and its world-view. Furthermore, Lawson points out that the occurrence of event regularities of the sort that can be analysed scientifically by mathematical modelling are rare even in the natural realm—being restricted mostly to well-controlled experiments. Mathematical deductive modelling as an explanatory form or structure requires a closed, self-contained, atomistic, deterministic system that allows the deduction of consequences or predictions. This follows from Hume's conception of causality as constant conjunctions of brute, atomistic events in which 'same cause, same effect' applies everywhere.[70] In this view, causal laws are empirical regularities that are reducible to sequences of events and those events to experiences.[71] These are essential features of the particular explanatory form. Such atomistic entities are required to have separate, independent and invariable properties. This is not true of human beings, who are active agents in an open, complex

world. In this world, there are no constant conjunctions among events and we cannot rely on empirical generalisations as law-like statements.[72]

Adolph Lowe drew attention to this fundamental objection to neoclassical modelling as long ago as 1935, when he argued that neoclassical economics rested on a highly questionable conception of mechanistic rationality and the constancy and uniformity of individual behaviour.[73] Interestingly, Lowe points out that even the laws of supply and demand involve adjustments of a much more complex nature than proposed in the mechanics of a pendulum, which do no more than maintain a preordained equilibrium.

He therefore rejected the idea of uniform economic laws, including the so-called laws of supply and demand. As he claimed, '[T]here are today no reliable laws of economic behaviour on which prediction can be based.'[74] Similarly, Knight—also in 1935—criticised the mechanical analogy in economics, and in particular the idea that the motive causing an economic action was understood as a force, similar to that idea in classical mechanics. That idea in mechanics—as well as having been discredited—was also criticised by March and Heinrich Hertz as being metaphysical. It acquired respectability only because in mechanics it was experimentally reproducible, not because it provided any ultimate explanation of mechanical behaviour. That experimental reproducibility is not true, however, for economic preferences.

Lowe, in his 1965 book *On Economic Knowledge*, develops his early critique into a formal argument with similarities to Knight's and Lawson's. Like them, he questions whether the logical structure of economic systems can be defined properly in mechanical terms. Lowe finds three features that are cornerstones of classical mechanics, which do not match those of real economic systems: the atomistic hypothesis; the mode of behaviour of these 'atoms'—what he calls the extremum principle, the economic equivalent of a force, the universal action directives operating in economic affairs, maximisation and minimisation; and a conservation hypothesis in which market processes are understood in terms of the conservation of energy in a closed system. As in Newtonian mechanics, the atomised entities of neoclassical economics are entirely independent and entirely reactive in a predictable manner to the forces acting on them with no independent freedom of movement. This simply denies human agency; and this feature of mathematical deduction requires economists to specify their theories in terms of atomised entities that are isolated so that only a few factors bear on phenomena, and to produce constant and invariable responses to given conditions so that event regularities are guaranteed. In such a closed system, event regularities occur in a causal sequence.

Economic 'idealisation' is, then, falsely supposed to produce a situation analogous to the experimental situations in the natural sciences, which attempt to close the system and to prevent any interference with the operation of the mechanism

under study. Explanation, however, requires a move from phenomena at one level to underlying causal conditions. In experimental conditions in the natural sciences, most event regularities are restricted by experimental control so that the workings of specific intrinsically stable causal mechanisms are isolated from the effects of countervailing factors. The purpose of experimentation in a controlled environment is to identify empirically an underlying causal mechanism—not to produce event regularities for its own sake. It must also be assumed that the powers attributed to agents must always be exercised in non-experimental situations and in the given ways, regardless of the real outcome. This is so in the experimental situations used in the natural sciences: the underlying causal relationships identified by any experiment also operate in a predictable way in non-experimental situations and the event regularities produced relate to an underlying empirical causal relationship.

Such isolated event regularities in the social disciplines are rare because aspects of social systems are not static, but are open and intrinsically dynamic, involving a multitude of shifting causes. Such social systems exist in a constant state of becoming, exhibiting emergent properties and causal power dependent on human agency and practice but not reducible to that agency and practice, and dependent on internal relationships with other social entities. We are all involved in a very large number of different and changing, relatively stable social positions or roles that are independent of the individuals occupying them and which influence what we can do. These roles involve rights and obligations with normative force only and are related in turn to other roles occupied by other individuals with their different rights and obligations. Our reactions to social situations are related internally and are highly context specific, with primary importance probably attaching to the relations between roles rather than between people. Nevertheless, human beings possess intentionality or agency: they are not just passive reactors to the environment but are forward looking and make variable choices. Lawson argues that individuals form their longer-term goals in terms of the enduring, highly abstract aspects of society with the intention of adapting those plans to the specific contexts they encounter in action through life. They are therefore involved in the emergence of a sense of identity of the individual—the autographical narrative of the individual. Lawson warns us also against treating the features of social reality that are rather abstract as though they are concrete, and of mistaking the particular for the general. As we saw in Chapter 2, such social behaviour involves a skilled performance that is not reducible to analytical rationality involving the simple application of rules, but involves the transcendence of rationality by intuitive, experience-based, situational behaviour. In short, social entities are not invariable in behaviour, they are not atomistic and they are not reducible to a representative agent. Indeed, because of the way in which the social structure and human agency depend on each other—but are not reducible to each other—methodological individualism is not a tenable

position in social theorising: 'Mainstream economics continually falls back on states of affairs, etc, that could not possibly come about.'[75]

In any event, in economics, the fictions assumed are not employed as a means of isolating the influence of other phenomena so as to identify an underlying causal relationship that explains how the surface phenomena was produced, but as essential preconditions to the mathematical deductive form of analysis and to the generation of the results. At the same time, abstractions such as representative agents and preferences are treated as if they are concrete and can successfully isolate the real phenomena of interest from other influences. Because of the above interdependencies, it is highly unlikely that social behaviour can be manipulated in any useful way by the experimental researcher. In short, Weber's qualified justification for his idealisations is misconceived.

To summarise, the closed atomistic and deterministic system of deductive mathematical modelling—this modern manifestation of a priori reasoning in economics—cannot, in general, fit the open, non-deterministic and non-atomistic social world. This lack of fit renders mathematics an inappropriate tool in the study of most economic and social phenomena; and this is the reason why this sort of modelling has been unsuccessful. It simply lacks the ability to illuminate most of the social realm. This is what Aristotle effectively told us 2,300 years ago. This is the fundamental reason why it is illegitimate to use this form of modelling and the associated Pareto-optimality decision rule in policy analysis. In addition, Lawson sees these methods as a barrier to true progress in economics—preventing us from uncovering any real causal relationships in economic phenomena. Although not excluding entirely the possibility of using mathematical deductive methods, Lawson is pessimistic about the prospects of their successful use. Consistent with the views expressed in Chapter 6, he calls for a pluralistic and interdisciplinary approach to economic analysis, but one involving a critical reflection on the ontological assumptions being used.

The Appreciative Justification for Competitive Markets and its Association with Lockean Political Theorising

In the absence of convincing empirical support for the neoclassical framework—an impossible task given the above ontological criticism—mainstream economists have usually taken the much stronger performance of capitalist economies compared with socialist economies as broad justification for their emphasis on market-based competition. Of course, very few people today are prepared to advocate the bureaucratic stupidity that was central to the command economies of the Soviet era. Nor is anyone denying that competition suitably channelled by cultural and legal norms plays a role in capitalist economies in sharpening the performance of firms. Is competition, however, the only thing that is important to capitalism? And, since capitalism is not a monolithic system, which capitalist system are we talking about? Why

not, for example, imitate Denmark, a capitalist country that is very prosperous and has a comprehensive welfare state? Why pick the mean-spirited social policies of the contemporary United States? If one is to copy the United States, why not copy its active industry and innovation policies? Better still, why not pick the best of everyone's experience? Complacently satisfied with economic fundamentalism, we do not devote anything like sufficient resources to studying what other people do—or how the world is changing. Experience does not support the adoption of pure-market policies. As Ormerod points out, free-market policies are contrary to the whole of economic history since the Industrial Revolution:

> With the possible exception of the first wave of industrialisation in Britain, every country which has moved into the strong sustained growth which distinguishes industrial, or post industrial, societies from every other society in human history, has done so in outright violation of pure, free-market principles.
>
> Markets, competition and entrepreneurship are all very important, but by themselves they are not enough. Infant industries—even when they have become industrial giants—have sheltered behind tariff barriers; government subsidies have been widespread; there has been active state intervention in the economy; and, perhaps most important of all, successful companies have exercised power and control over their markets.[76]

Indeed, this is true of the whole of economic history.

The evolutionary and information schools of economics see this stronger performance as a reflection of the restlessness of capitalist economies—seeing economic growth as being driven not by market equilibrium but by the lack of such equilibrium. Market imperfections such as knowledge asymmetries, knowledge spill-overs, monopolies and disequilibrium could drive innovation and economic growth.[77] The stronger economic performance of capitalist economies might be due, therefore, not to a lack of government coordination, but to the combination of largely decentralised decision making and incentives and particular forms of government coordination involving strategic positioning, a very broad interpretation of market imperfections, strong investment in social capital and knowledge creation, social mobility and social risk sharing.

Despite these powerful objections, unregulated markets continue to be seen by economic fundamentalists, mainstream economists and many contemporary policy makers as the general rule, the natural state of affairs and the normative ideal, which real markets should emulate. As we have already seen, contemporary economic analysis then perceives government action as an intervention in the market, which has to be justified as a correction that will move the real situation

towards that idealised state. This approach erects a sharp dichotomy between the public and private spheres—spheres separated by sharp boundaries enclosing distinct roles, which the above alternative approach denies. This dichotomisation, with its sharp separation of roles, has more to do with our rationalist heritage and with Lockean political philosophy than with the more nuanced relationships and permeable boundaries we encounter in practice. Importantly, different societies conceptualise these relationships differently, suggesting that these are culturally determined distinctions rather than universal principles. These distinctions also reflect our reductionism, which makes it difficult to conceptualise higher levels of organisation, collective purposes and coordinating roles.

This strategy produces an essentialist view of the State, which effectively excludes governments from any role in coordinating economic activity or redistributing income or risks—beyond providing a limited number of public goods such as maintaining property rights, enforcing contracts and maintaining public order—a position inconsistent with long historical practice. Economists in central agencies then act as Plato's authoritarian guardians in enforcing this questionable approach to policy analysis, with non-acceptance of this framework seen as irrational and not deserving respect. Of course, this stance conveniently ignores the unequal structural impacts of the macroeconomic instruments welded by central agencies and the Reserve Bank.

Economics and Economic Growth

Because of the static heritage of mainstream economics, it is a commonplace that mainstream economics lacks a convincing explanation of growth and dynamic change within an economy. Mainstream economics typically treats the growth of knowledge as a matter that is independent of the economic system—an assumption that is transparently false. This is not because economists do not recognise the central role of the growth of knowledge in economic development, but rather because they have been unable to incorporate this insight successfully into their mainstream models. The growth of knowledge is simply not a mechanical process. Though many have tried, it is not possible to simply add a new parameter for knowledge to a production function to get a sensible growth model.[78] The very idea of an aggregate production function that combines such disparate activities as cleaning shoes and building hydrogen bombs seems incoherent. The 'Cambridge Capital Theory Controversies' have undermined the logical coherence of the concept by showing the insurmountable theoretical problems involved in measuring capital. It follows that the concept of an aggregate production function is unhelpful, as is the empirical work based on it.[79] In this regard, Lipsey tells us: 'I have slowly come to accept that models of growth that use aggregate production functions and stationary equilibrium

concepts, whether in the neoclassical tradition or the new growth tradition, offer only limited assistance in studying long term economic growth.'[80]

As much policy analysis is about economic growth, this lack of a convincing explanation of growth is something of an embarrassment to the profession. Similarly, the long-term strategic economic development decisions that confront governments—and which involve significant uncertainty—do not lend themselves to the mechanical method of mainstream economics. As George Shackle (1903–92) demonstrated convincingly, the future that flows from any particular decision is unknowable, involving as it does an infinite exponential cascade of different possible futures—undermining the possibility of any calculable probability analysis and consequently of any so-called rational analysis.[81] Therefore, the future is uncertain and any strategic positioning requires practical judgement.

In the absence of a successful growth theory, mainstream economists have been forced to rely on a wide range of statistical analyses to try to identify the significant influences underpinning economic growth, but such studies involve formidable conceptual and data issues. It is clear, however, that growth is not just about the accumulation of physical capital. These statistical studies are tending to provide empirical support for the importance of such things as innovation, knowledge, education and skills in the growth process. This reflects a strong consensus that innovation and technological development have underpinned economic development. Consequently, it is clear that comparative advantage is not simply a matter of natural endowments but can be created. Indeed, economic development is a contingent, path-dependent process and often occurs in clusters. As a result, developed countries throughout the world are placing increasing emphasis on these factors in their economic policies. It is also clear from Weber and North that economic development is heavily dependent on the complex of institutions and beliefs that underpin high trust and initiative in society. This is now seen as a major factor explaining the uneven nature of economic development throughout the world. The existence of mechanisms sharing risk and uncertainty in social and economic life could well be important to economic development.

New and Revived Schools of Economics

A number of relatively new and revitalised schools of economic analysis are attempting in complementary ways to address the fundamental inadequacy of the conventional conceptual framework. As indicated above, the information school has—contrary to the conventional assumption of perfect information—pointed to the costliness of information, to its asymmetrical distribution and to the inadequacy of pricing signals for coordinating economic activity in the real world. Revised institutionalist and sociological approaches are seeking to explain more fully how economic behaviour occurs in a complex

web of social relationships and institutional arrangements, which vary from society to society and which exhibit features of historical contingency and path dependency. The effect is to undermine the belief that there is a universal model of the capitalist system that we can aspire to imitate. In this regard, the 'National Systems of Innovation' approach to innovation studies emphasises that innovation by firms cannot be understood in terms of decisions at the firm level and emphasises the role of the complex interactions between the firm and its economic and social environment in promoting innovation. This approach draws attention to the importance of country-specific institutional arrangements for innovation, technological development and economic performance more generally. Similarly, political economy schools point to the pervasive presence of power relationships in the economic system—and the impossibility of isolating the two influences. Of course, the impacts of those complex power relationships are not open to simple modelling, least of all by neoclassical models.

Importantly, the evolutionary school denies that the social and economic world is a machine. Furthermore, it has abandoned the idealisation of the market, methodological individualism, Pareto-optimality, the concepts of market failure and the Newtonian metaphor in favour of the biological metaphor of a living system. In such an interdependent system, the behaviour of the system in aggregate cannot be deduced by simple extrapolation from the behaviour of typical individuals. Rather, it is the result of complex interactions throughout the system—a system that learns and adapts.[82] Furthermore, it means that there is also macroeconomic behaviour that cannot be traced to microeconomic foundations. Consequently—and contrary to Thatcher—there is such a thing as society,[83] something the rest of us knew already.

What this all means is that the evolutionary school has abandoned the Enlightenment's utopian dream of reorganising society on the basis of a priori reasoning. This represents a historically important paradigm shift, and a return to an earlier and more fruitful master narrative. It also denies the possibility in practice of achieving an optimal allocation of resources. Consequently, Ormerod tells us:

> The behaviour of the system may well be quite different from what might be anticipated from extrapolation of the model of [the] behaviour of individuals. Individual behaviour does not take place in isolation. On the contrary, there are impacts on the behaviour of other individuals, which in turn cause feedbacks elsewhere in the system, and so on and so forth. Behaviour is altogether too complex to be captured by a mechanistic approach.[84]

Instead, the evolutionary approach sees the economy as an emergent complex, interdependent system subject to positive feedback, uncertainty, path dependency and historical contingency. The last two teach us that history matters

in economic development. Ormerod, citing mathematician Henri Poincaré, tells us: 'The distinguishing feature of chaotic systems is that their behaviour is impossible to predict in the long run, a property which cannot be encompassed by a view of the world which regards it as an enormous machine.'[85]

There has therefore been a great increase in interest in chaotic and non-linear systems in the natural sciences. Importantly, in such systems, the connection between the size of an event and the magnitude of its effects is no longer simple or linear. Small initial differences can lead to enormous differences in outcomes and, consequently, outcomes are extremely difficult to predict or control. For example, although such systems might remain stable in a wide range of circumstances, the presence of tipping points could lead to wholesale changes of behaviour. This has led Ormerod to emphasise that 'unpredictability is an inherent part of the processes that underlie a very wide range of economic and social phenomena'.[86] In contrast with mainstream economic analysis, it employs a very sophisticated form of mathematical analysis made available only recently through the development of chaos and complexity theory.

This perspective is not open to the reductionist modelling employed in mainstream economics, or to simple prediction. Nevertheless, it employs simulations to compare theoretical speculations with real-world data. For example, its simulation of the growth and decline of business firms has successfully shown patterns that are encountered in experience. Interestingly, the evolutionary and institutional economists are generating new growth models that dispense with the neoclassical assumptions and which are proving to be consistent with real data. Similarly, such modelling is capable of generating the main characteristics of movements in unemployment over time, in volatile financial markets and in the clustering that results from the geographical location decisions of businesses.[87] As Michael Porter has already told us, there could be good sense in trying to seed cluster development.[88] Such modelling can also throw light on the impact of random decisions on the selection of new technologies. In respect of the latter, it follows clearly that government support to get new products to market quickly is well justified. Indeed, the evolutionary perspective fits well with organisational theory, with its emphasis on the strategic interdependence between firms, uncertainty, asymmetrical information and increasing returns.[89] Nevertheless, this form of modelling cannot finally escape the ontological objections raised by Lawson, as it also is inherently deterministic. While it could illustrate phenomena that occur in practice, it cannot provide adequate causal explanations. That does not apply, however, to non-mathematical forms of evolutionary theorising, which seem to offer significant promise.

An evolutionary perspective—although not discounting the above insights into the inability of prices to capture fully the social costs and benefits of economic activity—draws particular attention to the experimental nature of all economic

institutions, policy decisions and policy structures. Additionally, in the presence of uncertainty, decisions can be made only on the basis of guesswork, and economic agents and decision makers learn as they proceed, groping towards better outcomes and arrangements. In particular, such uncertainty can result from the path-dependent nature of innovation, where things are learned sequentially as experience accumulates through time, where the range of choice defies analysis or where the situation is ill defined. This approach therefore places great store on the capacity and willingness of economic agents to experiment and absorb knowledge and experience and—contrary to the recent emphasis on rationalisation—on the value of redundancy and variety.

This situation, contrary to Hayek, does not reduce the policy maker to impotency. It does require *phronēsis* or practical wisdom. It should lead to a far stronger emphasis on learning from international experience and from policy experience more generally. Policy development should, therefore, wherever possible, rest on experience, including the tacit learning of market participants, with all the contingencies that this involves rather than on the reductionist analysis of conventional theorising. Importantly, this perspective denies the conventional assumption that returns to investment—adjusted for risk—tend to equalise in practice. It points to areas of investment that will potentially deliver greater benefits than others. This is a policy approach that fits well with the recent East Asian, European and US experiences with their strong emphasis on the creation of comparative advantage through innovation.

Consistent with the above, Lipsey, Ken Carlaw and Clifford Bekar argue that the long-term growth that has raised our living standards to undreamed of levels has been driven by technological revolutions that have periodically transformed the West's economic, social and political landscape in the past 10,000 years and allowed the West to become, until recently, the world's only dominant technological force.[90] They point to a series of technological revolutions, from the domestication of plants and animals, through writing and printing, to the factory system, the dynamo and information and communications technology (ICT). Because of their widespread effects throughout the economy, these general-purpose technologies have driven economic growth in the past 10,000 years. Importantly, they suggest that the development of such technologies has sped up in recent centuries and that this provides a point of strategic policy leverage. They therefore suggest that policy makers should pay particular attention to the development and diffusion of technologies with these general-purpose characteristics, and in particular to ICT, nanotechnology and biotechnology.

Bromley, an 'old' institutionalist, draws attention to the important distinction between the institutional framework within which day-to-day economic decisions are made and those day-to-day decisions themselves. He reminds us that the

market is simply the artefact of a large number of prior collective actions. The market cannot, therefore, logically constrain other collective actions.[91] Nevertheless, Bromley counsels particular care in making institutional change. I would also counsel particular care in making significant organisational changes with widespread impacts. Because it sets the framework for economic activity in general, and the distribution of its benefits, institutional and significant organisational changes should not be treated as if they are simple welfare-enhancing transactions. It is in that context—and with a firm recognition of the gross limitations of the concept of economic efficiency—that many of the changes made in the name of microeconomic reform should have been considered. What was required was not simply a trite assertion that competition was inevitably good because it promoted efficiency, which in turn promoted welfare, but a historically informed analysis of the purposes served by those institutions and arrangements, and a more realistic assessment of the real welfare consequences of change. In short, we deserved more from our political leaders and policy advisers.

It should by now be clear that economics, Lockean political philosophy and their advocates can claim no privileged position in public discourse, standing in judgement of the public's collective policy wishes and of government action.

The Reform of Economic Teaching

In Australia, only a few universities teach alternative economic perspectives or try to place economic behaviour in its historical and institutional setting. This is true also of economics teaching world-wide. The widespread criticism of mainstream economics and of the extreme policy agendas of economic fundamentalists have led to calls for the reform of economic teaching, including by economics students in France, Britain, the United States and Australia. Students at Cambridge University have called for an opening up of economics. They wish to encourage debate on contemporary economics and have criticised the monopolisation of the discipline by a single mode of reasoning.[92] They complain that the content of the discipline's major journals, its faculties and its courses all point in this one direction. They doubt, like the analysis above, the general applicability of this formal approach to understanding economic phenomena and call for the foundations of the mainstream approach to be debated openly along with competing approaches. In particular, they believe that the *status quo* is damaging to students who are taught the 'tools' of mainstream economics without learning the domain of their applicability. They believe this situation is harmful to society in that it is holding back a deeper knowledge of economic phenomena and is denying the possibility of more fruitful policy approaches. It is also inhibiting the funding of alternative research approaches. Consequently, they advocate pluralism in economic research, calling not merely for its tolerance but for its flourishing. To this, I say Amen!

I therefore suggest that the teaching of economics should be changed so that the core content of undergraduate courses consists of the philosophy of the social disciplines, the history of economic thought, contemporary schools of economic thought—and then, and only then, more detailed study of particular schools. This should be complemented by a resumption of the study of economic history and the history of approaches to economic policy problems.

ENDNOTES

[1] Stiglitz 1991, p. 14.
[2] Marx and Engels 1970.
[3] Henry 2007.
[4] van Wanrooy 2007, cited in Sydney Morning Herald 2007.
[5] Hayek (1945, p. 520), cited in Lowe 1965, p. 103.
[6] Hayek 1974.
[7] Leontief 1983, p. 2.
[8] Coase 1991.
[9] Coase 1999.
[10] Shubik 1970.
[11] Blaug 1997, p. 3.
[12] Klamer et al. 2007.
[13] Hodgson 1993.
[14] Ball 2006.
[15] Ormerod 2006.
[16] Lawson 2003.
[17] Hollis 1977.
[18] Koslowski 1983.
[19] Hodgson 1993.
[20] Jonsen and Toulmin 1988.
[21] Oakeshott 1962.
[22] Polanyi 1946.
[23] Smith 1776, Book 1, Ch. 7.
[24] Lowe 1965. See also Clark 1992.
[25] Mirowski 1989.
[26] Jevons 1871, Preface.
[27] Mirowski 1989, p. 103.
[28] Clark 1992.
[29] Knight 1935.
[30] Loomes 1991, cited in Ormerod 1994.
[31] Hodgson 1993.
[32] Guala 1998.
[33] Hamminga and de Marchi 1994. This brief account draws on the historical account given by these authors.
[34] Cited in ibid., p. 20.
[35] Mill 1874, p. 608.
[36] Clark 1992.
[37] Gaula 1998.
[38] Pareto ????, cited in Gaula 1998, p. 40.
[39] Ormerod 1994.

[40] Smolin 1998.
[41] Kincaid 1996, p. 7.
[42] Ibid., pp. 12–13.
[43] Sen 1977, p. 323.
[44] Let us be clear, it is a normative view as well as being a false factual claim. It tells how we are supposed to behave—and anyone who does not behave 'rationally' is criticised as being deficient.
[45] http://en.wikipedia.org/wiki/Daniel_Kahneman
[46] Knight 1935. See also Koslowski 1983.
[47] Keen 2006.
[48] Blaug 1992, p. 49.
[49] Bromley 1990.
[50] Samuels 1972.
[51] Bromley 1990.
[52] This is, of course, not true in every instance, as the rich derive considerable satisfaction from conspicuous consumption. That conspicuous consumption poses considerable difficulties for the theory. In any event, that satisfaction provides us with no persuasive reason to assign moral priority to such consumption.
[53] http://www.miskatonic.org/godel.html
[54] Robinson 1954.
[55] Ibid., cited in Omerod 1994, p. 42.
[56] Georgescu-Roegen 1979.
[57] Ormerod 1994.
[58] Ibid.
[59] Ibid.
[60] Ibid.
[61] Stiglitz ????, p. 21.
[62] Ormerod 1994.
[63] Lipsey 2007.
[64] See http://www.econlib.org/library/Enc/Information.html for a quick summary by Joseph Stiglitz.
[65] Stiglitz 1993.
[66] Ibid., p. 29.
[67] Stilwell 2002.
[68] Lawson 2003.
[69] Clark 1992, p. 174.
[70] Ozel 2002.
[71] Bhaskar 1998.
[72] Ozel 2002.
[73] Lowe 1935. See also http://en.wikipedia.org/wiki/Adolph_Lowe
[74] Lowe 1969.
[75] Lawson 2003, p. 19.
[76] Ormerod 1994, p. 63.
[77] DISR 1998.
[78] Lamberton, Don 1993, Personal communication.
[79] McCombie 2006.
[80] Lipsey 2005.
[81] Shackle 1961.
[82] Ormerod 1998.
[83] Ormerod 1994.
[84] Ibid., p. 37.
[85] Ibid., p. 40.

[86] Ormerod 1998, p. xii.
[87] Ormerod 1994 and 1998.
[88] Porter 1979.
[89] DISR 1998.
[90] Lipsey et al. 2005.
[91] Bromley 2006.
[92] The Cambridge 27 2001.