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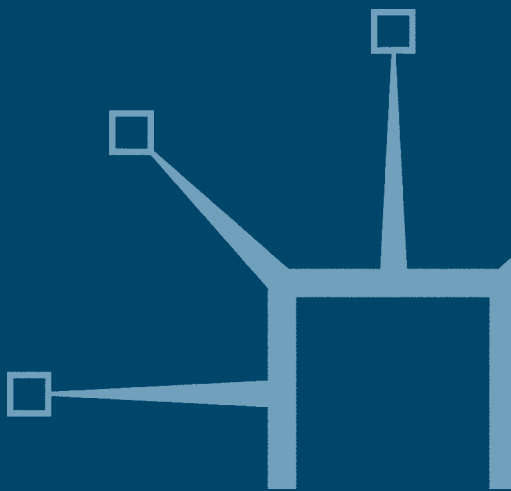
The Economics of Friedrich Hayek, Second edition

G.R. Steele



The Economics of Friedrich Hayek

Also by G. R. Steele

MONETARISM AND THE DEMISE OF KEYNESIAN ECONOMICS
KEYNES AND HAYEK: The Money Economy

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Contents

Preface

The broad thrust of the exposition of *The Economics of Friedrich Hayek* is unchanged. Although errors have been corrected, it is inevitable that some were overlooked and that new ones have been added. I hope the writing has improved. In truth, the writing did not stop. The first edition was simply the current draft that, having been sent to the publisher, continued to evolve with further amendment and additions as the mood took.

Plus ça change … Friedrich Hayek is still 'playing catch up' in respect of John Maynard Keynes. Although Hayek was junior to Keynes by sixteen years and lived for forty-six years beyond the death of his rival in 1946, journal editors view submissions on Keynes's economics as of contemporary interest, while those relating to Hayek are categorised as history of economic thought! There is another tendency that works against Hayek:

> [t]o an economist today, however, only that is true which can be proved *statistically*, and everything that cannot be demonstrated by statistics can be neglected; … the modern fashion demands that a theoretical assertion which cannot be statistically tested must not be taken seriously and has to be disregarded. (Hayek, 1975a, p. 6)

Hayek's economics is too complex to match the easy time-series regressions of aggregates upon averages that purport to confirm aspects of Keynes's macroeconomics.

The manageable disciplines into which science is segregated are artefacts. Nature is one; and spontaneous adaptation is pervasive. Most significant in representing Hayek are the artefacts of neurology, psychology and the various social sciences; but, in Hayek's writings, the boundaries are crossed: 'if you know economics and nothing else, you will be a bane to mankind, good, perhaps, for writing articles for other economists to read, but for nothing else' (Hayek, 1944b, p. 42). Specialisation within narrowly defined disciplines remains a formidable barrier to teaching 'Hayekian theory'; and that barrier is buttressed by the 'stand alone' mini-modules from which modern teaching programmes are generally constructed.

Acknowledgement is due to Routledge and the University of Chicago Press for permission to quote extensively from Hayek's *The Constitution of Liberty*. The content of an early chapter on Hayek's psychology – the most notable change in this new edition – draws heavily from a journal article, with permission ('Hayek's *Sensory Order', Theory and Psychology*, © Sage Publications

Ltd., 2002). By count of words, Chapters 1 and 5 are longer by about one-fifth, while Chapters 8 and 12 are reduced and increased respectively by about one-tenth. Of course (as Hayek would be quick to point out), such aggregates are misleading as indicators of the relevant microcosmic changes.

G. R. STEELE

Preface to the First Edition (1993)

> Especially the young … with their natural passion for the unconventional in matters of personal behaviour and moral values, should find the tolerance of the classical liberal interesting enough to acquaint themselves also with the rest of Hayek's work. (Leube and Zlabinger, 1984, p. 14)

I graduated in economics in 1967, but another twenty years were to pass before I first read Hayek. I am not untypical of my generation. Even now, when I turn to the index of any recent textbook produced for the current crop of undergraduates, a citation for Hayek is a rare exception. Among colleagues, there are few who come close to an understanding of Hayek; still fewer who feel that there is any need to! While there is no doubt that Hayek's work will secure its rightful place at the apex of twentieth-century philosophy, his message has suffered severely from having caught the strongest of ebb tides, in the form of a rising popularity 'of an erroneous conception of what the scientific explanation of highly complex phenomena required' (Hayek, 1992, p. 55). Keynes has much to answer for. The full recognition of the enormity of Hayek's achievements remains wanting. The hope for this book is that it will play some part in achieving that due recognition a little sooner rather than later.

The most astute among the current generation of aspiring academics – those for whom the university chair beckons – understand that their best route lies in the award of research grants, where topicality and sophisticated measurement unlock the important doors. So, it has become the 'modern fashion' that 'a theoretical assertion which cannot be statistically tested must not be taken seriously and has to be disregarded' (Hayek, 1975a, p. 7). Among the many scribbling mice, too few are sufficiently bold to lift themselves above the crowd: above a desire for demonstrable purpose and to the advantage of an intellectual pursuit of understanding for its own sake. Most recently this compliance has been responsible for the fact that, in many UK universities, the teaching of economics has been re-presented in the more glitzy style of Business or Management so that, within undergraduate course structures, it is unusual to find an honours degree scheme that allows time for the teaching of Hayek's economics.

Enough bemoaning! I must express my gratitude to the enlightened founders of my university, who deemed it appropriate that I should have periodic study-leave to pursue interests of my choice. This book is their achievement. In helping to shape the presentation of my arguments, I am grateful to Glenys and Paul Ferguson for their meticulous suggestions for

improvements. For myself, I unashamedly confess to be among those for whom 'the roll call of Hayek's works on the fundamental problems of society arouses in those who grasp the message a peak of admiration' (Shenfield, 1977, p. 61), for which reason this book cannot aspire to attain that dispassionate detachment that is achieved by academic scholarship at its highest level; but I promise to continue in that 'striving'. Of course, I alone am responsible for the faults that remain. Acknowledgement is also due for the permissions of Routledge and the Chicago University Press to quote extensively from Hayek's *The Constitution of Liberty*.

There will be occasions when the reader may feel a need to inquire, 'Whose argument is this, the author's or Hayek's?' To this, the reply is that I have sought to represent Hayek to the level of my own understanding. Errors are inevitable, but I believe them to be few. Although in Chapters 7 and 8 the formulations of the arguments are radically different from their original presentations, there too I believe that they are a genuine representation of Hayek's economics.

The sheer volume of Hayek's works, and the detail of commentaries written on them, are daunting; and the latter are certain to grow. So I make a modest claim to virtue in that my own contribution is concise, while it attempts to be comprehensive, at least in respect of Hayek's economics; but the economics cannot be separated from the other areas of his intellectual achievements. In this latter respect, I have attempted to present an economist's understanding of that which any economist ought to know; or, in Hayek's own terms, 'nobody can be a great economist who is only an economist – and I am even tempted to add that the economist who is only an economist is likely to become a nuisance if not a positive danger' (Hayek, 1967, p. 123). This is probably Hayek's most important message to his fellow economists.

G. R. Steele

1
Introduction

> If old truths are to retain their hold on men's minds, they must be restated in the language and concepts of successive generations.
>
> (Hayek, 1960, p. 1)

> [I]n economics you can never establish a truth once and for all but have always to convince every generation anew.
>
> (Hayek, 1991b, p. 38)

Friedrich Hayek

Hayek received the Nobel Memorial Prize in Economic Science in 1974. In a brief speech made at the Laureates' banquet, Hayek commented that he would not have recommended the creation of such an award. One of his fears – that it 'would tend to accentuate the swings of scientific fashion' – had been assuaged by his own award ('to one whose views are as unfashionable as mine are') but he was troubled on a second count: '[i]t is that the Nobel Prize confers on an individual an authority which in economics no man ought to possess' (Hayek, cited from Machlup, 1977a, p. xviii). That comment is consistent with Hayek's view of the multi-volume series of Keynes's *Collected Writings*: a distinction 'for which Newton, Darwin, and the great British philosophers still have to wait' and more 'a token of idolatry … than proportionate to his contribution to the advance of scientific knowledge' (Hayek, 1983, p. 48). The irony is that the first of the multi-volume series of Hayek's *Collected Works* appeared four years *before* Hayek's death! Yet, although Hayek's work has achieved that level of veneration about which he had expressed doubts, when the serious press carried his half-page obituaries, few among those who read them had heard of the man. Even among academic economists, the significance of his work remains lost to a majority:

> [w]hen the definitive history of economic analysis comes to be written, a leading character in the drama … will be Professor Hayek. Hayek's

> economic writings … are almost unknown to the modern student; it is hardly remembered that there was a time when the new theories of Hayek were the principal rivals of the new theories of Keynes. Which was right, Keynes or Hayek? (Hicks, 1967b, p. 203)

This is a sad reflection upon the teaching of economics in the twenty-first century, when neoclassical microeconomics, Keynesian macroeconomics and regression analysis define the complete economist.

The general perception that exists, of Hayek's emplacement on the far right of the political spectrum, is a mark of how narrowly he is known; having been stamped conservative, he is regarded as a staunch defender of the establishment, but his own description of conservatism[1] should be enough to raise doubts:

> [I]n its paternalistic, nationalistic, and power-adoring tendencies it is often closer to socialism than true liberalism; with its traditionalistic, anti-intellectual, and often mystical tendencies it will never, except in short periods of disillusionment, appeal to the young and all those others who believe that some changes are desirable if this world is to become a better place. (Hayek, 1967, p. 222)

Perhaps as an indirect comment upon the 'Middle Way' of the economics of Keynesianism and the politics of Butskellism in post-1945 Britain, Hayek further suggested that

> the conservative does not object to coercion or arbitrary power so long as it is used for what he regards as the right purposes. He believes that if government is in the hands of decent men,[2] it ought not to be too much restricted by rigid rule. Since he is essentially opportunist and lacks principles, his main hope must be that the wise and the good will rule. (Hayek, 1960, p. 401)

The conservative defends the traditions, customs and institutions of an established order, that give a solid basis for social cohesion. By the fact of their survival, they have demonstrated their worth, but they are not to be preserved at all cost. There must be toleration of the new and a willingness to allow institutions to adjust to ever-changing social forces. Above all, the individual must have freedom of expression and freedom from coercion. Distinctly nonconservative, Hayek's philosophical base is that of classical liberalism.

Background

Friedrich Hayek was born in Vienna on 8 May 1899; he died on 23 March 1992. As a young man, he pursued interests in genetics, psychology and

psychiatry; and he gained his university entry qualification from attending classes in philosophy. As a young cadet (March 1917 to November 1918) Hayek's experiences on the Italian front, in coordinating communications for his field artillery unit in the multinational Austro-Hungarian army, turned his interest to social science:

> I served in a battle in which eleven different languages were spoken. It's bound to draw your attention to the problems of political organisation.
>
> It was during the war service in Italy that I more or less decided to do economics. But I really got hooked when I found [Carl] Menger's *Grundsätze* such a fascinating book, so satisfying. Even then, you see, I came back to study law in order to be able to do economics, but I was equally interested in economics and psychology. (Hayek, 1994, p. 48)

Hayek entered the Arts Faculty of the University of Vienna in November 1918 where, during the ensuing three years, he participated in a wide range of intellectual and cultural activities. Although Hayek was destined to gain a first-class degree in jurisprudence, he divided his time 'about equally between economics and psychology' (Hayek, 1992, p. 173) except for that taken 'to study half a dozen other subjects' (Hayek, 1994, p. 52):

> [t]hough a new degree in the political and economic sciences had just been created, most of us were still working for the law degree in which economics was only a small part and any professional competence we had largely to acquire by our own reading and from the teaching of men for whom this was a part-time labour of love. (Hayek, 1994, p. 47)

In the winter of 1919–20, a fuel shortage forced the closure of the university and presented Hayek with an opportunity to travel to Zurich, where – as well as attending lectures in law and philosophy – he 'worked for a few weeks in the laboratory of the brain anatomist Constantin von Monakow, tracing fibre bundles through the different parts of the human brain' (Hayek, 1994, p. 64). Although a first crucial insight – '[w]hat I had from the beginning been unable to swallow was the conception that a sensory fibre could carry, or a nerve cell store, those distinctive attributes that we know mental phenomena to possess' (Hayek, 1952b, p. 289) – indicated that an alternative conceptual approach was required, only limited progress was made: '[t]hough I felt that I had found an answer to an important problem, I could not explain precisely what the problem was' (Hayek, 1952b, p. v). The draft research paper that resulted became the basis for subsequent work in theoretical psychology, eventually published in 1952 as *The Sensory Order*.

Like many who were moved by the poverty of post-war Vienna, Hayek was inclined towards socialist ideals; but this was countered by the teaching of

Ludwig von Mises which showed how the market is a prerequisite for economic calculation. In this respect, the publication in 1922 of Mises's *Die Gemeinwirtschaft* (to be translated as *Socialism*) was a personal turning point (see Hayek, 1992, p. 133).

Between 1921 and 1923, Hayek worked as a civil servant (as Mises's subordinate) in the temporary *Abrechnungsamt* (Office of Accounts) that had been established to implement the financial provisions of the Treaty of St Germain, which saw the break-up of the Habsberg Empire after the Great War. During this 18-month period, Hayek also wrote his doctoral dissertation in political science, completing this second degree. Then, with letters of introduction from Joseph Schumpeter (which proved of no avail) and the 'half-promise of a job', he set off for the United States, where he worked as a research assistant at the Alexander Hamilton Institute in New York, but also 'gatecrashed' courses at Columbia University and the New School of Social Research. The experience of his 14 months in the United States – where the key words were stabilisation, economic forecasting and the analysis of economic time series – caused Hayek to turn his attention to 'the relations between monetary theory and the trade cycle' (Hayek, 1992, p. 37).

Hayek returned to Vienna in the summer of 1924, and resumed his former occupation under Mises; at the same time, he was admitted to the informal 'Mises seminar', which met fortnightly and where the discussion was of the 'problems of the methodology of the social sciences, but rarely with problems of economic theory (except those of the subjective theory of value)' (Hayek, 1992, p. 155).

Hayek used his American experiences as the basis for his preparation for a 'major work on monetary theory', which he hoped would lead to a university position. From descriptive work on US monetary policy, he began to develop his theories of monetary fluctuations. In writing upon American monetary policy, Hayek employed a theory that he attributed to Mises. On learning that this had not appeared in published form, he incorporated the basic ideas into an essay that appeared in 1925: 'The Monetary Policy of the United States after the Recovery from the 1920 Crisis' (McCloughry, 1984, pp. 5–32). The idea that monetary expansion distorts the structure of capital and the implications thereof were to be further developed and refined.

Hayek's excursions into monetary theory were interrupted in 1927 when (having helped Mises to establish the body) he became the first director of the *Österreichische Institut für Konjunkturforschung* (Austrian Institute for Business-Cycle Research). This he ran virtually single-handed until additional American funding from the Rockefeller Foundation supported the appointment of Oskar Morganstern in 1929. This allowed Hayek to devote more time to monetary theory, where his discovery of Henry Thornton's emphasis upon the tendency for bank-notes to be over-issued whenever

business yields exceed the interest rate, gave crucial direction to a monetary theory of business cycle theory (see Hayek, 1991b, p. 195).

It was in the February 1929 report of the Institute that Hayek made his bold prediction of an impending business crisis in the United States. Whereas orthodox monetary theorists were misled[3] by the experience of economic growth without inflation, Hayek warned that maladjustments are the inevitable consequence of monetary expansion and that a crisis was impending. Price stability in a decade of sustained growth in real output was *prima facie* evidence of excessive monetary expansion. In 1929, Hayek was admitted to the University of Vienna as a lecturer (*Privatdozent*) in economics and statistics.

In 1931, Hayek accepted an invitation to give a series of guest lectures at the London School of Economics where, later in that same year, he was appointed Tooke Professor of Economic Science and Statistics. A feeling that he had been brought to London to counter Keynes's growing influence seemed to be confirmed by Hayek's critical reviews of *A Treatise on Money*, which aroused considerable anger in Cambridge. For his own part, although he became a personal friend, Hayek retained a low regard for Keynes as an economist: 'I don't think he spent more than a year learning economics' (Hayek, 1994, p. 93); '[w]idely read as Keynes was in many fields, his education in economics was somewhat narrow' (Hayek, 1972, p. 101). Not only did Hayek view Keynes's analysis of economic phenomena in the aggregate as *naïve*, he was deeply concerned by 'the enthusiasm for all sorts of planning among the non-economist intelligentsia of Britain' (Caldwell, 1997a, p. 43) and the wider implications of that strong government upon which Keynes's policy prescriptions would rely.

Hayek's fears of the insidious totalitarian threat to civilisation are illustrated by the publication of *The Road to Serfdom* (1944b) and by his instigation in 1947 of an academy of liberal intellectuals – the Mont Pèlerin Society – with the objective 'to reconstruct a liberal philosophy' (Hayek, 1967, p. 149). Since its inaugural conference at Mont Pèlerin above Vevey on Lake Geneva, the Society has continued as a self-selecting body whose function is the exchange of ideas through debate. It takes no action and issues no statements. Members of the Society were prime movers of the removal of wartime controls and the rapid economic recovery of post-Second World War Europe; that is, 'Erhard in Germany, Luigi Einaudi in Italy, Jacques Rueff in France, and Reinhard Kamitz in Austria' (Haberler, 1989, p. 222). Even so, the post-war settlement by which Europe was divided placed many millions of individuals under communist subjugation.

When the successful entrepreneur Sir Antony Fisher asked Hayek to give advice on measures 'to thwart the ominous growth of socialism', Hayek argued against politics or mass propaganda, pointing instead to the need for institutions to function as 'second hand dealers of ideas' (Hayek, 1992,

p. 193). It was that advice that led directly to the foundation in London of the Institute of Economic Affairs (IEA) in 1957: Hayek's

> counsel was that I should join with others in forming a scholarly research organisation to supply intellectuals in universities, schools, journalism and broadcasting with authoritative studies of the economic theory of markets and its application to practical affairs. (Fisher, 1974, p. 104)

Counterparts to the IEA include the Institute for Humane Studies at George Mason University (Fairfax, Virginia), the Cato Institute (Washington, DC) and the Ludwig von Mises Institute at Auburn University (Alabama).

In 1938 Hayek acquired British nationality and, thereafter, had thrust upon him the mantle of 'hate figure' of the British political left. Even though it was 'directed less against communism than against fascism', *The Road to Serfdom* irritated many. Indeed the Russian authorities saw it as a hostile tract and obliged the occupying powers to prohibit its importation into Germany (see Hayek, 1992, p. 190). Furthermore, Winston Churchill's infamous 1945 General Election broadcast – in which he associated the Labour Party with the notion of a Gestapo – was attributed by Clement Attlee to Hayek's influence (see Gamble, 1996, pp. 77–8). None of this appears to have caused Hayek much concern. Indeed, his appreciation of England was heightened by the experience of Cambridge – the temporary location of the LSE during the war – where Keynes was instrumental in his obtaining accommodation in King's College.

While at the LSE, Hayek became a frequent visitor to American universities until a long-drawn acrimonious divorce, immediately followed by marriage to his first love and cousin Helene Bitterlich, brought recriminations that affected long friendships and (though there were other motives) caused Hayek finally to leave Britain (see Hayek, 1994, p. 129; Gamble, 1996, p. 17; Hoover, 2003, pp. 188–95; Caldwell, 2004, p. 133, fn 1). In 1950, Hayek was appointed Professor of Social and Moral Science and to membership of the Committee on Social Thought at the University of Chicago.

With Keynesian economics in the ascendancy in both academia and government, Hayek's economics became lost to a generation. By 1950, his reputation had ebbed to the extent that Chicago's economists had refused to countenance him; but it was then 'that Hayek made his greatest contributions to political theory, including most notably his *Constitution of Liberty* (1960), surely the most powerful and profound defence of individual freedom in our time' (Gray, 1982, p. 19). Attracting scholars from all branches of social science, Chicago's Committee on Social Thought was widely respected throughout the United States; and it allowed Hayek 'almost ideal opportunities for the pursuit of new interests' given that he 'felt much out of sympathy with the direction in which economics was developing' (Hayek, 1994, p. 126).

Hayek left Chicago (as Professor Emeritus) in 1962, accepting a post as Professor of Economic Policy at the Albert Ludwigs Universität at Freiburg im

Breisgau. He retired in 1967 and, in 1969, became honorary Professor of Political Economy at the University of Salzburg where he remained before returning to Frieberg in 1977. In that same year, Hayek travelled to Chile, where he met with General Augusto Pinochet and endorsed the economic reforms that followed upon the overthrow of the elected government of Salvador Allende.

In October 1974, the Nobel Prize in Economics was awarded jointly to Friedrich Hayek and Gunnar Myrdal, 'for their pioneering work in the theory of money and economic fluctuations and for their penetrating analysis of the interdependence of economic, social and institutional phenomenon' (Machlup, 1977b, p. xv). (The citation is deceptive: the two economists had disparate views on free trade and market competition.) In 1984, at the instigation of the British Prime Minister Margaret Thatcher,[4] he was made Companion of Honour; and in 1991 he was awarded the US Presidential Medal of Freedom. Friedrich Hayek died in 1992 at his home in Freiburg.

Hayek's intellectual contribution

Hayek experienced at first-hand the fall of the Hapsburg Empire and the barbarism of the First World War. In rejecting the intellectual endorsement of the various forms of totalitarianism that followed in the wake of the chaos that ensued, Hayek re-established the credibility of classical liberalism, against the wave of contemporary rationalism.

By his life's work, Hayek has come closest to a genuine praxeology, a term (first introduced by Mises) which denotes a unified theory of human action. Hayek's intellectual contributions were made over more than sixty years, during which period he published extensively in economics, epistemology, ethics, law, philosophy, political theory and psychology. There are common threads. Ever-present Kantian themes are that the order whereby sensory perceptions are understood is created as 'mind'; that there is no capacity to gain an objective knowledge that is detached from an individual's unique biological, intellectual and cultural constraints; and that individuals necessarily presume a great deal and would benefit greatly from acknowledging the nature and limits of their reason. An associated theme emphasises the pervasiveness of natural, spontaneous evolutionary orders. For example, the processes of the mind are evolutionary constructs: adaptations that bring order to sensory impulses. Hayek's insight from psychology, that conscious thought has no access to the rules that govern conscious thought, has a parallel in social theory: '[p]articular aspects of a culture can be critically examined only within the context of that culture' (Hayek, 1976a, p. 25). Social processes follow an evolutionary path and it would be erroneous to presume that social institutions might be rationally redesigned upon the basis of any detached synoptic overview. The particular details, of both neurological and social systems, are strengthened naturally (without conscious reflection)

through positive feedback; that is, they are repeated when they confer successful outcomes. Each is an example of 'an order determined by the regularity of the actions towards each other of the elements of a structure' (Hayek, 1967, p. 73). Neural and social orders rest upon practical dispositions that are impervious to reason, because they govern our reason.

The spontaneous emergence of social institutions is illustrated by the growth of language, by the development of common law and by the deference that is given to just rules that determine civilised behaviour. Founded upon essentially competitive processes, a natural order is brought to human affairs by the self-selection and continuous adaptation of systems and rules. Such general features apply to any society, whose development extends beyond that of the primitive economy. Only with small tribal groupings of a few hundred or so is it possible for every individual to know every other individual, so that the full consequences of every action can be considered. Beyond the primitive society, an evolutionary order achieves the highest degree of cohesion, but it is one that the arrogance of intellect has sought to denigrate. In modern times, more rational approaches to ordering human affairs have been sought. In general, these have attempted to constrain the decisions of the individual, so that their impact is purportedly subservient to a wider public good. In defending individual liberty and the free society against this kind of collectivist aspiration, Hayek engages the principles of the Austrian School to full effect (see below). He uses the term 'constructivist rationalism' to indicate the erroneous belief – a derivation of the philosophy of Descartes and Voltaire – that man might deliberate upon the institutions of civilisation so as to restructure them according to his will. The most important of its nineteenth-century manifestations were utilitarianism and socialism while, more recently, it has shown in attempts to use the market in the service of so-called social justice.

Hayek illustrates the pernicious influence of constructivist rationalism by pointing to the common misuse of the adjective 'social'. For example, the appeal to 'social considerations' is an appeal to that which cannot be known, because of the limits to human reason; and when 'conscience' is prefixed by 'social', the reference is to an awareness of the impact that an action might have upon others, but – beyond primitive groupings – this is an awareness that cannot exist. These are options that were removed by the emergence of an extended order of an economy structured upon the division of labour, free access to markets and the freedom of individual choice. For such highly developed systems, a very sophisticated order is required; but it is through impersonal and evolutionary processes that abstract rules of moral conduct are formulated, whereby justice is focused upon action and not upon outcomes that are impossible to foresee. It is upon this basis that Hayek denigrates 'social' as a 'weasel word' for the reason – in quoting Shakespeare – that its use as a prefix sucks the meaning from a word 'as a weasel sucks eggs': '[a] weasel word is used to draw the teeth from a concept … from which one wishes to

eliminate all implications that challenge one's ideological premises' (Hayek, 1988, pp. 116–17). Among the many other examples that Hayek cites are 'social democracy', 'social market economy' and, of course, the ubiquitous 'social justice' which is 'the emptiest of all phrases' (Hayek, 1978b, p. 18). Since the effect of these manifestations is variously to undermine the cohesion of our society, the true meaning of social is anti-social; and the social justice that is upheld by the social conscience in the interests of the social good is pure fantasy.

By simple count of books, pamphlets and articles, one-third of Hayek's published work is in economics (see Machlup, 1977b). Even within economics, his writings cover a wide area: monetary theory, capital theory, business cycle theory, planning under socialism, the theory of the market process, and methodology. All are so intricately interrelated that, for the most part, it is impossible to obtain an understanding of one in isolation of the others.

Hayek's work on money, capital investment and business cycle theory was misunderstood, attacked, misrepresented and finally neglected.[5] Its failure to win approval can be attributed partly to Hayek having 'purposely refrained from combining purely theoretical considerations with discussions of current events' (Hayek, 1933a, p. 18), and partly to the preoccupation of others with the detailed experience of business failure. Further explanation may lie with method: theory founded upon introspection takes precedence over empirical work. The modern contempt for introspection is nothing short of contempt for the systematic application of intellectual thought.

The political turmoil that followed upon the end of The Great War, had stoked fears for the future of democracy in Europe. Those fears were augmented by the experience of the 1930s, when the alleged failures of capitalism were held to be responsible for the chronic unemployment of resources; and there was the added threat posed by the rise of National Socialism in Germany. From these developments there grew a general perception of a need for economic reconstruction, with greater state involvement to offset (or to ameliorate the consequences of) the impact of commercial business failures. So the intellectual case against the planning of economic activity under the central direction of a state authority – that Hayek continued to develop then and throughout his life – was met by a vigorous counterattack that persuaded many of the advantages to be gained from the centralised administration of production and distribution. Central planning (it was argued) would improve economic efficiency and preclude the waste of resources that arises from the anarchy of markets. The 'socialist calculation debate' that was conducted around those issues, is the instrument to set Hayek and the economics of the Austrian School within a broader economics context (see Chapter 6).

Of course, not all economists suffer from a predisposition to socialist planning; but, even among those who understood the nature of the benefits to be had from the enterprise economy, the economic malaise of the 1930s had

generated impatience with sophisticated theoretical analysis. Though inhospitable to Hayek, this impatience produced a fertile climate for acceptance of John Maynard Keynes's analysis for the limited short term that was published under the misnomer *The General Theory*. As Keynes's views held increasingly greater sway, Hayek's economics entered into obscurity. Although Hayek was later to express regret that he had allowed Keynes's *General Theory* to escape the degree of analytical criticism that he had directed at *A Treatise on Money*, his own interests were moving in entirely new directions:[6]

> Yet, though I still regard myself mainly as an economist, I have come to feel more and more that the answers to many of the pressing social questions of our time are to be found ultimately in the recognition of principles that lie outside the scope of technical economics or of any other discipline. (Hayek, 1960, p. 3)

While the moment was with Keynes, time was not, for its passage brought into question the longer-term implications of his policy prescriptions for chronic unemployment. As Keynesian full employment policies proved inherently inflationary and ultimately unworkable under a free democracy, so interest was rekindled in the approach of the Austrian School.

More specifically, attention turned again to Hayek's contemporary criticisms of Keynes's *General Theory* and to his subsequent criticisms of both Keynesian macroeconomics and modern Monetarism. According to Hayek, their common error is in purporting to analyse economic forces at an aggregate level that corresponds to no decision-making agency that is either identifiable or real: '[i]n fact, neither aggregates nor averages do act upon one another' (Hayek, 1935b, p. 4). The principles of the Austrian School provide the basis for Hayek's perceptive criticisms and for his own positive contributions to economic analysis. Indeed, it is difficult to give due acknowledgement for the inception of many of the features of Austrian Economics.

The Austrian School

Carl Menger (1840–1921) is acknowledged as the founder of the Austrian School at the University of Vienna. His ideas were taken up by his two most eminent students, Friedrich von Wieser (1851–1926) and his brother-in-law Eugene Böhm-Bawerk (1851–1914). Among their equally eminent successors were Ludwig von Mises (1881–1973) and Friedrich Hayek (1899–1992). Their work contrasts sharply with classical economics and the labour theory of value that was developed by David Ricardo (1772–1823), John Stuart Mill (1806–73) and Karl Marx (1818–83). Here, the value of any item is objectively determined by its embodiment of productive labour. In the Austrian approach, value can be determined only by the subjective preferences of an

individual mind. Even the data of social sciences are subjective phenomena that are constituted by widely held beliefs and perceptions: 'social phenomena can be recognised by us and have meaning to us only as they are reflected in the minds of men' (Hayek, 1952a, p. 34).

The distinctive philosophy of the Austrian School was first enunciated in opposition to the Historical School (led by Gustav Schmoller) that was predominant in mid-nineteenth-century Germany. Schmoller's 'historicism' embraced the view that social phenomena can be understood only in their entirety: an approach that denies the possibility of a narrow focus upon economics. History was regarded as an empirical study of society from which generalisations would emerge (see Hayek, 1952a, pp. 111–39). The Historical School found little value in abstract deduction, and so there was a strong reaction to the publication of Carl Menger's *Principles of Economics* in 1871, with its stress upon the subjective nature of economic values. In taking the issues further in a second book published in 1883 (*Investigation into Methods of Social Science and Political Economy in Particular*), Menger brought upon himself still more heated criticism, when the (purported derogatory) term 'Austrian' was first used as a genus.

Although Carl Menger is among the acknowledged pioneers of marginalism, there is a distinction in his work that became the special mark of the Austrian School. Menger's *Grundsätze* (1871) provides a systematic examination of the properties that determine the scarcity and value of a good. These are subjectively determined upon the basis of an individual's wants and his knowledge of circumstances and opportunities. Utility is not inherent in particular objects, but in the relationships between objects and individuals; but Menger's main achievement is to have extended 'the derivation of value of a good from its utility, from the case of given quantities of consumers' goods to the general case of all goods, including the factors of production' (Hayek, 1978b, p. 276). Menger emphasises the network of linkages between the production of different goods and the role of human action and market transactions in achieving a coherent structure within that network. Stress is placed upon uncertainty, upon the costs of acquiring information and upon the implications of human action, both in creating and in responding to changing circumstances. Choice is a disequilibrium phenomenon and every choice is a costly experiment in which subjective values are established. Valuation exists only at the moment of choice.

Every act involves a choice, and the combination of individuals' choices produces highly complex structures, knowledge of which is never complete or certain. Yet, as distinct from the procedures of the physical sciences, empirical work in the social sciences is aided by a capacity to understand human motivations through introspection (*verstehen*). Even though individuals' behaviour is motivated by subjective evaluations, it can be categorised by type; and upon the basis of those categorisations, predictions are possible. These are limited 'pattern predictions' that are modestly aimed to identify general tendencies.

Menger's subjective theory of value and his aversion to the pretence of mathematical precision is in direct opposition to the formalism that was to become the primary feature of the alternative marginalism of neoclassical microeconomics. Where Menger had indicated that costs are 'determined by the utility that the goods used for a particular purpose might have had in alternative uses' (Hayek, 1978b, p. 276), the neoclassical assumption of objective costs reduces decision-making to the application of differential calculus. Yet, it is impossible for objective costs to reflect opportunities forgone: '[t]he most perfect system of accounting controls will not resolve the problem, since discarded alternatives generate no transactions for the accounting system to record' (Loasby, 1989, p. 157). In this context, an appraisal of past decisions would require the re-evaluation of the choices as they appeared at the time of the decision; and this demands an equivalent knowledge and judgement between both the decision-taker and those who would pass judgement upon him. This cannot exist.

The alternative approach of the Austrian School was to reach its apotheosis in the context of Hayek's liberal philosophy: he regards all socio-economic data as subjective phenomena. Money and capital are abstractions that are given physical form only through the belief in their functional worth. So, too, are the perceptions of law, liberty and justice. Yet, since there can be no private socio-economic forms, perceptions of law, liberty and justice are meaningful only in the context of culture, tradition and social interrelationships. Human action and reaction are in constant play, and Austrian analysis is founded upon dynamic processes, where decisions are formulated in the presence of uncertainty and with the potential for error, and where entrepreneurship determines the flux of ever-changing relative prices that are indispensable as a guide to give coherent direction to economic activity.

In addition to the contrast that has been drawn with the objective labour theory of value, the approach of the Austrian School is also distinct from that of the two (allegedly complementary) approaches to economics that were to dominate mid-twentieth-century teaching in Western Europe and North America. In modern times, the economics mainstream has been given over to two brands of static analysis: neoclassical microeconomics and Keynesian macroeconomics.

Neoclassical microeconomics has created the popular domain of marginal analysis, in which the economic problem is to achieve an optimum solution in the face of resource constraints. (Consumers maximise welfare subject to a given budget. Producers maximise output subject to given costs; or minimise costs subject to a given output target.) Some sixty years after the inception of 'marginalism', and without contradicting any part of the structure of neoclassical microeconomics, Keynes's *General Theory* introduced the idea of aggregate demand analysis, based upon the thesis that broad categories of expenditure are dependent upon equally broad determinants. The central feature of the Keynesian paradigm, which grew from Keynes's *General Theory*, is

that – by manipulating the determinants of those broad categories of expenditure – it is possible to deal with the (perceived) tendency of the economy to reach equilibrium at less than full employment. The methodological approach taken is that of 'comparative statics'; at one level of state expenditure there is under-full employment while, at another higher level of expenditure, full employment holds. The nature of the intervening traverse is neglected, so it can only be presumed that the processes of readjustment pose no difficulties.

Respectively, these non-rival theoretical approaches became the microeconomics and macroeconomics of the economics textbook. With both, the analysis is undertaken within the confines of a stationary economy; that is, one with no relevant past and with a future which (in the absence of exogenous shocks to the system) is identical to the present. Situations are appraised and judgements are made upon the basis of an instantaneous view. At worst, a single snapshot is considered. At best, a series of snapshots are compared. Although not entirely without benefit, this method has many pitfalls. The insights which it offers are outnumbered by the fallacies created by ignoring features of dynamic change; for it is impossible for the static approach ever to focus upon 'the ultimate goal of all economic analysis', which is to discover, in a causal sense, 'an explanation of the economic process as it proceeds through time' (Hayek, 1941, p. 17).

Whereas neoclassical microeconomics is concerned with the entirely static problem of allocating *given* means among constant and *known* competing ends, the Austrian School directs attention to the role of market processes in coping with ever-changing relationships between ends and means. This is an important distinction, and one which might have been more widely appreciated had there been a more precise use of terminology: that is, had 'an economy' retained its original meaning of an administered organisation, with the ability to direct resources to serve given purposes (a definition that would have encompassed the 'theory of the firm' and the 'theory of consumer behaviour'). Distinct from this is the cohesion of the 'catallaxy'; that is, the spontaneous order that is achieved through free exchange and market processes. Whereas it is necessary to know the objectives of the organisation before an economy can be made the subject of analysis, a catallaxy exists as a subject for analysis without any requirement to know the objectives of the various participants. In most typical cases, these would be too numerous to discover. (In one perspective, economy and catallaxy are rivals: the former is less economically efficient when the organisational costs of management exceed the transactions costs of market trading. In that situation, 'outsourcing' is the recommendation.)

Pseudo-scientific exactitude and measurement

Although Menger's work was to be developed further by those who followed in the Austrian tradition, the inherent inability to match the precise mathematical formulations of neoclassical microeconomics fell short of twentieth-century

requirements for exactitude and measurement. In the new era of tractable economics, of simplistic assumptions and easy solutions, a high degree of mathematical prowess is required! The popularity of these forms has gone hand-in-hand with a lazy disregard for the more taxing issues raised by the methodological approach of the Austrian School. More successful were those developments within the static framework created by W. Stanley Jevons (1835–82) and Léon Walras (1834–1910), where tractable solutions are more readily achieved, through their divorce from the reality of uncertainties, subjective choices and dynamic processes.

For much the same reason, Keynes's move to pitch the discussion of policy issues in terms of broad categories of expenditure gained tight hold. Microeconomic theory had promised much, but had delivered little in the way of positive policy advice to a generation that sought greater control over its economic destiny. Keynes offered just that, with a theory of unemployment structured upon the assumption of a superabundance of unused capacity and resources. Government statistical sources were used by Keynesians to establish correlations to confirm the hypothesis of meaningful interrelationships between various time series of aggregated data. Once causes were established by an 'appropriate' choice of exogenous variables, the orchestration of policy was made conveniently reliant upon budgetary policy; that is, upon the balance between state expenditures and the means by which those expenditures might be financed. Initially, it was thought that policy might succeed in following the simplest of guidelines; but greater precision in monetary and fiscal management was expected to go hand-in-hand with the compilation of ever more sophisticated national income and balance of payments statistical aggregates.

The electronic computer, advancing statistical methods and more systematic data collection went hand-in-hand with economists' conceit. The beliefs that the state could act purposefully to raise the level of economic achievement in terms of wealth and welfare, and that national economic policy could be guided by economic models founded upon the analysis of statistical aggregates, were to become widely accepted among professional economists. Notwithstanding this wide academic appeal and the approving interest within government, from the Austrian viewpoint this approach was always rejected as simplistic and pseudo-scientific. In a series of lectures delivered in 1937, Hayek was scathing in his condemnation of the 'fashionable pseudo-quantitative economics of averages with its argument running in terms of national "price levels", "purchasing power parities", "terms of trade", the "Multiplier", and what not' (Hayek, 1939a, p. 45).

Hayek's economics

It is tempting and, in many respects, would be more interesting to deal at an early stage with the controversies that involve Hayek and which centre upon Keynes's *General Theory*, for it is a remarkable feat for Keynes to have set back

the advance of economic understanding by several decades. The reason for resisting the temptation is that a full appreciation of the extent of Hayek's aversion to 'the incubus' of Keynes requires an understanding of the details of Hayek's own preoccupations in economics.

Hayek's economics is derived from his work on the psychology of man and his understanding of the tendencies that produce spontaneous order. In terms of his own development, the young Hayek had been unable to articulate his understanding of the nature of consciousness, so that an idea that had suggested itself during student days, some thirty years earlier – 'though I felt that I had found an answer to an important problem, I could not explain precisely what the problem was' (Hayek, 1952b, p. v) – was only later to reveal itself as 'the central problem of the nature of mental phenomena' or, more succinctly, as the question 'What is mind?' This is a broad issue that intrudes upon philosophy and which cannot be investigated by the 'exclusively empirical approach' of modern psychology, which Hayek criticises for its contempt for introspection.

Chapter 2 of this book presents an exposition of Hayek's understanding of mind that is adapted from a paper published in *Theory and Psychology* (Steele, 2002). *The Sensory Order* – published in 1952 and regarded by Hayek as his most original work – has been largely ignored, but it is important for the reason that 'the view of knowledge which it defends can be shown to presuppose many of the positions Hayek adopted in economic theory and social philosophy' (Gray, 1984, p. 3).[7] The work was contemporaneously important to the development of Hayek's thinking, in that his 'concern with the logical character of social theory' forced a systematic re-examination of 'my ideas on theoretical psychology' (Hayek, 1952b, v). Given its long gestation, it is unsurprising that so many of its elucidations and conclusions are implicit in his earlier publications or that they are central to Hayek's economics: 'the insights I gained … both from the first stage in 1920 or later in the 1940s, were probably the most exciting events that ever occurred to me, and which shaped my thinking' (Hayek, 1994, p. 153). Hayek did little to disseminate the content of what he regarded as one of his 'more important contributions to knowledge' (Hayek, 1994, p. 138), declining an invitation (letter, 24 February 1954) to attend an informal conference at Cornell, attended by leading psychologists of the day.[8] An explanation may be the 'far-reaching philosophical problems' with 'the distinction between what we can say "within a system" and what we can say "about a system" ' (Hayek, 1994, p. 29); these proved 'so excruciatingly difficult' that an unfinished paper was abandoned because nobody he 'tried it upon could understand' (Hayek, 1986, p. 290). Yet, the psychology of *The Sensory Order* gives insight into the nature of social systems:

> [t]he structure of men's minds, the common principle on which they classify external events, provide us with the knowledge of the recurrent

> elements of which different social structures are built up and in terms of which we can alone describe and explain them. (Hayek,1952a, p. 34)

It also caused Hayek to develop 'the distinction between an explanation of the principle and an explanation of the detail – pattern prediction' (Hayek, 1994, p. 138) that became of central importance to his work in economics.

Attempts to impose rational structures upon social institutions threaten the spontaneous extended socio-economic order that is free of intellectual design. It is in this context that Chapters 3 and 4 attempt to outline Hayek's appreciation of the broad features of the relationships between human psychology, individual liberty and social order, where the recurring theme is that human knowledge extends far beyond that which can be articulated. It is the tacit knowledge, captured by generally accepted institutional practices, that (partially) compensates for an individual's unique ignorance and uncertainty.

In Chapters 5 and 6, a tighter focus is drawn upon Hayek's economics, the crucial details of which crystallised in a landmark article – 'Economics and knowledge' – published in 1937:

> [i]t stemmed from a joke about economists speaking about given data just to reassure themselves that what was given really was given. That led me, in part, to ask to whom were the data really given. To us, it was of course [given] to nobody. The economist assumes [the data] are given to him, but that's a fiction. In fact, there's no one who knows all the data or the whole process, and that's what led me in the thirties, to the idea that the whole problem was the utilization of information dispersed among thousands of people and not possessed by anyone. (Hayek, 1994, p. 147)

The degree to which the article constitutes a radical departure from Hayek's previous perceptions is a moot question. The impetus for 'Economics and knowledge' may have come from the editing of, and contribution to, a collection (Hayek, 1935a) that included Mises's 1920 seminal article 'Economic Calculation in the Socialist Commonwealth' and articles by his critics (see Gamble, 1996, p. 18). The appearance in 1936 of the English translation of Mises's book may also have been relevant to the material of a lecture in the same year, which is the basis for the 1937 article.

In the context of the socialist calculation debate, the conventional interpretation – disputed by Lavoie, 1985 – is that 'Economics and knowledge' is a new departure, necessary to counter Oskar Lange, who had shown that central planning could achieve results that, while equivalent to those under the neoclassical paradigm of perfect competition, avoided various negative aspects arising from actual market competition. In regard to an actual economy under socialism, Hayek notes (in an essay of 1973) that the central thesis of Mises's *Socialism* is, 'not, as is sometimes misleadingly put, that socialism

is impossible, but that it cannot achieve an efficient utilisation of resources' (Hayek, 1992, p. 127). Hayek further notes (in 1978) that Mises's critics (i.e., Lange *et al*.) did not have that 'understanding of economic processes' that is essential to Mises's argument of 'the impossibility of an economic calculation under socialism' (Hayek, 1992, p. 140).

In the period 1935–45, the socialist calculation debate saw the further development of Hayek's ideas and the emergence of three new arguments for the impossibility of efficient calculation under socialism: these are that in the real world (1) 'goods are not easily specified', (2) 'costs were not objectively given' and (3) 'knowledge is uncentralizable' (Streissler, 1992, pp. 65–6). In retrospect, Hayek saw 'Economics and knowledge' as illustrative of a process – or transformation (see Hutchinson, 1984, pp. 203–32; Caldwell, 1988) – by which he was

> led from technical economics into all kinds of questions usually regarded as philosophical … . It was only through a reexamination of the age-old concept of freedom under the law, the basic conception of traditional liberalism, and of the problems of the philosophy of the law which this raises, that I have reached what now seems to me to be a tolerably clear picture of the nature of the spontaneous order of which liberal economists have so long been talking. (Hayek, 1967, pp. 91–2)

At the risk of giving offence to historians of economic thought – to whom Caldwell, 2004 is highly recommended – the path of Hayek's intellectual development is neglected in the interests of a less tortuous overview.

Hayek's economics is less focused upon efficiency than it is upon morality; that is, it seeks to establish precepts for social coherence. The goal of Hayek's economics is nothing less than to provide a basis for an intellectual understanding of the manner of coherent human interaction. The relationship between theory and fact, the concept of equilibrium, and the manner in which fragmented knowledge is utilised are the essential components that permit comprehension of the possibilities for (and the nature of) rational decisions. Hayek's economics straddles two scientific methods: both deductive reasoning and empirical verification are emphasised. Hayek believes that Mises over-stresses the purely *a priori* character of theory (see Hayek, 1992, p. 149). The use of purely logical deductions must be accompanied by an understanding of the socio-economic processes that support the causal sequences of human interaction; and, yet, Hayek is highly sceptical of the value of statistical analysis.

Hayek's poignant hostility to the 'slavish imitation' of the methods of the natural sciences was to soften under the influence of Karl Popper, whom Hayek had invited to the LSE in 1942. Indeed, he was persuaded that there are no reasons why Popper's method of problem solving, the method of conjecture and refutation, should not be generally applicable. Although Hayek retained his

belief that the attempt to match the successful empirical achievements of the natural sciences 'was bound to lead to disaster' (Hayek, 1949, p. 127), he came to recognise that the more important distinction rests between the study of simple phenomena and the study of complex phenomena. Chapter 5 presents Hayek's case that the methods of social sciences are distinct in two important aspects: that is, for the relevance of introspection and for the kind of empirical evidence that can reveal the consequences of human interaction. Chapter 6 utilises the 'socialist calculation debate' as an instrument to set Hayek's economics within the broad context of economic thought.

Neutral money

Money and its implications for the conduct of the real economy are the subjects of Chapters 7–11. These are the issues that relate most directly to Keynes's *General Theory*, Hayek's criticisms and the controversies that followed. To bring cohesion to a dynamic world, the market process relies upon the price system. By the mechanism of ever-changing price-relativities, resources are in a constant process of reallocation to meet changing needs. Prices convey information upon the basis of which entrepreneurial action is taken that alters the future course of events. It is imperative that those signals should not be disturbed by extraneous influences; and, in a developed economy, those influences are likely to emanate from monetary disturbances. Indeed, it is impossible to understand the course of economic events without taking into account the independent force that money exerts.

As a prelude to an examination of the impact of money, Chapter 7 first discusses the concept of neutral money; that is, money that confers the convenience of exchange, *without* disturbing any of the 'real' price relativities that would exist in the hypothetical situation of an ideal barter economy. It provides an ideal that derives from recognition that the market process is the means by which the economy is ordered.

Neutral money offers a theoretical ideal for a monetary policy that is compatible with free exchange and individual liberty; and the facility of economic agents to be in a position to rely upon a neutral money is central to the idea of a natural justice. Yet, legitimate pragmatic considerations may compromise its approval as a maxim for the practical administration of monetary policy. The overriding objective is for monetary policy not to instigate changes in the processes of resources allocation. Changes that are brought about by variations in monetary policy cannot be sustained because they are supported by only a *temporary* provision of real resources. The mechanism for this is forced saving, which occurs when investment expenditure is financed by monetary expansion: as resources are re-allocated to the production of capital goods, fewer commodities (i.e., final goods) are available to consumers, and so forced saving takes place. Inevitably, the delicate balance between levels of current

production and the provision of investment is disrupted, with serious continuing repercussions.

Capital

Hayek's insights into the complexity of the impact of monetary variations upon entrepreneurial activity provide the basis for a theory of business cycles. This was a slow birth that created many difficulties and much controversy over more than a decade. Nicholas Kaldor's serious misinterpretation of Hayek's work – Kaldor, 1942 – was especially significant, both in the shaping of Hayek's career and in a much broader perspective in that Kaldor's attack was crucial to the abandonment of Hayek and capital theory after the 1930s. Hayek's business cycle theory draws upon Menger's analysis of prices coordination within a money economy, Böhm-Bawerk's definition of capital as 'roundabout' production, Mises's theory of business fluctuations and Knut Wicksell's theory of the natural rate of interest.

A full examination of Hayek's business cycle theory, which takes advantage of modern investment appraisal criteria, is provided in Chapter 8 but, as is illustrated by the confused debates of the 1930s and 1940s, it is a wise preliminary to seek a clear understanding of the Austrian view of capital. In particular, the relevance of capital within diverse production processes must be discussed. The sequence in which Hayek gave emphasis to the different parts of this coherent theoretical whole was less than ideal. *The Pure Theory of Capital* was published only *after* his first theoretical work relating to business cycle activity.[9] Chapter 8 seeks to clarify those preliminary issues, which relate to the use of capital as a 'roundabout method' and as a 'produced means of production'. The essential features of entrepreneurial activity are also discussed. The misleading macroeconomic approach, which deals with investment *only* as a category of expenditure, must be set aside. Also to be discarded is an idea that is central to modern microeconomics: the categorisation of capital as the *fixed* factor of production.

The technical integration of specific productive processes at the level of the firm is a simple arrangement as compared with the complexities of the social integration of a market economy. The fragile trading cohesion between apparently disparate productive processes is often revealed only after disruption has occurred. In the course of this disturbance, a sequential reaction takes place as men and machinery are deployed across sectors of the economy in a manner that is unlikely to be sustainable. To understand the implications that may arise from an attempt to stimulate the economy by monetary expansion, it is necessary to understand the nature of capitalistic processes of production, whereby capital is deployed in different dimensions ('width' and 'depth') to greater or lesser degree. Chapter 8 begins this appraisal by drawing the distinction between the concepts of capital used by conventional microeconomic and macroeconomic theory and that

employed by Austrian Economics. (Incidentally, the latter comes closest to popular business usage.) Here, the *essence* of capital is *not* that it is a *fixed* factor of production, but that it is *destroyed* by its contribution to the production process.

The business cycle

The interplay between capital and the incentives created both by the market process and by monetary disturbances gives the basis for Hayek's distinctive contribution to business cycle theory, which is the material of Chapter 9. This chapter revises an exposition that appeared first in *History of Political Economy* (Steele, 1992).

Many business cycle theories work within the logical framework imposed by neoclassical general equilibrium analysis. This requires changes to originate outside the system. In accommodating these changes, relative price adjustments push the system towards a new equilibrium. There is no explanation of the initial disturbances. Nor is there any thought that business cycles might be explained by an inherent pathogenesis within the money economy. Hayek's analysis meets the challenge to produce a *complete* theory of the business cycle; that is – by a 'purely deductive method' that incorporates cyclical fluctuations into equilibrium theory – to provide an explanation of the *origin* of the discrepancies between the supply and demand of different commodities, that leads ultimately to 'a general "disproportionality" between supply and demand' (Hayek, 1933a, p. 43).

The application of investment appraisal techniques throws light upon a contentious economics issue in which the principal players were Keynes and Hayek. In the ten years or so to the mid-1930s, both economists had given close attention to the importance of money in determining variations in business activity; but their conclusions were quite different. Money is incapable of directly satisfying demand, but its introduction has the potential to inhibit the satisfying theoretical interdependencies of self-equilibrating systems. Money brings the possibility of movements that increasingly can render each component within the structure of production incompatible with each and every other component.

According to Keynes, money determines the rate of interest and, thereby, the levels of investment, output and employment. A state-sponsored national investment programme financed (initially) by the creation of new money (and, thereafter, through the magic of the multiplier) would lift an economy from its malaise. According to Hayek, the impact of monetary expansion upon the rate of interest and prices is to trigger an investment boom that involves changes in the process of capital accumulation; these changes set in train forces that must eventually and inevitably lead the way back into recession. While there can be no doubt that Keynes won all the early battles, the extent of that conquest is viewed by many as a matter for regret. Keynes won

the arguments, but Hayek was right! In Chapter 9, this contention is shown to receive support from the measured impact of changes in both the rate of interest and relative prices. Each exerts a clear influence upon the level of investment and the choice of capital; and thereby each has a clear role in determining the course of cyclical activity for the economy.

The international money order

Hayek draws no policy guidelines from the theoretical analysis that shows the link between the provision of money and business fluctuations. Rather, bankers would have to make a judgement of the relative advantages and disadvantages of meeting increasing demands for bank credit. No attempt should be made to stabilise the volume of bank deposits, for '[t]he stability of the economic system would be obtained at the price of curbing economic progress' (Hayek, 1933a, p. 191). Though obtained at the expense of an unjust redistribution of income, economic progress could not be sacrificed; but Hayek was confident that developments in monetary theory would shed light upon the problem of the trade-off between injustice and progress. His confidence was to suffer a considerable setback with the rival and influential analysis that was to be developed by Keynes. The message of Keynes's *General Theory* is that the international system of monetary exchange had failed to achieve a balanced prosperity. Keynes's recommendation was that each government should operate its own monetary policy, independently of wider international considerations. The circulation of money between nations should not be determined by the same market processes that determine the distribution of money between the regions of a country.

The objective of any well-ordered monetary system is to facilitate the free flow of trade and capital, both domestically and internationally. Trade and capital movements together establish the pattern for the circulation of money and credit within the framework of the type of monetary system in operation. Under a single currency system, geographical transfers of money create no pressures upon interest rate differentials. This is illustrated by common rates in Edinburg and London. Money transfers between Scotland and England are neither inflationary nor deflationary. If there were a single international currency, the motives for money transfers between nations would similarly rest with investment yields and with the need to accommodate production and trade. These are the same incentives that exist within a single nation.

Where each nation has its own currency and works to its own monetary guidelines, the situation is quite different. The relative value of a national currency comes under pressure when there is a fall in demand for goods and services that are priced in that currency. Instead of allowing prices and incomes to fall in those particular industries that experience reduced demand, exchange rate depreciation forces up a great many other domestic

prices and incomes. Eventually, relative price ratios become adjusted to levels that are appropriate to new demand patterns but, although those ratios may replicate those reached within a single currency system, the distortions caused by an unnecessary inflation are experienced in the interim. Even in the new century, these are lively issues; for example, in the context of the European Union and the euro. Such issues demand consideration of fundamental concepts, swept clear of the confusing detail of particular institutional arrangements. So, while Chapter 10 stays focused upon the economic forces that can be unleashed by money, it moves to an international context.

A synopsis is presented of a series of lectures published in 1939 as *Monetary Nationalism and International Stability*. With these, Hayek gives an early warning of the consequences of the break-up of the international money order that had begun in 1931. It is an important work in that it exposes the fundamentally flawed approach to international exchange that derives from the reliance (of national banking systems) upon broad indices to monitor capital flows, monetary aggregates, reserve ratios and the like. Hayek's guidelines for banking reform are that all forms of money should be readily exchangeable against any other form at known rates and that the volume of money in circulation should remain unaffected by changes in preferences for different moneys. This means fixed international currency parities with national reserves at levels to preclude domestic bank credit contraction in the face of net reserve losses. In this manner, the system replicates the operation of an international gold currency.

Practical difficulties and political pressures caused Hayek to doubt the likely implementation of the necessary reforms. However, given the loss of the gold standard, the situation was so fraught with danger that any mechanical principle was held to be preferable to national monetary autonomy. Eventually, Hayek was brought to the conclusion that the solution most likely to achieve the closest practical parallel to the theoretical precept of neutral money would require money to be returned to the market place. Thereby economics would come full circle back to Adam Smith who, in *The Wealth of Nations*, argued 'that, even for the money supply, the operation of market forces could and should be relied upon as confidently as for the wine supply' (Hutchinson, 1980, p. 4).

Hayek and modern liberalism

Hayek was the leading proponent of classical liberal political economy in an age when its principles were threatened by constructivist doctrines ranging from fascism, through democratic socialism to communism. In weighing those threats, Hayek's conclusion is that classical liberalism needs special protection as a core value. Universal and impartial rules are necessary to delimit and to protect an individual's private sphere (in the broadest terms,

his property rights) against arbitrary incursion; and to bestow legitimacy upon actions that are not expressly forbidden. In the absence of property rights an individual has no social status: he can claim no protection for himself; nor can he bestow a gift upon another. Only might is right. With property rights, an individual can trade his possessions openly and freely in competition with others.

Drawing from Aristotelian morality (ethics are inseparable from the practical requirements of social cohesion) and Kantian philosophy (an individual's equal right to freedom), there are no divine nor scientifically objective ethical standards. In the absence of such definitive criteria, the legitimacy of a polity depends upon its interface with cultural traditions and its accommodation of individuals' needs. Yet, while liberalism defers to those requirements, it makes no claim to universal authority. Creeds emerge as they are successfully adaptive to contemporaneous conditions; but no philosopher can view outcomes with an objectivity that is detached from the ethos of his own nurture. It is irrational to expect otherwise. It would also be irrational to seek to impose Western liberalism upon other peoples, whose own secrets of successful social coordination are essentially unknowable. Yet, liberalism *is* special, not in the sense of having an objectively determined and definitive set of procedures for deciding the parameters for an individual's equal right to freedom, but in that it has as its primary goal a mutual compatibility of objectives within a cohesive society of free men.

The lineage of Hayek's social philosophy may be traced to the 'Smithian' mode of argument for free markets which,

> starting from a realistic view of man and his psychology, and recognising the all-persuasiveness of ignorance in human affairs, gives as important a place in its objectives to freedom and the Rule of Law as it does to some kind of ideal, optimal economic efficiency. (Hutchinson, 1984, p. 162)

This represents one of two paradigms by which the economic advantages to be gained from competition may be explained. There is an abstract-deductive method: the late nineteenth-century (neoclassical) marginal analysis, which became mainstream twentieth-century microeconomic theory. Under conditions of perfect knowledge and clear foresight, a Pareto optimum is achieved whereby no-one can be further advantaged without causing at least one other to be disadvantaged. The alternative is an historical-institutionalist method: the eighteenth-century political economy of Adam Smith, whose recognition of fundamental uncertainties is unattractive to a modern predilection for mathematical certainties.

Although a 'logic of pure choice' might be applied to a local problem whose parameters are well specified, it cannot be applied in a social context where a myriad of complex uncoordinated but interdependent decisions are relevant to the discovery of available means and achievable ends. The political,

social and legal foundations of economics are embedded in social history. Here, there is no presumption of an autonomous economic order, nor of a *homo oeconomicus*, who is capable (through being sufficiently informed) of rationally organising his activity. Instead, there is an interpretation of an evolutionary social history in which individuals' decisions – guided and constrained by psychological and social constraints – determine a time-dependent path across an uncertain terrain. In this interactive social context, no individual is particularly astute in efficiently allocating means to ends, where the first problems are to ascertain the potential means and the feasible ends. Here, correct decisions are the achievement of an iterative competitive market process that mutually reinforces the three interdependent components of social order: economics, politics and law.

Hayek's contribution to social science can be summarised as an attempt to provide a coherent defence of a liberal social order, by the reconciliation of two philosophies. It is an attempt to marry a Kantian view of justice as an institution concerned with the distribution of *freedom*, with a Humean view of justice as an institution preserving *order* among men of limited benevolence, living in a world of scarcity (Kukathas, 1989, p. 205). David Hume was hostile to rationalism and sceptical of radical politics, but he did not seek to uphold any particular set of moral principles as an alternative. His case for the protection of individual rights was grounded upon the fear of expanding public authority rather than upon any doctrine of human rights. Security is not to be found in the goodwill of the state, because politics is dominated by factions. The political process favours those interests that are most readily formed into 'pressure groups'. A sound constitution is required to keep factions in check.

While Hayek is close to Hume in so many respects – with the rejection of rationalism, with the notion of spontaneous order and the nature of society, and with a view of morality and justice as social institutions – he rejects the conservatism that these might seem to imply. Yet Hayek builds upon Hume to create a more extensive political economy, with its explicit consideration of the relationship between market processes and a free society. Hayek's contribution to modern liberalism is to have shown that

1. attempts to direct society towards specific goals are futile;
2. social order without common objectives is possible;
3. a liberal order allows societies to form and to exist;
4. a liberal politics ensures peaceful coexistence;
5. conventions and traditions create civilisation, morality and coherent behaviour;
6. justice is manifest in a variety of different cultural forms;
7. knowledge is communicated by social institutions and rules of conduct;
8. economics extends beyond given needs and rules of contract.

The special characteristic of Hayek's liberalism is his conception of a spontaneous social order, such that moral and political issues are understood within a framework of evolving cultural practices; and the unifying abstract feature of all just systems – which Hayek takes from Kant – is that an individual has the right to *freedom*.

The revival of Austrian Economics

Although interest in the impact of relative price changes upon capital investments (the Ricardo effect) saw a revival in the 1940s, attention was to become narrowly focused by a clash between neoclassical purists and a Marxist/neo-Keynesian alliance. This produced the 'capital theory controversy', that smouldered for two decades.

The contest was concerned with the relevance of marginal analysis for distribution theory. That 'vulgar' neoclassical economics of timeless production had neutered a politically charged debate over the relevance of the social class system to the evolution of capitalism. The association of marginalist efficiency with the notion of 'fair' returns to factors of production (or, alternatively, to their freedom from 'exploitation') was a key (though often heavily disguised) issue. Although the notion of an aggregate production function is in every sense absurd – see Phelps-Brown (1957) for an interpretation of the statistical estimates of such constructions – the alliance won on points by showing that aggregate production functions could violate deeply held neoclassical beliefs (Harcourt, 1972, p. 122). The absence of a unit of measurement for capital was taken to disqualify the notion of 'value of capital', a concept that is 'indispensable to the political economy of capitalism' (Harcourt, 1972, p. 248). Yet this was a hollow victory over the weaker champion of the liberal market economy.

In its growing influence, the Austrian School articulates its own case for the enterprise economy and against all state-managed systems. Human action is meaningful only where that action is expected to change future events. While individuals act and react in their attempt to influence the future, the information upon which that action is decided is uncertain and incomplete. Human relationships are infinitely complex. The advantage of decentralised decision-making by individuals is in selecting from this awesome complexity. In the pursuit of their perceived best interests, individual economic agencies are in the most favoured position to judge *how* to select between opportunities for acquiring and acting upon information.

Even if it were possible to obtain comprehensive knowledge of the present, effective centralised policy formation would require that information to be reviewed by the minute. How absurd then is the idea that the management of levels of demand might be achieved by state bureaucracies, whether Keynesian or otherwise? It is not simply that there is no certain future; rather that there is no known present. The Austrian approach recognises this in its concern with unintended consequences of human action.

Economics begins where measurement ends, because the most important questions are those that have no definitive solutions. Economics must distance itself from the conceit of a deterministic approach to shaping the institutional structures of an extended economy in the interests of social justice, public interest or any other pre-ordained objectives. The unintended consequences that stem from all human action deny the possibility of any aggregative shaping of our futures. Save for the most trivial of circumstances, justice exists in terms of coherent interaction, not outcome. This is the message of Hayek's economics.

The aim of this book is to provide a concise *résumé* of Hayek's penetrating insights into human rationality, morality and civilisation; the mechanisms of capitalism, the nature of competition and the relevance of the market economy to individual liberty. Man is alone when he enters this world and again when he leaves it. In between, uniquely within the animal kingdom, he enjoys the gift of civilisation:

> [p]erhaps what many people mean in speaking of God is just a personification of that tradition of morals or values that keeps their community alive. The source of order that religion ascribes to human-like divinity … we now learn to see to be not outside the physical world but one of its characteristics, one far too complex for any of its parts possibly to form an 'image' or 'picture' of it. … perhaps most people can conceive of abstract tradition only as personal Will. If so, will they not be inclined to find this will in 'society' in an age in which more overt supernaturalisms are ruled out as superstitions? On that question may rest the survival of our civilization. (Hayek, 1988, p. 140)

2
The Sensory Order

> I recommend this book [Hayek's *Sensory Order*] … as an exercise in profound thinking by a man who simply considers knowledge for its own sake.
>
> (Edelman, 1982, p. 24)

Hayek contemporaneously described *The Sensory Order* as 'the most important thing I have yet done' (letter to John Nef, dated 6 November 1948, cited from Caldwell, 1997b, p. 1856) and retrospectively regarded it as 'one of his more important contributions to knowledge' (Hayek, 1994, p. 138). In terms of intellectual fulfillment, he commented that 'the insights I gained … both from the first stage in 1920 or later in the 1940s, were probably the most exciting events that ever occurred to me, and which shaped my thinking' (Hayek, 1994, p. 153). In which case, there must have been considerable disappointment – even perplexity – when, towards the end of his life, he believed that nobody understood it (Harris, 1992, p. 20).

The Sensory Order is important for having established the limitations of intellectual endeavour and explicit knowledge and (thereby) the rationale for a dependency upon the tacit knowledge that is embodied in cultural and institutional forms. These were themes that, in their development, brought an original 'integrative approach to the study of complex social phenomena' (Caldwell, 1997b, p. 1857). Even so, Hayek was hesitant in his claims for *The Sensory Order*. He expressed surprise that 'so little attempt' had been made by others to deduce the 'consequences of existing knowledge'; he was unsure of having 'been able fully to keep up with current developments'; he was unconcerned that the details of his own particular theory should be 'entirely correct'; he claimed to present 'no new facts', nor to employ 'any hypotheses which were not the common property of current psychological discussion'; he noted that a more satisfactory exposition of his thesis would have been achieved through the collaboration of specialists in psychology, physiology, logic, mathematics, physics and philosophy; and he acknowledged Donald

Hebb's *The Organization of Behavior* (1949) – published as the final version of *The Sensory Order* 'was practically finished' (Hayek, 1952b, p. viii) – as having expounded with 'much greater technical competence' a thesis so like his own that he pondered whether publication was justified. A loss of clarity of general principles within the fullness of Hebb's exposition allowed Hayek to find that justification: he categorised the two books as 'complementary rather than covering the same ground' (Hayek, 1952b, p. viii).

Hayek is altogether too modest. *The Sensory Order* is set within the context of the cognitive revolution, which began in the 1950s, whereby psychology was increasingly associated with developments in artificial intelligence and information technology. The general principles for psychology, that Hayek outlined at such an early stage, are the foundation for the application of probability theory (as opposed to symbolic logic) to show how an 'imperfect' neural network can achieve reliable performance (see Rosenblatt, 1958). Indeed, *The Sensory Order* is acknowledged as the first proposal

> of cortical memory networks on a major scale. … It is truly amazing that, with much less neuroscientific knowledge available, Hayek's model comes closer, in some respects, to being neurophysiologically verifiable than these models developed 50 to 60 years after his. (Fuster, 1995, pp. 87–89)

The Sensory Order anticipates developments in the application of evolution to neurology and to psychology; it foreshadows Gerald Edelman's neural Darwinism[1] and Henry Plotkin's evolutionary epistemology. Indeed, Plotkin's *The Nature of Knowledge* might be viewed as an elaboration of the central concept of *The Sensory Order*: that

> mental events are a particular order of physical events within a subsystem of the physical world that relates the larger subsystem of the physical world that we call an organism (and of which they are part) with the whole system so as to enable the organism to survive. (Hayek, 1982, p. 288)

In the light of dissatisfaction with classical theories of memory and brain function among clinical neurologists, child development theorists, cognitive and experimental psychologists, linguists and psychoanalysts, and of the direction taken by theoretical and experimental developments in these areas in the 1990s, *The Sensory Order* appears remarkably modern:

> *The Sensory Order* ought to be regarded as one of the most creative and innovative attempts to develop a biologically founded epistemology by means of establishing a direct link between a global brain theory and philosophy. More particularly Hayek provided the starting points for a fully-fledged evolutionary epistemology that simultaneously analyses phylogenetic and ontogenetic aspects of human cognition present in the development of neuronal structures. (Herrmann-Pillath,1992, p. 147)

In particular, its conceptualisation of the mapping between physiological and mental phenomena anticipates the central thesis of artificial intelligence research: that mind can in principle be 'realised in a wide range of different sets of material, both organic and inorganic' (Smith, 1997, p. 9). Most important, however, is the rationale that *The Sensory Order* provides for self-knowledge, social adaptation and social science generally. The vital force is the processing of information – genetically, neurologically and socially – as the mechanism for successful adaptation. It is for these reasons that *The Sensory Order* is central to a full understanding of Hayek's intellectual contributions to cognitive science, to economics and to that encompassing science of human behaviour: praxeology.

Origins

In 1948 (and for the ensuing three years) Hayek returned to work begun in 1920 (an original 41-page manuscript, 'Beiträge zur Theorie der Entwicklung des Bewußtseins' – 'Contribution to the Theory of The Development of Consciousness'[2] – is dated September 1920). Hayek cites the following motivations: academic interest *per se*; a 'concern with the logical character of social theory' (Hayek, 1952b, p. v); an interest in scientific method and his criticism of 'scientism', a name given to the 'harmful effects that the physics model had had on the methodology of the social sciences' (Hayek, 1982, p. 289); and the need to counter professional discredit that followed publication of *The Road to Serfdom* in 1944 (not least for its serialisation in *The Readers' Digest*). Hayek's desire 'to be accepted in the scientific community' would, he thought, be served by 'something purely scientific and independent of my economic view' (Hayek, 1994, p. 25). In this respect, the project failed: the trend towards specialisation, his attack upon the dominant behavioural psychology and an inability to cite the literature[3] saw Hayek branded as an interloper.

The question that the young Hayek had failed to articulate and that became identified as 'the central problem of the nature of mental phenomena' is: 'What is mind?' (Hayek, 1952b, v). More expressly, it is 'the problem, "What determines the difference between the different sensory qualities?" ' (Hayek, 1994, p. 138). Hayek's aim – 'to work out certain implications of generally accepted facts or assumptions in order to use them as an explanation of the central problem of the nature of mental phenomena' (Hayek, 1952b, vii) – was focused upon general principles (a theoretical psychology) with the purpose of identifying the necessary constituents of a satisfactory 'explanation of mental phenomena' (Hayek, 1952b, viii). Further elucidation of the 'philosophical consequences' (the title of the final chapter) of *The Sensory Order* came in subsequent essays, notably 'Rules, Perception and Intelligibility' (1963) and 'The Theory of Complex Phenomena' (1964). These are summarised by a single postulate that underlies 'all our efforts to

arrive at a scientific explanation of the world' (Hayek, 1952b, p. 173): that knowledge of the phenomenal world (the picture constructed from senses) raises problems, for which solutions are to be found only by reclassifying the constituent elements of that picture.

Limits to understanding

Mind is the black hole of human science: no empirical evidence emanates from within. Although mind can be inferred by its direction of human behaviour or through speculative introspection, those findings must be interpreted with caution. Behaviourism *per se* has no access to cognitive functions: it cannot reveal motivation. Introspection gains access to mental images not mental processes: empathy may disclose motivation but gains no insight into relevant neurological structures. At best, the physical materials that comprise the latter can be monitored and correlated with observed behaviour. Whether in their natural presentation, or in consequence of brain damage or medical or surgical intrusion, the measurement of brain activity provides some of the foundation upon which mind mechanisms are hypothesised.

Although 'in some ultimate sense mental phenomena are "nothing but" physical processes' (Hayek, 1952b, p. 190), an explanation of how mind reaches any particular disposition is logically impossible. In order to provide that explanation, it would be necessary to have knowledge of the physiological processes that might have led to different dispositions. In principle, that counterfactual would be knowable only to a more sophisticated instrument than the brain itself: '[a]ny apparatus of classification must possess a structure of a higher degree of complexity than is possessed by the objects which it classifies' (Hayek, 1952b, p. 185). Hayek subsequently recognised this as a corollary of Cantor's theorem, that 'in any system of classification, there are always more classes than the things to be classified' (Hayek, 1967, p. 61, fn.).

Even though knowledge of the mind by the mind's own activity is impossible, self-knowledge of mental events can still be used to 'understand', and even to predict, the results to which mental processes might lead under certain conditions. The insights to be drawn from this kind of introspection rest upon a 'uniformity (of human minds) thesis', for which precedents are to be found in Kant, Hobbes, Hume and Smith (see Fitzgibbons, 1995, p. 62 ff.). Without some degree of uniformity, there would be no meaningful social interaction: a human is more sensitive to (the perceptions of) another human than to a rat or (less still) to a bat or (less still) to a gnat. Introspection reveals (hypothetically, and given genetic and cultural similarities) what is knowable to other minds; and that same kind of conscious self-examination provides a basis for ameliorating purely instinctive (or emotional) responses. It thereby admits a social dimension that invites both conditioned and considered reactions. Hayek's detailed elaboration of the juxtaposition of instinct, reason and culture (see Hayek, 1988, pp. 11–28) bears close similarities to

Plotkin's later categorisation of the primary, secondary and tertiary heuristics (see below).

Connectionism

Additional insights into cognitive processes may be drawn from the devices of artificial intelligence, where there are competing methodologies. With the orthodox 'symbol-processing' paradigm, symbols 'have semantic and syntactic properties' (Smith, 1997, p. 9): a series of binary decisions is made within the context of set rules. As in a computer, the memory store is portrayed at definite locations in the brain. Early evidence to the contrary – rat behaviour after the surgical destruction of parts of their brains – is an inability 'to demonstrate the isolated localisation of a memory trace anywhere within the nervous system' (Lashley, 1950, p. 478). The alternative paradigm – of which Hayek's *The Sensory Order* is an early statement – is that of 'connectionism', according to which memory and thought engage (potentially) the whole brain by the variable strength of inter-neural impulses. Memory and thought are indistinguishable neurological processes – particular configurations of an intricate neural network – that are an adaptation to (and an understanding of) the external world.

In rejecting the orthodox notion that sensory fibres transmit mental phenomena to be stored in nerve cells, connectionism challenges the distinction between sensory perception and subsequent operations that generate understanding and memory. 'Sense data' is a redundant concept. The mind is not a store of data that reflect (or are correlated with) characteristics of elements in the physical world. Rather, we live in a sensory order that is created by the central nervous system:

> we do not first have sensations which are then preserved by memory, but it is a result of physiological memory that the physiological impulses are converted into sensations. The connections between the physiological elements are thus the primary phenomenon which creates the mental phenomena. (Hayek, 1952b, p. 53)

Sensory qualities are determined by the 'differentiating' neurological responses of the system as a whole. The significance of each stimulus derives from its relationship to, and combination with, other stimuli. It is by the coordination of a multitude of sensory impulses that an effect is created. More recent neural network (connectionist) theories hypothesise that general information about the world is coded in a background configuration of the network's synaptic weights. Real-time information is coded in activation vectors that are processed by the weight-configurations through which sensory impulses pass. Learning is hypothesised as the adjustment of the global weight-configuration (see Churchland and Churchland, 1995, p. 73).

Such views sit comfortably within Hayek's earlier and more general contention that:

> [p]erception is … always an interpretation, the placing of something into one of several classes of objects. An event of an entirely new kind which has never occurred before, and which sets up impulses which arrive in the brain for the first time, could not be perceived at all. (Hayek, 1952b, p. 142)

Furthermore, Hayek's interpretation encompasses Edelman's more focused considerations. Thus, for illustration, cognitive psychologists and linguists

> have become intensely interested in Edelman's ideas, in particular by the implication of the extended theory of neuronal group selection which suggests that the exploring child, the exploring organism, seeks (or imposes) meaning at all times, that its mappings are mappings of meaning, that its world and … symbolic systems are constructed of 'meanings'. (Sacks, 1995, p. 116)

The broadest feature of connectionism is that mental properties are 'determined by the place of the impulse in a system of relations between all the neurons through which impulses were passed'. This is the 'clear perception' that led Hayek 'to interpret the central nervous system as … a process of continuous and simultaneous classification and constant reclassification' (Hayek, 1952b, p. 289); a conclusion that is endorsed both contemporaneously and subsequently:

> [t]he complexity of the functions involved in reproductive memory implies that every instance of recall requires the activity of literally millions of neurons. The same neurons that retain the memory traces of one experience must also participate in countless other activities. (Lashley, 1950, p. 479);
>
> synaptic changes do not represent information that is stored in individual connections between single neurones. … Instead, signals act to select variant populations of synapses that connect cells within and between neuronal groups. (Edelman and Tononi, 1995, p. 82);
>
> there are no innate mechanisms for complex 'personal' recognition, such as the 'grandmother cell' postulated by researchers in the 1970s to correspond to one's perception of one's grandmother. … Rather, the perception of a grandmother or, say, a chair depends on the synchronisation of a number of scattered mappings throughout the visual cortex: mappings relating to many different perceptual aspects of the chair (its size shape, its colour, its 'leggedness', its relation to other sorts of chairs – armchairs, kneeling chairs, baby chairs, etc.); and perhaps in other parts of the cortex as well (relating to the feel of sitting in a chair, the actions needed to do it,

> etc.). In this way, the brain, the creature, achieves a rich and flexible precept of 'chairhood' that allows the recognition of innumerable sorts of chairs as chairs (computers by contrast, with their need for unambiguous definitions and criteria, are quite unable to achieve this). (Sacks, 1995, p. 107)

At the highest levels of consciousness, responses to stimuli are modified by the influence of the widest range of impulses from other sources. For simple reflex action, higher centres receive simultaneous reports of both stimulus and response. Between these extremes of conscious and reflex response, a continuous range of 'engaged' connections is hypothesised within which no qualitative distinction is afforded to the most abstract processes of thought. All experience is shaped by memory and understanding; and whenever a new experience is inconsistent with 'the classification based upon past linkages', the classification must be revised:

> [w]hile there can thus be nothing in our mind which is not the result of past linkages (even though, perhaps, acquired not by the individual but by the species), the experience that the classification based on past linkages does not always work, i.e., does not always lead to valid predictions, forces us to revise the classification. (Hayek, 1952b, p. 168)

The differentiating responses of the neurophysiological system are determined by linkages previously created within the organisational structure of the central nervous system: a system of connections 'acquired in the course of development of the species and the individual by a kind of "experience" or "learning" ' (Hayek, 1952b, p. 53). Pre-sensory linkages determine 'the order of the apparatus of classification'; that is, the framework that determines all our 'conscious experience of qualitative attributes of external events'. Pre-sensory linkages – 'relations of which we are not consciously aware' (Hayek, 1952b, p. 142) – are that part of *a priori* knowledge that 'is not learnt by sensory experience, but is rather implicit in the means through which we can obtain such experience' (Hayek, 1952b, p. 167).

By this interpretation, there are both phylogenic[4] and ontogenic dimensions to the development of the sensory order. Others have reached similar conclusions. 'Commenting on the claim that Plato thought our "necessary ideas" arise from the pre-existence of the soul, Darwin had written: "read monkeys for pre-existence" ' (Dennett, 1995, p. 130). In Henry Plotkin's exposition, pre-sensory linkages are produced by events typically encountered by a species over successive generations. This instinctive knowledge (the primary heuristic) is embodied within the genetic structure and evolves by natural selection to accommodate events that recur within the generational cycle (the period between the conception and reproductive adulthood of an organism). Non-recurrent changes require a special class of adaptation – intelligence (the secondary heuristic) – to allow an organism to cope with a future that is unlike

the past. Intelligence tracks events that have not been accommodated by the primary heuristic. However, investigation of the consequences of each new sensation would make sequential intelligent learning impossibly slow. Instead, intelligence is primed by the primary heuristic, which ' "tells" the secondary heuristic what to learn' (Plotkin, 1994, p. 162). The neurophysiological explanation is that a deep-seated cerebral structure (the 'value system') projects over the entire cortex:

> [v]alues reflect events involving the nervous system that have been selected during evolution because they contribute to adaptive behaviour and to phenotype fitness. Examples of low-level values are: 'eating is better than not-eating' or 'seeing is better than not seeing'. (Edelman and Tononi, 1995, p. 85)

What mind *is*

The answer to Hayek's question is that mind is a subjective mental order of events that prevails in that part of the physical universe that is self. Three structures are relevant to an individual's (subjective) knowledge (see Hayek, 1952b, p. 39): the material world (the physical order); the human nervous system (the neural order) which is a part of the material world; and a personal interpretation of reality (the mental or sensory order of mind) which is created by the neural order.[5] The relationships between (i) a composer's vision, (ii) an orchestra with a particular symphonic score and (iii) a symphonic performance are roughly analogous to those between (i) reality, (ii) a brain with a particular neural order and (iii) a sensory order. The 'physical aspect' of the mind is mind itself (symphonic performance): it is not the individual neural processes (instrumental notes) but emanates from the complete order (the neural order) of those processes. Here exists consciousness.

Modern attempts to conceptualize consciousness are structured upon connectionism. In seeking to gain an understanding of how 'I' know that it is 'I' who knows, 'the investigation of consciousness (and all other cognitive phenomena) is condemned to some indirectness' (Damasio, 1999, p. 81). So, it is from general observations – that '[e]motions and core consciousness tend to go together in the literal sense, by being present or absent together'; and that 'the absence of emotion is a reliable correlate of defective core consciousness' (Damasio, 1999, p. 100) – that Antonio Damasio contents that emotions *per se* are the bedrock of self: '[t]he plotting of a relationship between any object and the organism becomes the feeling of a feeling. The mysterious first-person perspective of consciousness consists of newly-minted knowledge, information if you will, expressed as a feeling' (Damasio, 1999, p. 313). Upon that basis, the widest range of human emotions upon which self-consciousness (individuality) is based becomes relevant to any meaningful praxeology. The 'efficacious role of consciousness is to construct

an information scene ("the remembered present") that connects present reality to the past value ridden history of each individual, conscious animal' and that confers such evolutionary advantages as 'the rapid integration of information and planning' and 'the translation of such planning into unconscious learned routines' (Edelman and Tononi, 2000, pp. 217–18). With the instrument of the brain, the mind classifies the regularities of the experience of living in a material world. Knowledge is created by mind, by its categorisation of perceptions and the creation of memory:

> *memory is more like the melting and refreezing of a glacier than it is like the inscription on a rock* … memory is not a representation; it is a reflection of how the brain has changed its dynamics in a way that allows the repetition of a performance … memory results from the selective matching that occurs between ongoing, distributed neural activity and various signals coming from the world, the body, and the brain itself … [memory is] a form of constructive *recategorization* during ongoing experience, rather than a precise replication of a precise sequence of events. (Edelman and Tononi, 2000, pp. 93–5)

This analogy is redolent of Henri Bergson's emphasis upon the continuous nature of experience. For example, the repeated reading of a poem is a series of unique events in that the 'experience on each occasion is modified by the previous readings' (Russell, 1929/1953, p. 403). Rigorous analysis shows such causal chains to be irreciprocal: '[t]here is no theory we may hold and no observation we can make that will retain so much as its old defective reference to the facts if the net be altered' (McCulloch and Pitts, 1943, p. 131). More generally, in bringing the past into the present, the process of memory creates phenomena: uniquely evolved mind-categories that constitute the coordination of sensory inputs invoked by external stimuli.

A vast network of neurophysiological connections re-creates and revises past and present associations (in respect both of the individual and – by genetic traits – of the species) between stimuli that have provoked impulses in the central nervous system. This neural order is determined by forces that belong entirely to (and is, itself, entirely of) the physical world. It is shaped upon the physical materials of the brain as the categorisation of stimuli from sense receptors. Hayek cites a number of reasons why different brains hold neural structures that are similar without being identical: (i) receptor organs are imperfectly selective and are of limited sensitivity, so that different (the same) physical stimuli may generate the same (different) impulses; (ii) physical stimuli are determined by conditions within a local environment (including the internal environment of the organism that houses the central nervous system); and (iii) different anatomical structures facilitate the formation of certain linkages and make the formation of others more difficult.

Species survival rests upon the abilities to anticipate external events and to respond appropriately. Although that anticipation requires an organism to have a mind-model of relationships between events and itself, the extent to which that mind-model can be understood is limited,[6] because

> any coherent structure of this kind [mind] which within itself contains a model guiding its actions, must be of a degree of greater complexity than that of any model that it can contain, and therefore than that of any object it can reproduce. (Hayek, 1952b, p. 131)

So, although the regularities of the physical world can form the basis of a hypothetical order (scientific theory) that constitutes an understanding of mind, the location of mind within the physical order cannot be explained:

> it is impossible that our brain should ever be able to produce a complete explanation … of the particular ways in which it itself classifies external stimuli. … to 'explain' our own knowledge would require that we should know more than we actually do, which is, of course, a self-contradictory statement. (Hayek, 1952a, p. 49)

The irresolvable conundrum is that the neural order is a subsystem of the physical order, but any understanding of the relationship between the sensory order (mind) and the physical order must derive from the neural order. Yet Hayek's speculation was that a machine designed by the human mind might yet be capable of 'explaining' what the mind is incapable of explaining without its help:[7]

> such a machine would not differ in principle from … a calculating machine which enables us to solve problems which have not been solved before, and the result of whose operations we cannot, strictly speaking, predict beyond saying that they will be in accord with the principles built into the machine. (Hayek, 1952b, p. 189)

Such speculation can be viewed as a generalisation of Gödel's theorem: that in no consistent axiomatised mathematical system can the proposition expressing its own consistency be proved:

> Gödel's theorem is but a special case of a more general principle applying to all conscious and particularly all rational processes, namely the principle that among their determinants there must always be some rules which cannot be stated or even be conscious. (Hayek, 1967, p. 62)

In less urbane terminology, Gödel's theorem shows that 'there are truths that "we can see" to be true that can never be formally proved to be true'

(Dennett, 1995, p. 429). The association with Hayek's speculation is that

> it remains possible that there may exist (and even be empirically discoverable) a theorem-proving machine which in fact *is* equivalent to mathematical intuition, but cannot be *proved* to be so, nor even proved to yield only *correct* theorems of finitary number theory. (Gödel, 1951/1995, p. 180)

The argument is that, deep within the mind, there may lie some 'unconscious unknowable algorithm' that affords it an ability to judge logical consistency:

> the Gödel argument demonstrates that whatever understanding is, it is not a computational thing. This allows that natural selection could operate for this general non-computational quality – a quality which could be applied to a whole range of problems and not simply to mathematics. … If mentality is a function of brain action, and we accept that brain action is subject to the same laws of physics as everything else, those physical laws must allow for non-computational action. (Penrose, 1995, p. 26)

One obvious implication is that some amendment is necessary in respect of Hayek's belief that something like a calculating machine might be used to explain the human mind. There *is* a difference between computational and non-computational activity, but Gödel's theorem says nothing in respect of machines (or, rather, algorithms of artificial intelligence) that might exercise (non-computational) mathematical intuition as competently as the finest mathematicians; and so the human mind might be explained by means of some more elaborate artefact (though unlike a calculating machine).

In regard to perennial mind–body issues, Hayek describes dualism and the notion of 'mind "stuff" ' as an 'old habit' that derives from humankind's 'early study of nature'; and he delivers a conclusion that anticipates subsequent categorisations:

> [t]o think of mind as a substance is to ascribe to mental events some attributes for whose existence we have no evidence and which we postulate solely on the analogy of what we know of material phenomena. In the strict sense of the terms employed an account of mental phenomena which avoids the conception of a distinct mental substance is … the opposite of materialistic, because it does not attribute to mind any property which we derive from our acquaintance with matter. In being content to regard mind as a peculiar order of events, different from the order of events which we encounter in the physical world, but determined by the same kind of forces as those that rule in that world, it is indeed the only theory which is not materialistic. (Hayek, 1952b, pp. 177–8)

From that description, *The Sensory Order* finds its place within the categorisations of dual-attribute or central–state theories that identify brain processes as wholly physical but with non-material properties that cannot be reduced to material ones.

The adaptation of mind

The brain is a biologically evolving instrument of an adaptive system: the sensory order of mind. The potential fallibility (of both) is a necessary characteristic to allow the Darwinian selection process to operate. The three key principles of Darwinian selection (see Lewotin, 1970) are *diversity* (of component elements), *interaction* (with the environment to test adaptive fitness) and *differential amplification* (successful variants are reproduced in relatively greater number).

On a phylogenic time-scale, 'the development of distinct receptors for different physical stimuli probably goes hand in hand with the development of different responses to those stimuli' (Hayek, 1952b, p. 158) and this leads to the plausible suggestion that the objective order (science) and the sensory order would evolve 'harmoniously' if

> as a result of the advance of our explanation of the world we also come to 'see' this world differently, i.e. that we not merely recognize new laws which connect the given phenomena, but that these events are themselves likely to change their appearance to us. (Hayek, 1952b, p. 175)

The evolutionary significance of this mutual feedback is that behavioural traits could lead (as well as follow) changes in organic structures; and others have argued that subjective aims might be similarly relevant, so that, for example, 'in choosing … to take interest in speech, man has chosen to evolve his brain and his mind; that language, once created, exerted the selection pressure under which emerged the human brain and the consciousness of self' (Popper and Eccles, 1977, p. 13).

The idea that organisms might guide the further evolution of their species (the Baldwin effect) occurred to at least three early Darwinians. Where an evolutionary mutation has brought some advantage, organisms that are not favourably endowed but which are 'capable of "reinforcement learning" not only do better individually … [but] … their species will evolve faster because of its greater capacity to discover design improvements' (Dennett, 1995, p. 79). While this is different from Lamarckism, in that it is a self-conscious development, the general point is that, although biological adaptations derive from random genetic mutations, natural selection ensures that modifications to physiological and behavioural characteristics endure when they enhance an organism's chances of survival. The sensory order is similarly developed: as previous experiences are represented in the neural patterns of

memory and consciousness, the mind 'simultaneously plays with a great many patterns of which some are confirmed as conducive to the preservation of the species' (Hayek, 1978b, p. 43). The closer the proximity of knowledge to 'truth', the greater the survival probability; and 'the biotic system as a whole endures, being rather adept at solving the problem. Life is rather good at the knowledge game' (Plotkin, 1994, p. 244). In the widest possible sense, all knowledge is adaptation, and all adaptation is knowledge:

> [t]he fleshy water-conserving cactus stem constitutes a form of knowledge of the scarcity of water in the world of the cactus. … Lacking a brain of any kind, the cactus has its knowledge built upon a less complex structure of genes and development. (Plotkin, 1994, p. 229)

Where brains are involved, knowledge is 'a special kind of adaptation': that is, the mind state (the sensory order) exists as a neurological adaptation to phylogenic and ontogenic experience, upon which an hypothetical future is constructed. Here, knowledge is a disposition towards the external world that manifests itself in action – 'the organism must live as much in a world of expectation as in a world of "fact" ' (Hayek, 1952b, p. 121) – so that 'even the most abstract and "rational" thought is, in the end, a patterned behavioural response to environmental stimuli' (Butos and Koppl, 1997, p. 336).

Knowledge is not a unitary entity that exists to a greater or less extent in different species. Knowledge is domain-specific: different genes direct the selectional process of intelligence to produce different adaptations (knowledge) in different species: 'In so far as rat genes are different from human genes, then so too is rat intelligence different from human intelligence' (Plotkin, 1994, p. 165). So, it would be meaningless to ask how close perceptions are to the noumenal world: '[w]hich external events are recorded at all, and how they will be recorded, will … depend on the given structure of the organism as it has been shaped by the process of evolution' (Hayek, 1952b, p. 108).

Information is intelligible only where it can be compared with the already familiar; and since we can 'understand only what is similar to our own mind it necessarily follows that we must be able to find all that we can understand in our own mind' (Hayek, 1949, p. 68). As a corollary, it follows that a uniquely original concept would be inherently incomprehensible: '[o]bservations themselves would not even exist if there was no previous knowledge which they could modify', and while this implies an 'infinite regress', this is the same kind of problem as 'the riddle of life itself' (Popper and Eccles, 1977, p. 425). Such difficulty is common to all evolutionary systems. Mind is a dynamic product of evolutionary processes in which each new sensory quality (adaptation) is reliant upon earlier linkages, but retains a potential to modify them in consequence of further experience.

In general terms, knowledge is presented as an evolutionary adaptation 'by which the microcosm of the brain progressively approximates to a reproduction

of the macrocosm of the external world' (Hayek, 1952b, p. 108). However, this simple (and potentially misleading) analogy is necessarily compromised, since 'the question of whether there exist "objectively" two different worlds is really unanswerable or perhaps meaningless' (Hayek, 1982, p. 292); and so, 'the relationship between these two orders, one of which is part of the other, is still one of the most intriguing problems of philosophy' (Hayek, 1982, p. 291).

While it is implicit that no clear boundaries separate biological, psychological and social adaptation, there are obvious differences in the pace of evolutionary change. In a social context, it is by a process of relatively rapid adaptation that the 'knowledge and intentions of different members of society are supposed to come more and more into agreement' (Hayek, 1937, p. 45). In attempting to model those patterns, it is the task of social science to seek empirically testable theories of expectation formation and learning. It is this that became the primary focus of Hayek's scholarly contributions.

Man and society

Against the protracted timescale of biological evolution, rapid societal changes invoke particular consideration. A general evolutionary pattern is characterised in which hierarchical rivalry between *hominids* gives way to the 'egalitarianism, cooperation, and sharing' (Whiten, 1996: 140) of hunter-gatherer groups; and, while that culture of booty-sharing shaped 'the human mind for more than two million years' (Leaky and Lewin, 1992: 142), the most 'impressive evidence of hunting' (as opposed to scavenging) is found 'with the emergence of *Homo sapiens* as recently as 100,000 years ago' (Whiten, 1996: 140). Thereafter, and less controversially, the hierarchical structures of farming communities emerged over a very short period of 10,000 years.

With the vast difference between the biological and the social timescales, a consequential thesis is that 'human nature' is determined largely by natural selection that occurred during the Pleistocene period; and that many of our present day psychological adaptations are relevant to problems that were faced by our hunter-gatherer ancestors. At least some of the observed social characteristics of modern man might then be understood as atavistic; that is, as the legacy of evolved behavioural traits that are longer relevant. In short, there is a 'thesis of ancient provenance' (Plotkin, 1998, p. 73), where common phobias in regard to snakes, open spaces and dark places lend support. Hayek's particular emphasis is 'that modern man is torn by conflicts which torment him and force him into ever-accelerating further changes'; and that instinctive drives are overlain by 'the remains of the traditions acquired in the successive types of social structure through which he has passed' (Hayek, 1979, p. 159). Innate psychological traits and the requirements of the extended socio-economic order of modern industrialised

society create many tensions:

> innate structures built into man's organisation in the course of perhaps 50,000 generations were adapted to a wholly different life from that which he has made for himself during the last 500, or for most of us only 100, generations or so. … And although we still share most of the emotional traits of primitive man, he does not share all ours, or the restraints which made civilisation possible. Instead of the direct pursuit of felt needs or perceived objects, the obedience to learnt rules has become necessary to restrain those natural instincts which do not fit into the order of the open society. (Hayek, 1979, p. 160)

Beyond inherited genetic predispositions, knowledge is derived from any method that informs: in the nurture and guidance that are given to infants; in the lay interpretation of casual observations; and in the systematic analysis that is guided by the precepts of formal scientific procedures. A general thought – that he who does not know himself has known nothing – is familiar from many sources. It is ascribed to various Greek philosophers,[8] and it is a *cliché* in literature and in psychological and religious discourse. Its relevance is that an understanding of the function of the human mind (psychology) gives the basis for an understanding of man's interaction with others (social science). The parallel, mutually re-enforcing aspects of psychology and social science are central to Hayek's vision of the evolutionary adaptation of the individual and society that exists as a spontaneous and complex social order.

Hayek's work is focused upon human understanding in its psychological and social dimensions; and it rests upon the ontological presumption of a material world and of life forms that evolve from – and are an integral part of – the material world. The function of the mind is to give direction to and protection of an individual; and the function of the social framework is to give direction to and protection of individuals. The respective direction and protection given are very different. The mind decides for an individual, whereas the social framework provides the context within which individuals bring effect, coherence and coordination to their interdependent decision-making. The social framework inhibits decisions that individual minds might otherwise be willing to take; and it shapes (and informs of) the consequences that are likely to follow upon those decisions.

The mind and the social framework are self-organising, spontaneously evolving, open adaptations that are defined, not in terms of their physical composition, but in terms of their abstract functions. With the capacity to process only a small proportion of the sensory stimuli that are signalled as touch, taste, sight, smell and sound, the mind has evolved to know what it needs to know. In like achievement, social institutions that guide individuals' actions are a surrogate for that vast array of information that individuals

would otherwise need to know. With neither is there (nor could there be) any store of comprehensive knowledge. Instead, neurological processing achieves a simultaneous and selectively purposeful engagement with a multitude of sensory data; and social exchange allows effective use of that knowledge of 'the particular circumstances of time and place' (Hayek, 1945, p. 83) which is dispersed across a multitude of individuals' minds.

Sensory qualities (or, in more recent parlance, 'qualia') derive from the 'engagement' of multiple neural networks as sensory stimuli, transmitted as physiological impulses, are classified either by the reinforcement of existing neural networks or by the initiation of new neural networks. With the notion of memory cells defunct, *individual neurons are merely the foci in the network of relationships and it is the multiple interplay of impulses between neurons … which forms the recurrent, recognizable and familiar elements of the mental structure*. The words set in italics are here contrived to parallel Hayek's description of social order –

> individuals are merely the foci in the network of relationships and it is the various attitudes of the individuals towards each other … which form the recurrent, recognizable and familiar elements of the [social] structure. (Hayek, 1952a, p. 59)

– so as to represent both the mind and the social framework as self-organising, spontaneously evolving, open adaptations that display common characteristics. Mutual adaptations shape both (1) the categorisations and the associations that are embedded within an individual mind as its response to sensory stimuli and (2) the categorisations and associations that are embedded within social institutions and which define the rules for social behaviour. The spontaneous orders of the mind and of social affairs give the foundation for implicit understandings, conscious deliberation and formal scientific theory.

Hayek positions socio-economic theory firmly within the dynamic context of evolutionary processes, the capacities of human understanding and the characteristics of an extended social order. Socio-economic data and qualitative information are dispersed, uncertain and of varying quality. In principle, however, evolutionary processes may be expected to reconcile inconsistencies: (1) in respect of the mind, between diverse sensory impulses, so as to achieve a coherent and safe accommodation of an individual to the world around; and (2) in respect of the social order, between different individuals, and between individuals and an objective reality.

3
Liberty, Reason and Rules

> The possibility of men living together in peace and to their mutual advantage without having to agree on common concrete aims, and bound only by abstract rules of conduct, was perhaps the greatest discovery mankind ever made.
>
> (Hayek, 1976a, p. 136)

Knowledge and rationality

Things are never known as they are, but only as the outcome of the creativity of the human mind, as it classifies each sensory perception to create memory, which is modified continuously by experience. Through the creativity of the human mind, certain regularities of the experience of living in a material world may be categorised. That experience is interpreted through the construction of mental models, but the representation of reality that is possible to achieve through this kind of creativity is severely limited by our ability to generalise.

The nature of much of our knowledge – most particularly of social patterns of interaction – is such that it is incapable of articulation and this has special significance. The capacity of humans to act in accordance with abstract rules is older and more important than the capacity to express rules through language. Formal theories are only the tip of a vast submerged mass of knowledge, so that the exercise of individual reason is utterly dependent upon a tacit knowledge embodied in cultural habits, rules and procedures; and the implication is that we always know much more than we can express. Just as the mind is unable to comprehend the rules by which it operates, so the individual has only a limited grasp of the relevance of the social rules that achieve the order of civilisation. Bound by the discipline of those rules, and despite personal ignorance, man is guided by his cultural inheritance, the importance of which cannot be exaggerated. It is that inheritance which provides the basis for justice and social cohesion. It delivers a social order that facilitates the achievement of the widest range of

individual human purposes; and it is *just* because it serves no particular set of *specific* purposes.

Although culturally determined rules are the means to draw the distinction between approved and disreputable acts (so as to determine 'right from wrong'), individual rationality cannot be applied to identify the logical requirements necessary to attain specific goals. Justice is relevant to acts, but the outcome of those acts is essentially unknowable when there is a multitude of unintended and unanticipated consequences to every action. The relevance of outcomes is limited: rationality may be applied to the processes whereby specific goals are selected and tested interactively with practical attempts to attain them.

Freedom and the spontaneous order

Homo sapiens took the path to culture and civilisation through a superior capacity to learn. This was enhanced by the genetic development of speech articulation, which extended the capacity for group cooperation and the ability to adapt to new circumstances. Civilisation was created not out of man's reason, but through acceptance of the rules of behaviour that came to govern human life: '[m]an did not possess reason before civilisation. The two evolved together' (Hayek, 1978b, pp. 10–11). This social evolution took many diverse paths, directed by a spontaneous self-selection of those cultural groupings which, by good fortune, had adopted superior practices or which, through good judgement, had emulated rules that had brought success to others. Only a fraction has survived. In any given case, the social order that has emerged is the result of a multitude of individual adaptations so that, at most, there can be an understanding only of its general characteristics. The many orderly structures of religion, language, money, law and markets exhibit their own unique features but, in general, these and other social institutions prevail when (by their continuous adaptation) they enhance the reproductive fitness of those who adopt them and those whose reason is directed by them.

By this spontaneous process of self-selection, human society has developed from primitive tribal arrangements into a vast world network of fluid interrelationships. The morality of the tribe, in which individuals are bound by *personal* relationships, could never have supported an extended socio-economic order. Beyond the tribe, it is impossible for anyone to aim *directly* at the well-being of the community, for it is impossible to comprehend the vast network of interactive obligations and the full consequences of any single human action. The extended order is necessarily a society of strangers in pursuit of individual self-interest. Any attempt to impose an alternative order created by rational design would be undermined by a complexity of detail that could not be understood by any single individual or group of individuals.

The largest proportion of Hayek's work is devoted to unravelling the interrelationships between every aspect of human civilisation and culture, encompassing psychology, philosophy, politics, law and economics; and, in 1982, he published a comprehensive account of much of that work in a consolidated and 'corrected' edition of the three volumes of *Law, Legislation and Liberty*. Written over a twenty-year period, these volumes are a dissertation upon the use of legal and constitutional arrangements to protect individual liberty. Many of the relationships and themes that pervade Hayek's other works are emphasised and each of the three volumes addresses a key insight, crucial to the preservation of the spontaneous order upon which a free society depends (see Hayek, 1973b, p. 2):

1. A self-generating system is distinguished from an organisation by the different kinds of rules that prevail;
2. Social or distributive justice has meaning in an organisation but is incompatible within a self-generating system;
3. An inherent tendency to transform a free society into a totalitarian system is a consequence of the unlimited government with which democracy has become identified.

The central concept around which the whole discussion turns is that individual liberty is dependent upon the social order. In its anti-liberal authoritarian connotation, order is achieved through the imposition of an external force to achieve some definite purpose, but this is quite unlike the social order, which is defined as

> a state of affairs in which a multiplicity of elements of various kinds are so related to each other that we may learn from our acquaintance with some spatial or temporal part of the whole to form … expectations which have a good chance of proving correct. (Hayek, 1973b, p. 36)

There is no authoritarian connotation. It is an order with no purpose: a spontaneous order, the like of which occurs both in nature (an example is the lattice of a crystal) and in society (the marketplace).

Society exists because of rules that govern individual behaviour and which continuously evolve. The intensive interdependence of the extended socio-economic order, which is based upon the division of both labour and knowledge, relies upon a common moral consciousness to underpin rules of conduct. These rules fall into different categories: there are those which everybody follows because of the like manner in which the environment is perceived by individual minds; those which are followed spontaneously because they form part of a common cultural tradition; and those which must be enforced because, though individuals would gain through non-observance, such actions would damage the social order.

The intellectual mistrust of the notion of a spontaneously evolving social order is attributed largely to the nineteenth-century 'Social Darwinism'[1] of Herbert Spencer, which is focused upon the selection of individuals' characteristics rather than of institutional functions. This mistrust is unwarranted: the transmission of social mores has no dependency upon physiological traits. Yet (according to Hayek), the general misconception goes still further, since the evolutionary concept originates not within biology but within social philosophy; and it was Charles Darwin who borrowed and reformulated the idea for application to heredity.[2]

The meaning of liberty

The fundamental importance placed upon the freedom of the individual carries with it no connotation of egoism: freedom is 'at least as important to the complete altruist as for the most selfish' (Hayek, 1973b, p. 56). Liberty is valued both for ethical reasons: '[it] is the source and condition of most moral values' (Hayek, 1960, p. 6) and for practical reasons:

> a condition of liberty in which all are allowed to use their knowledge for their purposes, restrained only by rules of just conduct of universal application, is likely to produce for them the best conditions for achieving their aims. (Hayek, 1973b, p. 55)

In its original meaning, liberty signifies 'the position of a protected member of the community'. It also relates to a relationship between men: the status of a free man as contrasted with that of a slave (see Hayek, 1960, p. 422, fn 5). The definition favoured by Hayek is that liberty is the state of 'independence of the arbitrary will of another' (Hayek, 1960, p. 12). Liberty is taken from an individual when 'in order to avoid greater evil, he is forced to act not according to a coherent plan of his own but to serve the ends of another' (Hayek, 1960, pp. 20–1). Neither in these definitions nor in its origins, is there any implication to be drawn about a range of choice that an individual must have before he can be said to be free:

> [t]he confusion of liberty as power with liberty in its original meaning leads to the identification of liberty with wealth; and this makes it possible to exploit all the appeal which the word 'liberty' carries in the support for a demand for the redistribution of wealth. Yet, though freedom and wealth are both good things which most of us desire and though we often need both to obtain what we wish, they still remain different. (Hayek, 1960, p. 12)

Liberty is identified by five essential features, which together contain 'all of the elements to protect an individual against coercion': legal status as a

member of the community, immunity from arbitrary arrest, the right to work at any trade, the right to free government and the right to own property.

Liberty does not imply the absence of constraints upon individuals' behaviour, for liberty has no meaning without order. In a highly practical sense, liberty exists when there are non-arbitrary and clearly defined constraints upon individuals' activities. Paradoxically, the only way that coercion can be prevented is by the threat of coercion. This problem is met by the state having a monopoly of coercion and by the limitation of the power of the state to circumstances where it is required to prevent private coercion. The state offers protection by administering general rules, such that an individual can act upon reliable knowledge of how the rules apply to different circumstances.

A society of free men in peaceful coexistence ultimately relies upon self-discipline: that is, upon the expectation that an individual will act according to his beliefs and that he will accept the consequences of his action. It follows that two conditions must be met to ensure the survival of a free society: these are

> the belief in individual responsibility and the approval as just of an arrangement by which material rewards are made to correspond to the value which a person's particular services have to his fellows. (Hayek, 1967, p. 232)

With these, both initiative and circumspection are encouraged; and – in the absence of that 'metaphysical self which stands outside the chain of cause and effect' (Hayek, 1967, p. 232) – there are no qualifications that can be made to the degree of an individual's responsibility for his own actions.

The notion that individual responsibility might be mitigated because of a 'background' over which that individual had no control destroys 'the chief device which society has developed to assure decent conduct – the pressure of opinion making people observe the rules of the game' (Hayek, 1967, p. 232). The notion of extenuating circumstances has no substantial basis, for the reason that there is no basis to understand an individual's thoughts or conclusions. To achieve that understanding would require knowledge of the physical conditions that would have caused some different thought or conclusion. That, in turn, would demand an explanation of how a sensory picture represents relationships within the physical world; and that is not possible.

There is no practical alternative to drawing a distinction where none exists: between the forces that govern the mind and those which govern the physical world. We can never step outside the mind to observe its function as part of the physical world. As a corollary, an individual must be held responsible for his actions, even though those actions are causally determined as part of the physical world. The concept of 'some metaphysical self

which stands outside the chain of cause and effect' (*op. cit.*) cannot be admitted since it would leave nothing for which an individual could be held personally responsible; and since 'everybody's responsibility is nobody's responsibility' (Hayek, 1960, p. 83), effective responsibility can only mean individual responsibility. Yet, to hold that an individual 'is responsible for the consequences of an action' is neither an assertion of causation nor of fact, but 'is rather of the nature of a convention introduced to make people observe certain rules' (Hayek, 1960, pp. 74–5). Individual responsibility is a device that gives order without coercion and which complements liberty by its presupposition that an individual is capable of drawing lessons from experience and of acting in accordance with those lessons.

Reason, liberty and justice

Reason, liberty and justice are interrelated facets of civilisation. Although cultural selection is not a rational process, the guidance it brings to individuals in their behaviour is the basis for that reasonable conduct which generates social cohesion. Rationality achieves 'some degree of coherence and consistency in a person's action, some lasting knowledge or insight which, once acquired, will affect his action at a later date and in different circumstances' (Hayek, 1960, p. 77). Justice is served by laws that limit the scope of an individual's freedom in the interest of social cohesion. Yet society does not give itself rules; nor are social obligations defined by the legal system. Rather, a consensus on rules forms men into society.

Social harmony, which is upheld by justice, is contingent upon history. Although just legal systems are derived from cultural traditions, the situation is never static. Just rules are discovered by (and tested against) experience, through a continuous process of trial and error: '[l]ike all abstractions, justice is an adaptation to our ignorance – to our permanent ignorance of particular facts which no scientific advance can wholly remove' (Hayek, 1976a, p. 39). The vitality of 'natural' justice requires existing rules to be challenged by a continuous intuitive questioning; and it is the task of politics to examine the existing social order, for there are no 'values or moral principles, which science may not occasionally question' (Hayek, 1978b, p. 19). Justice involves *procedures* that are subject to change. Furthermore, a just outcome can never be defined in advance, since it is the consequence of the application of just procedures within particular circumstances. The process of adapting rules and procedures is the development of reason, which exists only as part of a rational environment. This is our civilisation.

Liberty and justice are mutually dependent. Liberty enables just rules to emerge and to be changed through an evolving social process; and, by the

administration of just laws, freedom is achieved under the law:

> [t]he concept of freedom under the law … rests on the contention that when we obey laws, in the sense of general abstract rules laid down irrespective of their general application to us, we are not subject to another man's will and are therefore free. (Hayek, 1960, p. 153)

Liberty facilitates the processes of discovery: it allows individuals to take advantage of opportunities, and it enhances rationality by expanding the range of opportunities: '[t]he chief aim of freedom is to provide both the opportunity and the inducement to insure the maximum use of knowledge that an individual can acquire' (Hayek, 1960, p. 81). Aspirations are fulfilled in the greatest number when human knowledge achieves the highest level of coordination that comes from the spontaneous social order. Liberty promotes that order: the *undirected* activities of individuals, constrained only by just rules, allows the continuous adaptation that is essential to an orderly society.

Given the extent of his ignorance of the factors that have allowed the evolved structure of particular cultural norms to survive, man is limited in his capacity to criticise established traditions. However, since the test of a rule is 'whether its universal application is possible because it proves to be consistent with all the other accepted rules' (Hayek, 1978b, p. 139), there is a requirement for some basis upon which to decide the priority to be given to rules that are found to be mutually incompatible; that is, there is a need for the guiding principles of a *theory* of justice. Hence, the criticism has been levelled that the task of setting out 'the *principles* of a liberal social order' is at odds with Hayek's view that the foundations of a free society can be neither uncovered nor constructed by reason (see Kukathas, 1989, p. 46). Such criticism is undeserved, for the simple reasons that Hayek recognises those 'foundations' to be mutable and that he suggests no definitive solutions:

> [a]ll real moral problems are created by conflicts of rules, and most frequently are problems caused by uncertainty about the relative importance of different rules. No system of rules of conduct is complete in the sense that it gives an unambiguous answer to all moral questions; … It is through the constant necessity of dealing with such questions to which the established system of rules gives no definite answer that the whole system evolves and gradually becomes more determinate, or better adapted to the kind of circumstances in which society exists. (Hayek, 1976a, p. 25)

Hayek's evolutionary approach to morality is necessarily retrospective, since there are no means to identify those rules that are most likely to secure the survival of present day society. The primary justification of traditional

practices is their plausibility, from having faced the judgement of time. Furthermore, '[t]he only standard by which we can judge particular values of our society is the entire body of other values of that same society' (Hayek, 1978b, p. 19). By their very survival, their inherent value is self-evident, but there is no suggestion that they are immutable. Long-established practices can be challenged. Proposals for reform – like Hayek's own for the constitution (see the final section of this chapter) and for the monetary system (see Chapters 10 and 11) – are not inconsistent with the value placed upon custom and tradition. While having due regard to the cohesion provided by long-established behavioural norms, political action rests inevitably upon a constructivist approach to such issues; but reform must proceed cautiously and upon a narrow front, in taking due regard of the limitless horizon of unintended consequences.

Reason and 'constructivist' rationalism

The spontaneous social order pervades every aspect of human life –

> although the problem of an appropriate social order is today studied from the different angles of economics, jurisprudence, political science, sociology, and ethics, the problem is one which can be approached successfully only as a whole. (Hayek, 1973b, p. 4)

– but specialisation within academia left a no-man's land of 'social philosophy', where the neglect of scientific inquiry allowed the erroneous creed of 'rationalist constructivism' (or 'constructivist rationalism') to flourish. This is the doctrine that, through the exercise of human intelligence it is possible to articulate the institutional functions that are vital to the extended order of civilisation. Anything that constructivism is unable to explain is regarded as arbitrary and ripe for reform. Yet, whenever social institutions are remoulded according to some deliberate design, there is the risk that a vast source of information may be jettisoned.

It is important to recognise the ambiguity of meaning and the potential for confusion in the use of the adjective 'rational':

> if the desire to make reason as effective as possible is what is meant by rationalism, I am myself a rationalist. If, however, the term means that conscious reason ought to determine every particular action, I am not a rationalist, and such rationalism seems to me to be very unreasonable. Surely one of the tasks of reason is to decide how far it is to extend its control or how far it ought to rely on other forces which it cannot wholly control. (Hayek, 1973b, p. 29)

Hayek has suggested that this ambiguity of meaning might be avoided if the distinction were made between a constructivist and an evolutionary (rather

than between a rationalist and an anti-rationalist). The philosophy of constructivist rationalism is that, through the exercise of intellect, it is possible to plan a more desirable social order. By contrast, the evolutionary approach is guided by the experience of successful schemes, and it recognises the embodiment of that experience in unarticulated form within the inherited culture and traditions of society.

Reason *per se* is effective as a necessary discipline to confront the awesome complexities of reality. In abstracting from those complexities, mental processes generate some degree of comprehension. Those processes comprise much more than conscious intellectual theorising. Reason is also directed by spontaneously evolving abstract notions that become incorporated within cultural rules and institutions. The application of reason restrains action that is motivated purely as an emotional response. The philosophy is that human actions are guided by reason, where there is some expectation that, there by, those actions 'have a good chance of achieving their aims' (Hayek, 1973b, p. 11). Reason is therefore relevant in the context of a framework that allows some assessment to be made of the likely outcome of actions.

The organisation

The rules that support spontaneous order are independent of purpose. So, they are qualitatively different from the rules of an organisation, which is an entity that exists to achieve clearly defined goals:

> the general rules of law that a spontaneous order rests on aim at an abstract order, the particular or concrete content of which is not known or foreseen by anyone; while the commands as well as the rules which govern an organisation serve particular results aimed at by those who are in command of the organization. (Hayek, 1973b, p. 50)

For many limited tasks an organisation may have a sharp boundary within which its 'command rules' are the most effective method of coordinating activities. The family, the plant, the farm, the government are examples of organisations that are integrated into the vast and extensive spontaneous order of society. The same group of people (teachers and pupils of a school) may act together as an organisation (at assembly or during examinations) while, at other times, spontaneous order is maintained by adherence to conventional norms of behaviour. Therefore, while it is clear that organisations and the spontaneous order are not mutually exclusive structures, their coexistence does not imply that the two can be combined at will. The boundaries between the organisation and the market are often ill-defined and as subject as any other parts of the system to entrepreneurial initiative (see Loasby, 1989, p. 188). To a degree, every organisation expects its members to operate according to general rules, especially where many detailed decisions are

delegated to subsidiary authorities. Within an organisation such general rules are necessary whenever there are uncertainties left by commands from the top.

Since the service function of government is to administer the resources placed at its disposal, and since there are clearly defined ends to which those resources must be put, the government itself is one organisation among many other organisations that operate within the spontaneous social order. In addition, the government exercises a coercive function, which is to enforce those rules of conduct that are enshrined as law. In this respect, the organisation that is government is an essential condition for the preservation of spontaneous social order.

Common law and legislation

The social order that has emerged did so because it was effective in reducing conflict and in conserving energy. In this respect, man's experience is a general feature of the animal kingdom, where ritual display accompanies a wide variety of social behaviour. Although many traits of human social intercourse have survived without articulated form, they nevertheless 'exist in the sense that they govern action' (Hayek, 1973b, p. 76). That particular explanations for the adoption of various cultural practices may have become lost over time is largely irrelevant. It is generally unnecessary for individuals to be able to articulate rules of behaviour in order to know how they must act.

Rules need not be explicit, but there must be known procedures whereby regulations can be given precise articulation within an institutional framework. It must be possible to test the law. Wherever there is a need to pass judgement in matters of dispute, the aim must be to give greater precision to existing rules and to achieve consent as to the nature of the law, rather than to formulate new law. In many cases it may be difficult to decide whether existing practices have been clarified, or whether new practices have been legitimised. In either case, the judgement is constrained to apply within the existing lattice of established practice:

> law as we know it could never have fully developed without such efforts of judges, or even the occasional intervention of a legislator to extricate it from the dead ends into which the gradual evolution may lead it. (Hayek, 1973b, p. 100)

In giving judgement, it is not a matter of deciding if authority has been disobeyed. Rather, a judge (the 'occasional intervention of a legislator' is discussed below) must decide which expectations might reasonably have been formed on the basis of established practice. Judgements must accord with the function of the law, which is to make it easier for individuals to act, knowing the likely consequential interaction with other members of society.

Rules that achieve this end survive and are copied, because they create an order that is generally valued. It is the combination of abstract rules of conduct with particular factual circumstances that determines whether any given action is acceptable.

It is rare for a judgement to achieve more than a partial expression of the legitimacy of actual custom and practice; but precedents are used to derive general rules that can be applied in new circumstances. By this means, law-making is a continuous process of interpretation, in which each part of the legal system becomes more closely adapted to all the other parts, through the successive reapplication of general principles. The evolution of the law is thus guided by the most abstract ideas of what is 'right and proper' rather than by particular purposes: '[t]he power of abstract ideas rests largely on the very fact that they are not consciously held as theories but are treated by most people as self-evident truths which act as tacit presuppositions' (Hayek, 1973b, p. 70). It is no coincidence that the ideal of individual liberty has flourished in situations where judge-made law has predominated. The distinctive character of impartial judgements derives from a need to eliminate disharmony within a non-authoritarian order. A judgement is not constrained to be a logical deduction from written law: it is made in accordance with a set of abstract principles that have the very widest application. It is in this spirit, rather than in the letter of the law, that judgements are given.

The advance of the law is no different from any other kind of intellectual advance, where 'immanent criticism' is the instrument of the evolution of thought. A judge has no remit to protect the *status quo*, for a characteristic of the order he serves is that it exists only where evolutionary change is made possible. It is not the *status quo* of relationships between individuals that is protected, but the abstract principles upon which that dynamic order is based. Even a long-established rule has no claim to be regarded as an absolute norm.

Since the law relates to 'actions towards others', a dispute must exist between individuals before a judgement is required. This is of great significance in that it precludes many rules that, although abstract and universal, would nevertheless infringe personal liberty. An example of the latter would be a law that requires religious conformity. However, there are no circumstances where such a law could emerge from a dispute over the conduct of one individual to another. Although it might be imposed universally, religious conformity is achieved only through unwarranted coercion. That a dispute must exist before a judgement is required touches upon another important issue: the law cannot protect every interest. Change is inevitable and it is inevitable that change will benefit some and disappoint others.[3] It is therefore necessary for the law to give a clear indication of the abstract principles that determine legitimate expectations: that is, those interests to which it will afford protection. The law must demarcate the boundary of an individual's protected domain, from which others are excluded.

The conception of law as the safeguard of freedom – which comes from the eighteenth-century British liberal tradition and especially from the work of Adam Smith and David Hume – arose contemporaneously with the theory of the market mechanism, where the two principles of several property (that is, unshared tenure of ownership) and contract enforcement are most important. Alongside the general observance of other abstract rules of conduct, these principles create opportunities for individuals to act effectively within a coherent framework. Just rules are closely aligned to the institution of several property, because both are in the nature of prohibitions which promote the greatest coincidence of expectations and so enhance social harmony.

Customs, morals and the rule of law only rarely give positive direction to behaviour, for their value is in showing what not to do. They form the 'taboos of society' that embody 'the wisdom of our ancestors'. Of particular interest is the comparison between Hayek's position and that set down by John Rawls in *A Theory of Justice*. In the Preface to the consolidated one-volume edition of *Law, Legislation and Liberty*, Hayek points to his omission (through ill-health) 'systematically to take account of the more recent literature on the topics' (Hayek, 1982, p. xviii) relevant to the central chapter of volume two. Although he particularly saw a need to justify his position against Rawls, Hayek concludes that their differences are 'more verbal than substantial'. Hayek quotes Rawls directly:

> 'the principles of justice define the crucial constraints which institutions and joint activities must satisfy if persons engaging in them are to have no complaints against them. If these constraints are satisfied, the resulting distribution, whatever it is, may be accepted as just (or at least not unjust)'. This is more or less what I have been trying to argue. (Hayek, 1976a, p.100)

The precept of impartial justice and Hayek's condemnation of the 'fundamental immorality of all egalitarianism' are clearly incompatible with any order that is shaped to meet pre-defined goals:

> that different treatment which is necessary in order to place people who are individually very different into the same material position seems to me not only incompatible with personal freedom, but highly immoral. (Hayek, 1978a, pp. 157–8)

Just rules determine legitimate behaviour but not legitimate outcomes; they cannot secure entitlements for the simple reason that end states cannot be known in advance. Just laws are abstract, general, prospective, known, certain and equitable; they are beyond time and place and their enforcement involves no coercion for, in observing them, 'we do not serve another person's end, nor can we properly be said to be subject to his will' (Hayek, 1960,

p. 152). These are the characteristics that define just laws. The attribute of 'equality before the law' is the guardian of the principle of generality; but it is consistent with this principle for the law to define categories of individuals to whom certain rules apply. Such categorisation is compatible with justice, if the classification is acceptable to those included and those excluded and if the classification neither benefits nor harms known persons. The obvious illustration relates to laws that apply specifically to juveniles.

An enduring liberal social order can be based only upon abstract principles and this points to the greater effectiveness of the common law, because abstract laws are more likely to emerge through due judicial process. Judgements must take a long-term view and be capable of supporting decisions taken in the future circumstances that are presently unforeseeable. Since the aim of the law is to support an abstract order, it can aim at no factual circumstances. To understand this relationship is to understand the law; and to understand that the law is an empirical science: '[w]ithout such an insight into what the scoffers still deride as the "invisible hand", the function of rules of just conduct is indeed unintelligible, and law-makers rarely possess it' (Hayek, 1973b, p. 114). While this has not affected the everyday function of the lawyer's traditional role – to protect the individual's right to freedom – a threat does arise from a modern tendency to interpret the law as a remit to devise (organisational) rules to guide individuals towards ends laid down by the state. So, there is an important distinction to be drawn between law and legislation. Law consists of 'abstract rules which make possible the formation of a spontaneous order by the free action of individuals through limiting the range of their actions' (Hayek, 1973b, p. 71), whereas legislation is 'the instrument or arrangement of organisation by which the individual is made to serve concrete purposes' (Hayek, 1973b, p. 71). Legislation – the deliberate creation of law – is a further manifestation of the constructivism that originated in ancient Greece and which enjoyed a medieval revival in continental Europe in association with the rise of absolute monarchy. Thus there developed a threatening confusion, which was caused by

> a progressive absorption of this new power of laying down new rules of just conduct into the much older power which rulers had always exercised, their power of organising and directing the apparatus of government, until both powers became inextricably mixed up in … the single power of 'legislation'. (Hayek, 1973b, p. 84)

In England the tradition of the common law – 'binding upon and developed by the courts' – gave protection against similar developments so that, before the seventeenth century, parliament passed no legislation in contravention of the common law. Instead, parliament kept to its original remit: that is, to control and to regulate by legislation the organisation of government, one of whose aims is to administer the system of justice.

However, there are occasions when it may prove necessary to enact legislation to amend certain rules of justice, as established by the common law, and there are a number of reasons why this might be necessary. The pace of judicial development may be too slow in adapting to new circumstances; or it may be impossible, on the basis of case law, to revert to a different path when the implications of earlier decisions are discovered to be untenable:

> such occasions when it is recognised that some hitherto accepted rules are unjust in the light of more general principles of justice may well require revision not only of single rules but of whole sections of the established system of case law. (Hayek, 1973b, p. 89)

It would undermine the position of a judge if he were to be called upon to reverse previous developments with retrospective effect; and it would be much better if, instead, legislation were enacted to apply from some future date. However, this raises the question of the kind of constraints that should limit this power to legislate; for which Hayek's answer is that

> [i]n a free society in which all power rests upon opinion, this ultimate power will be a power which determines nothing directly yet controls all positive power by tolerating only certain kinds of exercise of that power. (Hayek, 1973b, p. 93)

So, the ultimate reliance is upon the general opinions that emerge from a common cultural inheritance: '[t]he basic source of social order, however, is … the existence among certain people of certain opinions of what is right and wrong' (Hayek, 1979, p. 33). Hayek thereby takes the view that the ultimate restraint upon the remit of legislation is made effective through a consensus of opinion that is alert to the specifications (which bear repeating: abstract, general, prospective, known, certain and equitable) of the concept of just laws.

In summary, Hayek's analysis of our understanding of justice is no different from his treatment of knowledge in general; that is, it is obtained through a process of abstraction and classification of broad categories of phenomena. This sets his legal philosophy between two contemporary schools of jurisprudence: respectively, proponents of 'natural law' and proponents of 'positive law'. Their respective positions are identified by the response to the question of what determines the validity of rules within the legal system. With natural law, the acid test is against universal moral precepts that are established by reason. With positive law, the crux is for the law to offer certainty; but, because certainty would be impossible if the law were interpreted against ever-shifting moral standards, the question of legal validity is logically distinct from the question of moral worth. Hayek rejects the constructivist rationalism of the natural school, which is likely to overturn

the stability of spontaneously developing systems; and his principal objection to positive law is that it develops by the will of a legislator, rather than as the expression of consensus. His course is therefore 'a delicate one' between these two extremes (see Barry, 1979, p. 76 *ff.*).

Hayek sees the evolution of the common law as a slow continuous process of adapting existing law to new conditions, where the role of the judge is to improve 'a given order of actions by laying down a rule that would prevent the recurrence of such conflicts as have occurred' (Hayek, 1973b, p. 101). Thus defined, adjudication is a process of arriving at decisions that can be defended rationally; but, since there are no *principles* to guide this process, it may prove difficult to identify bad law. When the evolutionary pace of the common law is deemed to be too slow, legislation is preferred to a retrospective judicial interpretation; but it is argued that the 'constraints imposed by the requirements of generality and equality are not sufficient to define the scope of the individual's protected domain in any substantive way' (Kukathas, 1989, p. 158). So, if the strength of justice cannot be tested against immutable principles, it must draw what support it can from the application of cautious adjustments to counter some of the ambiguities and inconsistencies that surface from the complex processes of social evolution.

Democracy and constitution

As a general principle, the concept of freedom as espoused by nineteenth-century liberalism is, in many respects, too vague. Neither *'laissez-faire'* nor 'capitalism' convey its spirit. *Laissez-faire* provides no criterion for the proper functions of government, and capitalism is misleading for the suggestion that benefits accrue primarily to the capitalists. It is an erroneous 'part of the folklore of our time' that 'capitalism' (or '*laissez-faire* liberalism') impairs the material living standards of the working class. Nothing is further from the truth; but government was persuaded to show its concern for the working class by being seen to manipulate the social order to gain specific goals. Whereas the authority of government is necessary to ensure that the rules of society (the most extensive spontaneous order) are obeyed, the principles of a system of individual liberty were undermined by historical developments whereby the concept of democracy was corrupted to mean *unlimited* government. Through the mandate of a majority, a single elected representative assembly acquired (in addition to its remit to perform the traditional administrative functions of government) the role of deciding the rules of law. This was a pernicious development.

'People power' – the literal interpretation of *democracy* – is an ambiguous concept that has been used to describe both repressive totalitarian regimes and those free parliamentary systems that are based upon universal adult franchise. Although the latter exhibit many diverse forms, Hayek abhors a modern tendency to merge the organisational functions (to cover the

administration of funds that are placed at its disposal) and the legislative functions (to administer corrections to the common law) of government: 'I must frankly admit that *if* democracy is taken to mean government by the unrestricted will of the majority I am not a democrat' (Hayek, 1979, p. 39). Although a democracy enables any majority to rid itself of a government – and so must limit the power of government – it is a dangerous belief that there is no need for further restraint. Even with democracy, the rule of law faces the threat of an encroachment by government. The institutionalised blackmail and corruption – often euphemistically referred to as 'horse-trading' – that are common features of democratic government, arise from its dependence upon the support of many factions. For this reason, a democratically elected government can find itself bound, not by moral convictions, but by the obligation to satisfy a number of vested interests.

If simple majorities are not constrained by the rule of law, an accumulation of privilege is likely to emerge from political horse-trading in the spoils of office. So, it is appropriate to confer authority upon government only where it accepts the constraint of just rules derived from abstract and widely accepted principles. In particular, democratic systems have been corrupted by pervasive pressures to enforce egalitarianism:

> [a]greement by the majority on sharing the booty gained by overwhelming a minority of fellow citizens, or deciding how much is to be taken from them, is not democracy. At least it is not that ideal of democracy which has any moral justification. Democracy itself is not egalitarianism. (Hayek, 1978b, p. 157)

Hayek suggests that individual liberty could be protected against this threat of oppression by a majority, through a 'separation of powers'. The function of government is to administer the resources placed at its disposal by the wishes of a majority. The wishes of that same majority must also guide the evolution of just laws to establish general rules of conduct. These are the distinctly different tasks that *must* be kept separate. While justice requires the democratic control of government, in the sense both that government is elected by the people and that government is constrained by the law, government itself is unsuited to the task of legislation where, instead, the focus is upon developments in common law: '[i]f those who decide on particular issues can make for any purpose whatever law they like, they are clearly not under the rule of law' (Hayek, 1979, p. 25). Unfortunately, the convenience that arises from the authority to create special laws has created a general modern tendency to fuse the roles of government and the law-making, and this has been accompanied by a greater centralisation and concentration of power. With this fusion, every resolution of government has acquired the force of law with the effect that the notion of 'government under the law' is diminished.

If the complete separation of those functions could be achieved, a devolved (local) government would be more effective in dealing with most issues pertaining to resources management, with the exception of those for which a uniform national provision brings clear advantages to all. In general, the latter would pertain to external relations.[4] With a general devolution of powers, competition would become a feature of local government: 'competing with each other for citizens who could vote with their feet for that corporation which offered the highest benefits compared with the price charged' (Hayek, 1978b, p. 162). The volume of resources administered at the local level would vary between districts, but the contributions that local citizens would be compelled to make would be regulated by just laws: that is, by rules that are applied uniformly. In particular, taxes raised upon incomes would be proportional to incomes. (See in Chapter 4: 'The public sector and the burden of taxation'.)

The importance that Hayek attaches to the principle of separation is reflected in his preference for a non-democratic government under the law over an unconstrained democratic government. More precisely, Hayek embraces an interpretation of *democracy* that is covered by an older and more specific term, *isonomy*, which means the application of an 'equal law for all': 'people submit to authority not to enable it to do what it likes, but because they trust somebody to act in conformity with certain common conceptions of what is just' (Hayek, 1979, p. 33). Rules of justice cannot be left to an unconstrained authority for the reason that the single purpose of the law is to 'serve the needs of the self-generating order of the market', not those of the government. Here, a long view is taken of the desirability of rules that apply to the community as a whole, both now and in the future. This is the true ideal of democracy: that government is constrained by a constitution, which presupposes the existence of just rules and provides machinery for their enforcement. The single aim is to preclude arbitrary action: 'government, when it is concerned with the temporary and the particular, should be under a law which is concerned with the permanent and general' (Hayek, 1976a, p. 17).

The simple device of having two assemblies would not, in itself, provide a solution. Collusion would be inevitable. So, a legislative assembly would be constitutionally bound, with a constitutional court to elaborate on the definition and the properties of valid law and to decide upon any conflict of competence between the two assemblies. The crucial question relates to the composition of the legislature, which should be representative of general opinion but immune from special interest pressure. Its membership should comprise those who would take a long-term view, unswayed by fashion or passion, and uninfluenced by the desire for re-election:

> a body of men and women who, having gained reputation and trust in the ordinary pursuits of life, were elected for a single long period of something

> like 15 years. To ensure that they had gained sufficient experience and respect, and that they did not have to be concerned about securing a livelihood for the period after the end of their tenure, I would fix the age of election comparatively high, say at 45 years, and assure them for another 10 years after expiry of their mandate at 60 of some dignified posts as lay-judges or the like … annual elections of one-fifteenth of the membership to be made by their contemporaries, so that every citizen would vote only once in his life, in his forty-fifth year, for one of his contemporaries to become legislator. (Hayek, 1978b, pp. 160–1)

By these arrangements, the composition of the assembly would be constantly changing. Its sole function would be to make (and to make adjustments to) general laws of contract, tort and property. So there would be no reason for factions or party lines to emerge. The government (elected on conventional democratic and party lines) would be limited by those laws. To give one illustration, it would be for the government to determine levels of expenditure for the services it provides, and the level of taxation necessary to that end; but the manner by which those taxes would be raised would be subject to 'true law' laid down by the legislative assembly. As with any blue-print for constitutional reform, Hayek's proposals are at odds with the thesis of spontaneous order.[5] Yet we are where we are. Having usurped institutions of the law, the processes of justice are seriously compromised by the power of the modern state, in comparison to which evolutionary forces are weak. Hayek's proposals for reform can be regarded as a prescient warning of the threat to Western liberalism posed by affording the status of law to every government enactment.

4
Liberty and the Market

> [P]rivate ownership of the means of production is important to most people not because they hope to own such property, but because only such private ownership gives them the choice of competing employers and protects them from being at the mercy of the most complete monopoly ever conceived.
>
> (Hayek, 1992, p. 110)

The primacy of property

The respect for property is a trait that has been identified in 'all vertebrates, and very clearly in primates' (Radnitzky, 1990, p. 161). In respect of the voluntary exchange of material goods – probably a uniquely human characteristic – a mutual recognition of ownership must first exist.[1] It follows that property rights have been present with even the most primitive of cultural forms since, in the absence of an individual's right to protection, the idea of 'harming others' has no meaning. In the cultural context of modern capitalism, well-defined legal entitlements to property were essential for the unintended consequences of human action to enhance rather than to threaten social cohesion. Hayek points to David Hume's precepts for just conduct: stability of possession (the inviolability of property); transference by consent (freedom of contract); and the fulfilment of promises (compensation for damages).

The legal protection that is extended to property and to the enforcement of contracts has given rise 'to an extensive division of labour, specialisation and the establishment of markets' (Hayek, 1978b, p. 11). Where livelihoods are heavily reliant upon the impersonal interplay of market forces – details of which are beyond our full comprehension or control – it is prudent that individuals should seek to protect gains that they have made. The legal protection that is afforded to claims that are rationally based upon known rules and procedures constitutes an individual's property rights; and these define the 'ranges of objects over which only particular individuals are allowed to

dispose and from the control of which all others are excluded' (Hayek, 1973b, p. 107). In effect, all trade consists of an exchange of property rights.

It is important that there should be effective methods of enforcing property rights and special attention may be necessary where there is joint ownership, for example in the case of company shareholdings. However, the degree to which different individuals are able to formulate accurate expectations of their right to protection varies. So, it is inevitable that some claims will be challenged; but the social order is held together by rules whereby a judgement can be given as to which claims are entitled to the protection of the law. Property rights define an individual's protected domain, within which others may not legally encroach. Both by securing property rights and by providing for the impartial administration of just rules in cases of dispute, the law provides the order which safeguards liberty. 'Law, liberty and property are an inseparable trinity' (Hayek, 1973b, p. 107); or, more simply, the assertion that 'good fences make good neighbours'[2] is less Utopian that the exhortation to 'love thy neighbour'.

Uncertain elements in defining the precise boundaries of protected domains give rise to the necessity for periodic adjustments: property rights are not fixed, but are continuously redefined by the application of rules of just conduct which, though soundly based upon the body of inherited law, will always remain open to improvements through a spontaneous evolution. It is important that evolutionary changes meet the requirement for mutual compatibility, which is necessary both to preclude injustice within new situations and to produce a state in which there is a mutual correspondence between claims held by different individuals. Yet, while the concept of property rights was a prerequisite for the emergence of even the most primitive of cultures which, in their more sophisticated forms (for example, licences, patents, franchises and copyrights) are necessary to protect the extended structures of modern civilisation, there will always remain difficult questions as to the precise location of the boundaries of an individual's protected domain and the associated problem of 'neighbourhood effects' or 'externalities'.

Neighbourhood effects

Neighbourhood effects can invalidate many of the assumptions that underpin the notion of a simple division of property rights across individuals. For example, although specialisation has led to enormous gains in industrial productivity, the consequential increase in the urban population has added many new dimensions to the cost of living. Many of the costs of urban life are borne communally; that is, the advantages and disadvantages that derive from the use of private property within urban areas are not confined to the owners. Property values are affected by the characteristics of adjacent property, by the availability and quality of communal services and by a variety of regulations. Civilisation and urban life are inseparable, but '[t]he general

formulas of private property or freedom of contract do not … provide an immediate answer to the complex problems which city life raises' (Hayek, 1960, p. 341). So the framework of rules that defines urban property rights also demands special attention: but the precepts set by an urban planning authority should be of a kind that assists the market in channelling enterprise and initiative towards a harmonious conjunction of private and communal interests.

The case of urban slum-dwellings illustrates some general features and dangers in the attempt to find solutions to these 'complex problems'. The existence of neighbourhood effects may be cited in support of a government programme of urban slum clearance. Indeed, there is evidence that slums impose costs upon the rest of the community by way of poor public health, high crime rates, and so forth. If such costs were chargeable to slum dwellers, many occupancies would be rendered economically non-viable and individuals would be driven from those areas. Open spaces, business premises and more expensive housing would replace the slums. Although philanthropic sensibilities might find this particular solution offensive, the more 'acceptable' measures that have been implemented to alleviate urban squalor have – by their enticement of larger numbers into the cities – created even greater problems. More than any other single device, the imposition of ceilings upon the rents charged for urban dwellings has worsened the evil it was meant to cure. This particular intervention (e.g., as part of the provisions for a welfare state in the United Kingdom) perpetuates the housing shortage, discourages mobility and weakens both the sense of individual responsibility and a respect for property; and it leaves both landlords and tenants with little incentive to ensure the routine maintenance of buildings.

The provision of new public housing at subsidised rents has a similar impact in that it encourages the formation and the influx of low-income household units with the consequence of urban expansion and congestion. Moreover, where the housing authority is unable to meet the volume of demand at the low rents charged, it is forced to allocate housing upon the basis of arbitrary non-market criteria. According to Hayek, '[t]he solution of the problem would be either to let the economic deterrents act or to control directly the influx of population; those who believe in liberty will regard the former as the lesser evil' (Hayek, 1960, p. 348). There is no magic panacea: slum dwellings, no less than other manifestations of poverty, can be removed only by a general rise in incomes. The provision of subsidies simply exacerbates the situation by the incentives it gives for individuals to move from areas, where living costs are within their means, into areas where they are not. The effects of the provision of housing as 'social' welfare serves to illustrate those unintended consequences that generally subvert the quest for 'social justice'. Yet, there is an even darker foreboding: if the provision of subsidised urban dwellings were ultimately to become the norm, it would become necessary to deny the right of an urban abode to designated categories

of individuals. Such a development would represent the extension of state intervention to a point where it constitutes a violation of personal liberty.

The industrialised workforce

Another consequence of the growth of a large urban population and an industrialised workforce is that it has caused a majority of the population to become employed members of organisations, in which their role is to follow instructions given by others. Since this development coincided in the United Kingdom with a widening of the electoral franchise, the outlook of the electorate became that of the employed class. Employment is now the preferred position of a majority for its steady income, pension and non-pecuniary entitlements. Among the employed class, Hayek sees great significance in the pernicious influence that public servants have had in the formulation and administration of new legislation. Most notably, the ever-extending provision of social services has strengthened the political force that is inherent in the conceptions of need and merit. So, it was inevitable that the paternalistic provisions of the social services should become tailored to meet the requirements of the employed class which, relieved of so many of the uncertainties of economic life, nurtures the idea that every economic misfortune is the fault of somebody else.

There are important differences between the employed and the employers. The fact of being an employee affects more than an individual's initiative and inventiveness; it forces him to remain largely in ignorance of the responsibilities of those who must trust their independent judgement in making entrepreneurial and business decisions. It is to be expected that the employed are likely to underrate the importance of these roles. Within an organisation, an individual is rewarded according to how others assess his performance, but there is no basis for the extension of this principle to those who act upon their own initiative. So, it is inevitable that the levels of remuneration that result from independent action should be widely variable, with the highest levels attracting the greatest attention and envy. It is here that the greatest difference between the two categories is to be found; that is, in 'their opinions of how appropriate remunerations for various services are to be determined' (Hayek, 1960, p. 122).

Against this background, it is no surprise that the employed classes 'should wish to have some higher tutelary power watch over the directing activities which they do not understand but on which their livelihood depends', nor that the possession and employment of capital as part of making one's living should generally be 'treated as the special interest of a small privileged group which can justly be discriminated against' (Hayek, 1960, p. 123). Yet those attitudes can serve no one's interests. Turning society into a hierarchy of the employed would harm even the long-term interests of the employed. Individual freedom and general economic welfare would be threatened, if

there were an attempt to set as universal norms the standards that are appropriate as remuneration and contractual terms and conditions of work for the employed.

It is in the nature of a competitive industrialised economy that the employed are not thrown upon the mercy of a single employer, and that the freedom of the employed to choose is reliant upon a group of persons whose outlook is necessarily very different from their own. This principle applies in respect both of production and of consumption. It is essential that property should remain sufficiently dispersed, in order that an individual should not be reliant upon a single source to serve a particular need. So it follows that the system of several property – which serves no particular interests – protects the interests of those who own no property as much as it protects the interests of the largest property owner. In a competitive economy an individual is at liberty – both as an employee and as a customer – even when he has no personal possessions:[3]

> [m]embers of a community containing many who are rich enjoy, in fact, a great advantage not available to those who, because they live in a poor country, do not profit from the capital and experience supplied by the rich. (Hayek, 1960, p. 48)

The existence of a class of owners of substantial private property is an essential requirement for the preservation of the structure of competitive enterprise.

Art, literature and civilised values

The worth of an independent and propertied business class goes beyond the effects of competition and freedom of choice. Its value extends to the support that can be provided by the wealthy as patrons to the world of art and literature. Hayek views this as essential to the cultural evolution by which civilisation can progress. Unique advantages can flow from extending a tolerance even to the idle rich, in the sense of those who choose not to devote their energies and resources to the production of material wealth.

Any action 'by collective agreement must be limited to instances where previous efforts have already created a common view' (Hayek, 1960, p. 126). For this reason, the views of minorities in respect of the arts or of social reform must rely predominantly upon private backing if their causes are to gain wider support. There are many historical illustrations that show that ideals that now receive virtual universal endorsement, gained that status only 'after lonely pioneers had devoted their lives and fortunes to arousing the public conscience'. Hayek cites as examples the abolition of slavery and penal reform, the prevention of cruelty to children and animals, and the humane treatment of the insane, all of which 'were for a long time the hopes of only a few idealists who strove to change the opinion of the

overwhelming majority concerning certain accepted practices' (Hayek, 1960, p. 127).

Where the idle rich have been endowed with resources passed to them through family inheritance, they possess unique advantages: 'those who have no material worries' can develop a keener interest in 'the development of the art of living and of the non-materialistic values' (Hayek, 1960, p. 130). It is upon the basis of such considerations that Hayek expresses his regret for the modern concentration within the employed class of 'intellectual moral and artistic leaders' and 'the learned in the sciences and humanities'. More especially, he laments the concentration of these categories within occupations provided by the state, and he mourns the consequential demise of that 'cultural elite within the propertied class' by which, through social intercourse, 'wealthy men of affairs were able to take part in the movement of ideas' (Hayek, 1960, p. 128).

Capitalism and the social order

The politics of envy, which is focused upon inequalities in the distribution of income and inherited wealth, underlies the general appeal of socialism within the employed class. Socialist schemes for the rational redistribution of income and wealth – so called social justice – are inconsistent with the primacy of property. Furthermore, such schemes are unjust because they invoke unwarranted coercion. Under capitalism, the distribution of income and wealth emerge as the unintended consequences of self-interested acts. The contrast between capitalism and socialism is the contrast between order and organisation:

> [t]he assurance of particular benefits to particular people as rewards corresponding to their merits or needs … requires a kind of society altogether different from that spontaneous order which will form itself if individuals are restrained by rules of just conduct. (Hayek, 1978b, p. 140)

Under capitalism there is a structured social order, defined in terms of procedures and protected by rights, that are subject to continuing amendment. This is quite different from order under socialism. For socialism to reach its objectives of social or distributional justice, it would be necessary to replace the spontaneous order with the order that is achieved within the organisation. Social order and workplace order would be of the same kind. Social order would then require a level of unjustifiable state coercion that 'eliminates an individual as a thinking and valuing person and makes him a bare tool in the achievement of the ends of another' (Hayek, 1960, p. 21).

Under capitalism and the universal rule of law there are no clearly defined objectives. In the utilitarian sense the social order is without purpose. Rather, social order is the means to achieve an individual's right to personal

freedom. Here, the two influences of David Hume and Immanuel Kant upon Hayek are most clearly apparent:

> I observe, that it will be for my interest to leave another in the possession of his goods, provided he will act in the same manner with regard to me; (Hume, cited from Kukathas, 1989, p. 25)
>
> every action is just (right) that in itself or in its maxim is such that freedom of the will of each can co-exist together with the freedom of the will of each other together with the freedom of everyone in accordance with a universal law. (Kant, cited from Kukathas, 1989, p. 143)

The general and abstract laws of a just and civilised society are the basis upon which an individual is able to identify his legitimate property rights. So, while coercion is held at bay by universal laws, Hayek finds an exception in coercion by the state, if it can be shown to prevent the emergence of more severe coercion; but, as with all coercive action, this encroachment upon protected domains must be limited to the enforcement of general rules. Otherwise, it is unjust.

Hayek sees government as an organisation whose primary task is to defend the law. Its other functions are to raise taxes, to preserve the peace, to defend the realm and to provide the resources for a number of collective services and welfare benefits. Unfortunately, the wish to bestow a greater dignity upon the organisation of these secondary activities has removed the line of demarcation, between rules for the organisation of government (legislation) and the universal rules of just conduct (law). As a consequence, government has acquired exemptions from general rules of just conduct and individuals have become increasingly subject to purpose-directed rules. Many of these changes have been made in pursuit of the will-o-the-wisp of 'social justice': '[w]hen the aim of legislation is higher wages for particular workers, or higher incomes for small farmers, or better housing for the urban poor, it cannot be achieved by improving general rules of conduct' (Hayek, 1973b, p. 142). Where government is the exclusive provider of a service aimed at a particular group in the community, the impartial social order of free exchange is compromised. For this reason, the size of the impact of 'public sector' services upon individuals should be limited; and the *exclusive* right of the government to render a service should be denied in all cases except one: that of law enforcement.

The public sector and the burden of taxation

The high levels of income generated by market economies gives the opportunity for the provision of welfare benefits by the state, providing these do not compromise the market system in any quest for social or distributional

justice. Whatever the type or the level of welfare benefits, it is important first to decide upon the volume of resources to be entrusted to the government. Setting a limit to the absolute level of public expenditure gives an incentive for benefits to be weighed carefully against costs. Beyond this economic constraint, the extent of the domain of government should be determined by the application of a simple criterion: 'that each should feel that in the aggregate all the collective goods which are applied to him are worth at least as much as the contribution he is required to make' (Hayek, 1979, p. 45). However, these precepts have been undermined by the widespread adoption of progressive rates of income taxation; and once the principle of progressive taxation is conceded, since there are no guidelines

> by which such progression can be made to correspond to a rule which may be said to be the same for all, or which would limit the degree of extra burden on the more wealthy, it would seem that a generally progressive taxation is in conflict with the principle of equality before the law and it was in general so regarded by liberals in the nineteenth century. (Hayek, 1978b, p. 142)

By this simple argument, Hayek shows progressive income taxation to be an unsafe principle; and it has also been shown to be unsafe in practice. By fostering the belief[4] that there is always someone else to pay, progressive taxation has been responsible for an unwarranted and largely unchecked growth in public expenditure since the middle of the twentieth century.

Hayek vigorously condemns the widely held view that a just redistribution of incomes can be achieved through a system of progressive taxation. He sees the system of progressive taxation as 'the chief source of irresponsibility of democratic action' and 'the crucial issue on which the whole character of future society will depend' (Hayek, 1960, p. 306). The 'approval' of progressive taxation is relatively modern. In the nineteenth century, the notion was scarcely countenanced. As evidence for this assertion, Hayek cites Marx and Engels (Hayek, 1960, p. 308), who believed that progressive taxation would be feasible only after the first stage of the proletarian revolution had been completed. However, twentieth-century social reformers successfully sold the idea of progressive rates of income taxation upon the twin bases of the ability to pay and an equality of sacrifice. From within economics (and before interpersonal comparisons of welfare were abandoned) the hypothesis of a diminishing marginal utility of income gave support to those arguments; and that perceived legitimacy has survived even though that support has been removed.

As it became accepted that utility could be gauged only in relative terms, it followed that the marginal utility of income could be said to fall only in relative terms: say, in terms of 'the avoidance of effort'. Now, if the income required to induce successive increments of effort were perceived to rise, the

case might even be turned round to support a regressive tax system! In summary,

> [t]here can now be little doubt that the use of utility analysis in the theory of taxation was all a regrettable mistake (in which some of the most distinguished economists of the time shared) and that the sooner we can rid ourselves of the confusion it has caused, the better. (Hayek, 1960, p. 309)

In practical terms, the argument that important elements of social policy can be financed only through progressive income tax rates is contradicted by the small proportion of tax revenue that is raised at the higher rates. So, the conclusion might be that the case for progression taxation is entirely a proposition that there should be discrimination (with no criterion to limit its extent) against the wealthy.

Progressive income taxation is an unashamed attempt to impose a pattern of income distribution through the will of the majority; and it offers no principle to show at which levels the relative burdens of different income groups ought to be. It is nothing less than a violation of the fundamental principle of equality before the law:

> [t]hat a majority, merely because it is a majority, should be entitled to apply to a minority a rule which does not apply to itself is an infringement of a principle much more fundamental than democracy itself, a principle on which the justification of democracy rests. (Hayek, 1960, p. 314)

In addition to its blatant injustice, progressive taxation is damaging to economic incentives: it penalises uneven flows of income; it tells against more risky investments; it sets an incentive for work to be done by the amateur for his own self as against the hire of a professional; it acts as a disincentive to saving; and it tells against capital accumulation and so strengthens the position of established corporations.

By contrast, proportional taxation carries the recommendation that it is a general rule which is likely to gain support across the full income range, even though individuals will pay absolutely different amounts; and it is conducive to an efficient allocation of resources in that it does not disturb the net differential returns of supplying diverse services to the market. Under proportional taxation, a redistribution of income is not ruled out. Redistribution could be achieved if tax revenue were used to provide free services targeted upon low income groups. Moreover, such a regime would have the joint advantages of leaving higher income differentials unchanged, while giving the incentive to low income groups to take a greater interest in the balance of taxation and free public services.

The only possible case for progressive income taxation is where it can be shown to offset a disproportionately heavy burden placed upon low incomes

by indirect taxes. In a suggestion towards the implementation of a reformed tax regime, which accommodates the case that some progression can be justified on such grounds, Hayek proposes that the top tax rate be set at the percentage given by the proportion of total national income that is taken in tax. With the existence of a range of indirect taxes, those who would then pay this top income tax rate would have a total tax payment in excess of the tax share of the national income. This would simultaneously acknowledge the argument that justifies the element of progression and create a non-arbitrary and therefore effective limit to the degree of progression.

Social welfare benefits

The precepts for a just system of taxation would effect a telling constraint upon the level of state expenditure upon defence, law enforcement, collective services and welfare benefits. In a mobile and open society, many individuals are unable to count upon the help of family and community. If not redressed, their misfortune, might 'produce great discontent and violent reaction' (Hayek, 1979, p. 55). So, the underwriting of a minimum standard of living within the extended order of a capitalist economy provides a useful surrogate for the security of a close-knit community; but for advanced economies, any connotation of a socially just distribution of income must be resisted, unless the spontaneous social order is to be transformed into one that serves only the narrow ends of an administrative bureaucracy.

The domain of government may encompass the provision of welfare payments to those, among the sick and the elderly and the infirm, who are unable to support themselves; and while it might also provide a system of education, to counter some of the inherited disadvantages of social class, it should never be allowed to aspire to equalise all class differences. Any view of the socially just society as one in which

> the initial chances of all individuals are the same at the start … would require a deliberate manipulation of the environment … [and] … would be wholly irreconcilable with the ideal of a freedom in which individuals can use their own knowledge and skill to shape this environment. (Hayek, 1978b, pp. 141–2)

If the common cry of 'an equality of opportunity' is to have the status of a legitimate demand in a free society, it must be taken to mean no more than the removal of all of the legal impediments of privilege, that inhibit access to given positions in society.

Although the provision of social security benefits is compatible with liberalism, the issue of moral hazard is obviously relevant, particularly in regard to an individual's responsibility to remain self-reliant. So, it is imperative that the incentives for individuals to behave opportunistically should be

minimised. If the state is to provide for those who otherwise would have had to provide for themselves, the obvious corollary is that of compulsory insurance. In principle, the imposition of compulsory insurance in respect of social security benefits is analogous to the requirement for motorists to carry third-party insurance. With both, insurance removes a potential cost to others; and both involve coercion of the insured to the extent that it forestalls a greater coercion upon others to bear costs arising from actions for which they have no responsibility.

Accepting the legitimacy of such coercion, it is also reasonable that the state should assist in the development of appropriate agencies for the administration of the relevant policy; but compulsory insurance carries no implication that it should be provided as a state-run system. Although some greater efficiency might be found within a unified system, that greater efficiency is unlikely to apply beyond the initial stages. Thereafter, '[t]he principle that all sheltered monopolies become inefficient in the course of time applies here as much as elsewhere' (Hayek, 1960, p. 287). The contrasting advantage of a competitive system, in which private agencies sell schemes that meet the minimum requirements laid down for compulsory insurance, is that they deliver only that for which they are contracted to deliver. Such arrangements leave clearly defined areas of self-reliance. The alternative – that of a monopoly state system – would retain a discretionary power to introduce whichever amendments were necessary in the interests of any current political expedience. This is confirmed by experience. In practice, provision by the state has allowed the introduction of an unwarranted and illiberal coercion, to the degree that state welfare systems have transformed themselves from instruments to alleviate poverty into instruments for an egalitarian redistribution of income. If, from the outset, there had been a clear distinction between benefits for which a recipient has fully contracted and those based upon need and which, therefore, are dependent upon the proof of need, the development of the welfare state into a close substitute for socialism might have been avoided.

The manner of state provision of benefits for the sick and the elderly has been especially pernicious. Each represents the kind of measure whose revocation (however mistaken the measure is discovered to be) becomes politically unfeasible. In respect of the elderly, protection has been given to an entire age cohort, irrespective of any entitlement based upon an individual's contributions; and benefit payments are financed, not from the yield of an accumulated fund of contributions, but as transfers from current tax revenues. This constitutes a complete abandonment of the insurance principle and it has turned the whole system of welfare provision into a tool of politics: to become 'a play ball for vote-catching demagogues' (Hayek, 1960, p. 296).

The case for free health care is similarly flawed and riddled with inconsistencies. There are no reliable criteria to define medical needs; and there is no limit to the expenditure that could be justified solely upon medical grounds.

It has always been – and will always be – necessary to make difficult choices, to set a balance between such values as health and life against material advantages. Where the state has taken the monopolist's franchise, an individual necessarily loses the right to exercise his own judgement in trading health care for non-health goods and services.

In the inaugural stages of a monopoly state health-care system to deliver a universal service, it is necessary to begin at the lowest average level that is commensurate with available resources. Thereafter, the service can be expected to decline to a level below that which otherwise would have been possible. The explanation for this assertion is a general one. It relates to those characteristics that Hayek identifies as essential for progressive societies 'as we know them', in which progress brings innovations that initially are prohibitively expensive for the masses, but which eventually become accessible to all through subsequent technical and administrative progress. It turns quite simply on the impracticality of the idea that the very best is the preserve of everyone; and so the progressive society 'appears cruel because it increases the desire of all in proportion as it increases its gifts to some. Yet so long as it remains a progressive society, some must lead and the rest must follow' (Hayek, 1960, p. 45). In this respect, health services are no different from every other good and service, where it is necessary that 'what is objectively possible to provide for all depends on what has already been provided for some' (Hayek, 1960, p. 299).

For benefit payments to the unemployed, Hayek makes the case that insurance premia based upon different risks would set the distribution of contributions into an efficient pattern; that is, one that closely matches the diverse risks of unemployment across different trades. In comparison with systems where the premium and payment are uniform, the cost of supplying goods and services with heavy seasonal demand variations would be raised, so as to remove the cross-subsidies that exist within non-discriminatory systems. Hayek argues that the comprehensive state systems of uniform benefits that are generally in operation were introduced 'under the strong influence of' labour unions, which thereby divested themselves of their responsibility for the unemployment caused by their coercive action in raising wages above market rates:

> a compulsory system of so-called unemployment insurance will always be used … to subsidize the unstable trades at the expense of the stable, and to support wage demands that are irreconcilable with a high level of employment. It is therefore likely in the long run to aggravate the evil it is meant to cure. (Hayek, 1960, p. 302)

Clearly, a gulf exists between benefits systems that provide a minimum standard for those unable to maintain themselves (and where an able majority agrees to provide for a disadvantaged minority) and one where a majority

takes from a minority simply because the latter is better off:

> [t]he wholly irrational objection to a 'means test' for services which are supposed to be based on need has again and again led to the absurd demand that all should be assisted irrespective of need, in order that those who really need help should not feel inferior. (Hayek, 1960, p. 303)

As regards possible moves towards reform, Hayek believes that it might be possible to instigate a gradual transformation of sickness and unemployment benefits system into one of true insurance, where individuals pay contributions for benefits supplied by competing institutions. Much less likely is the reform of the provision for old age because, under existing state-administered systems, each successive generation establishes its claim from having supported a previous generation. There are no obvious means by which this chain might be broken; it is as if the thief has made off with the goods, and the loss is irrecoverable.

In general, if there are circumstances where the market shows itself ineffective in matching benefits to costs, it may prove expedient for the government to intervene to effect institutional reform where goods in demand are not provided or where provision is inadequate. While state coercion is legitimate to obtain the means to finance such collective goods and services, there is no case for the government to become involved with their production and distribution. State monopolies confer no advantages. More generally, there is nothing ever to be gained from excluding private initiatives, whether of a commercial or a charitable kind.

Social justice and central planning

In many areas of social policy, the problems of individual hardship have been overtaken by the problems created by the attempted remedies; '[b]ut before we can hope to solve these problems sensibly, democracy will have to learn that it must pay for its own follies and that it cannot draw unlimited checks on the future to solve its present problem' (Hayek, 1960, p. 304). Yet, democracy demands periodic elections and elections are not conducive to good law making. A candidate for reelection has a low resistance to claims for privilege; and the adverse long-term implications of departing from general principles are largely irrelevant to the prospects of an immediate electoral success. While political groupings may be formed around general principles, the need to attract support on a large scale leads inevitably to compromise. One possible exception arises with the particular advantage that accrues to a socialist party. While based upon general principles, its unity is achieved upon the attractive but empty promise of 'social justice' for all, which leaves socialists 'agreed on the destruction of the law in the sense of general rules of just conduct and its replacement by administrative orders'

(Hayek, 1979, p. 30). The demand for social justice is the demand to achieve specific ends; but justice has meaning only in regard to acts of human behaviour. A myriad of unintended consequences leaves no fixed relationship between action and outcome, so that action (whether or not it is in accordance with just rules) can give no certainty for achieving any social objective. The conception of justice requires that rules by which actions are judged are generally applicable. Sensing that he was 'hitting into a void' with his attempt to show that the adoption of specific goals of social justice was inconsistent with the application of general rules of just behaviour, Hayek was led to the conclusion 'that the people who habitually employ the phrase simply do not know themselves what they mean by it and just use it as an assertion that a claim is justified without giving a reason for it' (Hayek, 1976a, p. xi); and that social justice is a meaningless superstition, which has achieved the status of a new religion.

Socialists in opposition have no reason to focus upon the unintended consequences of their vision of social justice. In a parallel fashion, the idea that economic affairs might be centrally planned is both a 'beautiful illusion' and a 'fatal conceit' (Hayek, 1988). It is an idea with the potential to destroy productivity, allocative efficiency, liberal institutions, the rule of law and ultimately civilisation itself. The impossibility of comprehensive knowledge means that there can be no centrally planned approach to social order. Hayek's critique of social planning is derived from his theory of social evolution, according to which the moral imperatives of justice and freedom are served by forces of which we know little, and the impact of which may be counter-intuitive. For example, poverty is perpetuated in a society in which market processes are impeded. An enforced egalitarianism, that is intended to alleviate particular instances of poverty, leads both to a tyrannical authority and to a generalised mediocrity. Socialism is rejected because it is unworkable: '[i]f all had to wait for better things until they could be provided for all, that day would in many instances never come' (Hayek, 1960, p. 44). Only the integrity of property rights brings the security necessary for wealth creation and a rise in general living standards.

Liberty, utilitarianism and the free market

In its original sense of 'usefulness', utility carries the meaning of the potential to use something to effect some kind of improvement. Utility is conditional upon circumstances. How useful a resource is must await the turn of events. In economics, this meaning has been largely superseded in consequence of the ascendancy of eighteenth-century rationalism, where Jeremy Bentham was especially influential. In this approach, utility is derived from known ends and has the sense of pleasure, or satisfaction. In its original context, utility relates to probable events. In its new context – of full knowledge of certain outcomes – the motivation for human action is a precise calculation of the balance between pleasure and pain. This is an important distinction.

According to the utilitarian philosophy, the optimisation of pleasure is the one rule ('the greatest happiness of the greatest number') by which institutions that govern human behaviour should be judged. A prerequisite for the implementation of this rule is omniscience, which is an unlikely trait! It is both narrow and unrealistic to suppose that competitive markets can be judged by the efficient combination of given resources to reach desired ends, or to believe that, whichever goods are produced, competition is desirable only because it allows more to be produced. In this static context, competition has the very modest attribute of ensuring that production incurs the lowest known costs. The whole approach is unrealistic, because it gives recognition neither to the limitations that derive from pervasive uncertainty nor to possible gains from discoveries.

If liberty were valued because it enhances material living standards, the argument for liberty would be utilitarian; but liberty offers no promise of permitting an individual to identify his best interests. The realistic context is dynamic: '[p]rogress in the sense of the cumulative growth of knowledge and power over nature is a term that says little about whether the new state will give us more satisfaction than the old' (Hayek, 1960, p. 41). The static utilitarian concentration upon the application of preferences overlooks the important question of which kind of preferences are worth having; for preferences are conditioned by experience. Human progress is valued, not because it extends happiness, but because it extends intelligence. The true value that Hayek identifies in the market is not founded upon welfare considerations, which are almost incidental. What matters is the striving:[5]

> [i]t is not the fruits of past success but the living in and for the future in which human intelligence proves itself. Progress is movement for movement's sake, for it is in the process of learning, and in the effects of having learned something new, that man enjoys the gift of his intelligence. (Hayek, 1960, p. 41)

In the context of ignorance and uncertainty, entrepreneurship allows an individual to discover what he can do. While successful entrepreneurship is alert to opportunities for business profits and for personal achievement, neither altruistic nor charitable motivations are thereby excluded. Whatever the motivations of individual entrepreneurial action, the competitive market encompasses many of the procedures of justice that create social cohesion in a free society. The market permits an individual to apply his own unique but limited knowledge in any way that he sees fit. Moral pressure is exerted

> only through the esteem of those whom we ourselves respect and not through the allocation of material reward by social authority. It is the essence of a free society that we should be materially rewarded not for doing what others want us to do, but for giving some others what they

> want. Our conduct ought certainly to be guided by our desire for their esteem. But we are free because the success of our daily efforts does not depend on whether particular people like us, or our principles, or our religion, or our manners, and because we can decide whether the material reward others are prepared to pay for our services makes it worth while for us to render them. (Hayek, 1967, pp. 33–4)

A free enterprise society is pluralistic, because it tolerates discrepancies between an individual's remuneration and the measure of esteem in which he is held; and, because there is no correspondence between material achievement and merit, there is no reason why a free society should be dominated by material concerns. The merit of the free enterprise system is that it draws no distinction between the mercenary and the missionary; so long as the individual abides by universally applied rules his actions are just.

The vision of an unhampered market society is caught by the eighteenth-century maxim *laissez-faire, laissez passer*; the aim was to abolish laws that hindered competition and inhibited the mobility of labour and commodities. Free competition allows knowledge to be discovered and it delivers mechanisms whereby individuals' actions are coordinated; but the market is unpredictable and state intervention cannot prevent, nor could it lessen, the costs arising from that unpredictability. Indeed, the very attempt would be undesirable, for it would retard necessary adjustments. Furthermore, it would be absurd to expect the market to reward merit: '[w]e allow the individual share to be determined partly by luck in order to make the total to be shared as large as possible' (Hayek, 1978b, p. 91). The competitive market serves prosperity and progress by rewarding those lucky enough to be able to satisfy particular demands arising from rapidly changing circumstances. Many lose out, and there are always claims for the protection of vested interests. While there is an undoubted need to counter such claims, there are no ready prescriptions: '[p]robably nothing has done so much harm to the liberal cause as the wooden insistence of some liberals on certain rules of thumb, above all the principle of laissez-faire' (Hayek, 1944b, p. 13). While the presumption must favour the free market,[6] *laissez-faire* is not 'the ultimate and only conclusion' (Hayek, 1933b, p. 134). It is for economists to probe the issues that determine the legitimate scope for state intervention. 'Private property' and 'freedom of contract' do not, in themselves, provide for solutions:

> [o]ur main problems begin when we ask what ought to be the contents of property rights, what contracts should be enforceable, and how contracts should be interpreted or, rather, what standard forms of contract should be read into the informal agreements of everyday transactions.[7] (Hayek, 1949, p. 113)

In a free society, those judgements are based upon the defence of liberty, and so politics must aspire to identify those rights and duties that promote competitive markets; but public policy should not aim to correct so-called market failures, for the market is itself a corrective process. Institutional reform is required. Neo-classical economics finds in market failure a justification for state intervention. The difficulty is that markets are diverse systems of social interaction within diverse institutional frameworks. A detailed examination is a prerequisite for intervention of any kind; but there are too many details for any single body to grasp. Market systems have only one common feature: individuals plan their own action, which means that the knowledge so utilised is vastly greater than that which could be accommodated within any central agency. The ills that critics attribute to the market are rooted in the failure to uphold and protect the institutions necessary for its operation, but this is a matter for the law, not government whose intervention is more than likely to be counter-productive. An illustration is provided by the boost to enterprise monopoly, as government inspired company law, patents and tariffs, eroded the common law prohibition of conspiracies in restraint of trade.

Even greater threats to the competitive liberal order arise from privileges bestowed upon labour unions. Legal statutes, which are not generally applicable, have exempted labour unions from penalties that deter coercive action in pursuit of sectional ends. Moreover, the widespread unemployment, which followed in consequence of removing wage determination from competitive labour markets, swayed government to use monetary expansion to lift demand, and then to impose price controls to suppress the inevitable inflation. The seriousness of the implications arising from such events is hard to exaggerate, for 'it is more than doubtful whether a market economy can be preserved if the competitive determination of prices is not applied to wages' (Hayek, 1978b, p. 146). To accord with liberal precepts, both in respect of labour and generally, the market system of prices determination must be applied in the same manner as the system of the common law; that is, impartially and universally.

5
Economic and Social Science

> While thinkers like Hume and Adam Smith had seen the problem for man as scarcity of goods, and the remedy in rules of justice and the division of labour, for Hayek the main problem is to know how to act in a complex environment only part of which any mind can comprehend.
>
> (Kukathas, 1989, p. 54)

The interpretation of information

The moment of conception sets genetic predispositions and, thereafter, human knowledge is derived from an interactive sequence of action, experience, interpretation and response. That first-hand knowledge is supplemented by the human skills of language and communication, which allow information to be acquired from secondary sources. Cultural conditioning begins as and when institutional norms and patterns of social relationships are impressed upon the mind.

At some stage, an individual begins to test the strength of this received wisdom. He begins to think for himself; but his intellectual development is constrained by information previously absorbed. A relentless flow of 'indirect' information – much receiving scant, if any, conscious attention – is categorised against a scale of belief, ranging from the incredible to the obvious. Information is intelligible only where it can be compared to that which is already familiar; and if it is possible to 'understand only what is similar to our own mind it necessarily follows that we must be able to find all that we can understand in our own mind' (Hayek, 1943b; 1949, p. 68). From this, the inescapable conclusion is that discovery consists of identifying latent processes within an existing conceptual framework. This is fundamental to all learning and, therefore, to all scientific method: a concept uniquely original in all its aspects would be inherently incomprehensible.

The notion of any strict correspondence between each physical stimulus and each human sensation is untenable. Further, there is no meaning to the

idea that the world as it is represented by a human mind *is* the physical world that exists.[1] For the human species, much of the innate classification or 'mental structure' of sensory impulses is displaced by objective ('scientific') categorisations that achieve greater behavioural uniformity in the relationships between material things. Precise instrumentation and experimentation extend the means to differentiate between otherwise identical sensory phenomena. Hayek sees this process of reclassifying 'events' as 'the most characteristic aspect of the natural sciences' (Hayek, 1952a, p. 33). Colour and sound, for example, are defined by the relative frequency and wavelength of oscillations, so that distinctions can be made between visible and invisible light, and audible and inaudible sound.

As formal 'scientific' theories deliver ever more coherent and extensive categories of classification, different levels of understanding are consciously 'assumed'. Whether qualitative or quantitative, these patterns of understanding are necessarily theory-laden. Even so, a *naïveté* in regard to the possibility of observations detached from theory is disturbingly common among practitioners of science. This exists, notwithstanding a widely cited response from Albert Einstein to Werner Heisenberg's assertion (in 1926) that only observable magnitudes should contribute to a theory. Einstein's response was that '[i]n reality the very opposite happens. It is the theory which decides what we can observe' (Heisenberg, 1971, p. 63). Analogous sentiments are expressed in 'The Theory of Complex Phenomena', where Hayek notes that

> [i]ntimate acquaintance with the facts is certainly important; but systematic observation can only start after problems have arisen. Until we have definite questions to ask we cannot employ our intellect; and questions presuppose that we have formed some provisional hypothesis or theory about the events; (Hayek, 1967, p. 22)

and, in that same paper, Hayek cites Karl Popper:

> [s]cience … cannot start with observations, or with the 'collection of data', as some students of method believe. Before we can collect data, our interest in *data of a certain kind* must be aroused: the *problem* always comes first. (Popper, 1957, p. 121)

It is the essence of understanding that abstract constructs are a prerequisite to shaping order from disorder. Facts are not given; they are created. Whether implicitly or explicitly stated, theory pervades every observation. Without theory, we cannot know what is taking our attention. Moreover, theory is built upon theory, so that '[m]easuring instruments are constructed in accordance with laws and their readings are tested under the assumption that these laws are correct' (Feyerabend, 1993, p. 232). So, for example,

'Galileo's telescope provided evidence only for those who could accept Galileo's theory of optics, which was less well established than the hypothesis it was required to support' (Loasby, 1989, p. 16).

Simplicity and complexity

Hayek refines the distinction between methods that are appropriate to physical science and those that are appropriate to biological and social sciences, when he refocuses upon 'simplicity' and 'complexity'; that is, upon 'the relatively simple phenomena with which the natural sciences deal' as distinct from 'the more complex phenomena of life, of mind, and of society' (Hayek, 1967, p. 25).[2] Although Hayek initially distinguishes between 'the relatively simple phenomena with which the natural sciences deal' and 'the more complex phenomena of life, of mind, and of society', complexity is not restricted to the social sciences. Indeed, Hayek cites Darwin's theory of evolution as 'the best illustration of a theory of complex phenomena which is of great value, although it merely describes a general pattern whose detail we can never fill in' (Hayek, 1967, p. 31). Simplicity (and complexity) is defined by 'the minimum number of distinct variables a formula or model must possess in order to reproduce the characteristic patterns of structures of different fields' (Hayek, 1967, pp. 25–6).[3] It is these variables (or data) that determine the particular form taken by the pattern (described by the theory) in different circumstances.

Although, in principle, the pattern of growth and function of a complex system might be discovered, the impossibility of knowing all of the details that contribute to specific features generally precludes predictions for particular cases. However, predictions are not the sole concern and, if data are insufficient to allow predictions, the theory – the knowledge of the pattern – is still useful. Where a theory has little empirical content, 'hypothetical predictions' may be possible; that is, 'predictions dependent on yet unknown events' (Hayek, 1967, p. 29).

The concept of a scientific law that is valid for simple phenomena – that is, a definite rule that links events as cause and effect – is rarely applicable to complex phenomena. Yet, the methodological importance of this distinction carries no implication that the notion of a scientific approach is any less valid for human sciences. Rather,

> [t]he advance of science will … have to proceed in two different directions: while it is certainly desirable to make our theories as falsifiable as possible, we must also push forward in fields where, as we advance, the degree of falsifiability necessarily decreases. This is the price we have to pay for an advance into the field of complex phenomena. (Hayek, 1967, p. 29)

If the physical sciences are seen to have advanced further than the social sciences, it is precisely because they deal primarily with phenomena that are

simple. However, the main achievement of theories of social structures is to have shown that events that arise in the course of human interaction depend upon so many interdependent circumstances that it would prove impossible to ascertain them all:

> [t]he very insight that theory provides … that almost any event in the course of a man's life may have some effect on almost any of his future actions, makes it impossible that we translate our theoretical knowledge into predictions of specific events. (Hayek, 1967, p. 34)

Moreover, where complex interdependencies determine particular outcomes, 'the endeavour to become more 'scientific' by further narrowing down our formulae' is likely to prove counter-productive (Hayek, 1967, p. 16).

The comment that 'in roughly 10,000 pages that Hayek wrote after 1934, I do not recall a single page in which we are told what we can or cannot predict in economics' (Blaug, 1993, p. 58) reflects an exaggerated frustration. One illustration of pattern prediction is that 'we cannot at the same time maintain fixed rates of foreign exchange and at will control the internal price level of a country by changing the quantity of money' (Hayek, 1967, p. 17). Another is provided by Ricardo's theory of rent (Hayek, 1952a, pp. 54–5). Although these are often little more than 'variations upon the theme that "you cannot have your cake and eat it" ', the practical value of such knowledge is that 'it protects us from striving for incompatible aims'. Pattern prediction is better described as '*orientation*' in that it presents 'a more orderly world in which events make sense because we can at least exclude certain eventualities' (Hayek, 1967, pp. 17–8). By contrast, Hayek variously warns against basing predictions upon 'pseudo-entities' of the kind that comprise Keynesian *macro*economics or the quantity theory of money. Indeed, '[t]he number of separate variables which in any particular social phenomenon will determine the result of a given change will *as a rule* be far too large for any human mind to master and manipulate them effectively. In consequence our knowledge of the principle by which these phenomena will be produced *will rarely if ever* enable us to predict the precise result of any concrete situation' (Hayek, 1952a, pp. 73–4; italics added). The ideals of precise prediction and control generally lie beyond the reach of the social sciences.

Objective and subjective knowledge

An individual's interpretation of reality develops through the creation of mental models. Within the physical sciences, a well-structured disciplinary framework exists to ensure a common perspective among different individuals. The physical sciences can rely upon precise calculations and controlled experimental procedures to define differences and relationships between physical objects. An understanding of the human relationships that constitute

the complex phenomena of the social sciences lies beyond the procedures of the physical sciences:

> [w]henever we study qualitative differences between experiences we are studying mental and not physical events, and much that we believe to know about the external world is, in fact, knowledge about ourselves. (Hayek, 1952b, pp. 6–7)

It is for psychology to explain how a physical situation is transformed into a mental picture, how inferences are drawn about the external world and how knowledge governs an individual's conscious and subconscious reactions to external events. To the extent that everything that an individual knows is mediated through a unique brain, everything is known subjectively; or, rather, there is no distinction between objective and subjective phenomena. However, knowledge progresses beyond the immediate experience of sensory phenomena and, in that context, a distinction is drawn

> whenever we have to explain human behaviour towards things; these things must then not be defined in terms of what we might find out about them by the objective methods of science, but in terms of what the person acting thinks about them. (Hayek, 1952a, p. 51)

The high degree of commonality between individuals, in respect of their perceptions and the patterns of their experience, permits a systematic approach to problems that lie beyond the physical sciences; but, since the sensory order exists wholly within a single mind, the question of whether the experience of one individual is identical to that of another is meaningless. It is possible only to communicate a sense of difference between sensory qualities. For example, one individual's inability to distinguish red from green can be established, but it is impossible to communicate which shade is seen. Although it may be possible to describe much of the nature of sensory qualities – so that aspects of colour may be appreciated by those who are blind, and music by those who are deaf – it is in their essence that there should be a fundamental omission.

In Hayek's presentation, 'objective facts' are those that 'can be defined without referring to our knowledge of people's conscious intentions with regard to them', because they are determined 'by the objective methods of science' (Hayek, 1952a, p. 51); and he infers that different people are more likely to have identical beliefs about 'an "objective" fact' than they are to agree upon the nature of 'a subjective phenomenon' (Hayek, 1952a, p. 49). The distinction arises because the 'order in social phenomena … cannot be stated in physical terms. … It is an order in which things behave in the same way because they mean the same thing to man' (Hayek, 1952a, p. 70). So, in explaining a social phenomenon, the scientist needs to know 'what the

people dealing with it think' (Hayek, 1952a, p. 56), rather than that what is known objectively.[4] A statement of the material properties of a social phenomenon is unlikely to convey its social meaning. If social phenomena were defined in terms of (the current state of 'objective' knowledge about) their material components, 'we should probably find no recognizable order whatever in social phenomena' (Hayek, 1952a, p. 70). A legal agreement, an obligation, a ritual, a religious or community association, *et cetera*, are unlikely to be identified by the material properties of their component elements.

The assumption that knowledge is the same for all people (that is, the idea of an objective knowledge) has been a constant source of error within the social sciences. Two illustrations are taken from Hayek. Our 'certainty' (objective knowledge) of the actual impotency of a magic charm, would be irrelevant to our comprehension of the actions of individuals who believe in it. Similarly, if individuals were made to wear a chain around their necks whenever they commit a certain act, this objective knowledge would tell us nothing of the social context; the relevant knowledge is whether the chain is worn as a reward or a punishment: '[n]ot only man's action towards external objects but also all the relations between men and all the social institutions can be understood only by what men think about them' (Hayek, 1952a, p. 57). It is, therefore, essential to know the opinions of those who are involved in any action.

Human action is never centred upon objective facts. For example, a barometer is capable of giving objective information about the physical world; but a barometer is defined only by the purpose for which it is intended; and this information is an abstraction from the physical attributes of the barometer, which might serve as a paddle, a weapon, or as an instrument to gauge air-pressure. In other words, the facts of the social sciences are the opinions held by the people whose actions are studied; but, of course, these cannot be directly observed.

Where individuals from diverse backgrounds behave in similar manner, it is because of some commonality – say, in their cultural conditioning – that causes them to regard 'situations' as identical, rather than because situations are alike in any material sense. A gift, a punishment or a prize are defined, not by the physical properties of any object, but by subjective values and beliefs; and the relevance of the term 'subjective' is 'that the knowledge and beliefs of different people, while possessing that common structure which makes communication possible, will yet be different and often conflicting in many respects' (Hayek, 1952a, p. 49).

It is for social science to examine 'the consequences of the fact that people perceive the world and each other through sensations and concepts which are organised in a mental structure common to all of them' (Hayek, 1952a, p. 39). This allows social scientists to 'understand and explain human action in a way we cannot with physical phenomena, … [so that] … the term *explain* tends to remain charged with meaning not applicable to physical phenomena'

(Hayek, 1952a, p. 30). Upon that basis, social science has an advantage over physical science. It would be to abandon that advantage, if social science should succumb to 'attempts to dispense with our subjective knowledge of the working of the human mind … [that is] … to do without the knowledge derived from "introspection" ' (Hayek, 1952a, p. 78). Introspection affords unique insights:

> in his conscious decisions, man classifies external stimuli in a way which we know solely from our own subjective experience of this kind of classification. We take it for granted that other men treat various things as alike or unalike just as we do … [unless, for example] … they are colorblind or mad. (Hayek, 1952a, p. 43)

Without introspection, it would be impossible to understand human action. To cite one illustration (see Hayek, 1952a, p. 46): the only means by which an archaeologist decides whether a stone has been shaped by nature or by man, is to apply introspection to understand the mind and the capacities of prehistoric man. There is no other way. Introspection is the basis for understanding another individual's behaviour. The validity of introspection is verified most obviously by our ability to communicate with other people and to achieve mutual understanding. Whether consciously or sub-consciously, introspection is applied by one individual to decide which phenomena are the most likely to be defined when the minds of other individuals categorise sensory impulses. The qualities of an object that individuals perceive are not characteristics of the object itself, but of the categories into which those individuals have learned to group sensory impulses triggered by external stimuli.

The central role of introspection to the social sciences does not imply that the terms 'subjective' and 'objective' are appropriate to distinguish its methodology from that of the physical sciences, since both investigate phenomena that 'are independent of the particular observer' (Hayek, 1952a, p. 47). Rather than the unhelpful 'subjective' and 'objective' classification, a more appropriate distinction is between mental phenomena and material phenomena.

A special difficulty for the social sciences derives from the fact that ideas appear in two capacities: that is, as part of the object and as ideas about the object. In the physical sciences, the distinction between the object studied and the explanation of it is the same distinction as that between material phenomena (for example, radio emissions from deepest space) and ideas (about the origins of the universe); in the social sciences, it is necessary to distinguish between the ideas that are the phenomena to be explained (for example, the notion of common law), and ideas (about the evolutionary forces by which common law sustains a coherent system) that comprise the theories of social structures.

If the only order exhibited by social phenomena were that produced through conscious thought and design, there would be 'only problems of

psychology'. If the data of the social sciences were comprised entirely of individually constructed ideas and concepts, there would be no other kinds of problem. However, the characteristics of the spontaneous social order are also the material of the social sciences. In its widest application, the social sciences seek to explain the (unintended) consequences of human action. The independent decisions taken by individuals produce order that is undirected by any conscious intention: whether it is the manner 'in which footpaths are formed in a wild broken country' (Hayek, 1952a, p. 70), or the evolution of money, or the formation of language, or the formation of prices or the direction of production under competition, none is the product of a conscious design.

The existence of spontaneous social order refutes any suggestion that objective knowledge exists 'as a consistent and coherent body'; for knowledge

> only exists in the dispersed, incomplete, and inconsistent form in which it appears in many individual minds, and the dispersion and imperfection of all knowledge are two of the basic facts from which the social sciences have to start. (Hayek, 1952a, p. 50)

Although ideas can exist only within individual minds, the elements of the social structure can remain the same even as one generation of individuals replaces another. Attitudes and relationships can be preserved across a succession of individuals. This implies that the social structure is separated from and can be studied apart from any particular individuals, who just happen to be 'the *foci* in the network of relationships' (Hayek, 1952a, p. 59).

The social sciences do not deal with given wholes, but exist to construct those wholes. In other words, the purpose is not to explain individuals' thoughts, but to categorise those thoughts as elements relevant to the construction of different social patterns. To go beyond this, to seek explanations for the formation of mental perceptions and their relations to physical facts, is for psychology where Kant's epistemological constraint (that knowledge is limited by the nature of mind[5]) applies: it is impossible that our brain should ever be able to produce a complete explanation … of the particular ways in which it itself classifies external stimuli … to 'explain' our own knowledge would require that we should know more than we actually do, which is, of course, a self-contradictory statement (Hayek, 1952a, p. 86).[6]

Scientism

It was during the first half of the nineteenth century that the term 'science' came to be reserved for the physical and biological sciences, as they began to claim for themselves a particular rigour and certainty. Their achievements were sufficiently impressive for those working in other areas to begin to

imitate their method and language:

> [a]nd although in the hundred and twenty years or so, during which this ambition to imitate Science in its methods rather than its spirit has now dominated social studies, it has contributed scarcely anything to our understanding of social phenomena. (Hayek, 1952a, p. 21)

Although not the first to note that any new science might be 'hampered by too slavish an imitation of the technique of some older science' (Russell, 1931, p. 178), Hayek gives it a name.[7] He labels as 'scientism' and as ' "scientistic" prejudice' any investigation that is motivated 'not with the general spirit of disinterested inquiry but with slavish imitation of the method and language of Science'[8] (Hayek, 1952a, p. 24). In particular, scientism denotes an uncritical application to the social sciences of methods that are appropriate to the physical sciences:[9]

> the devices developed by the natural sciences for the special purpose of replacing a description of the world in sensory or phenomenal terms by one in physical terms lose their *raison d'être* in the study of intelligible human action. (Hayek, 1952b, p. 193)

In one respect, scientism presents as an extension of 'behaviourism', which embodies an aversion to unobservable causes and a desire to establish psychology as a science of human behaviour. However, in its particular application to the social sciences, scientism seeks direct access to 'social phenomena', rather than to identify them indirectly in the 'principles of structural coherence of complex phenomena' (Hayek, 1952a, p. 65); and it treats social phenomena, not 'as something of which the human mind is a part and the principles of whose organisation we can reconstruct from the familiar parts, but as if they were objects directly perceived by us as wholes' (Hayek, 1952a, p. 94). Hayek's counter is that, while it is true that 'the "whole" situation … will greatly differ from place to place and from time to time', without knowing the 'familiar elements from which the unique situation is made up' (Hayek, 1952a, p. 53), no meaning can be assigned to individual actions.

Since 'social phenomena' are made the objects of study, the obvious starting point for scientism is the direct observation of phenomena such as 'the economy' or 'capitalism', or 'the legal system', in the same manner as a geologist would set about observing a new outcrop of rock. In principle, it cannot be possible to deal with such categories of social wholes, for the reason that any single example must comprise a unique collection of individual events, although superficially they might appear to be the same.

Historicism is the application of scientism to identify laws relating to historical processes. In their aspiration to emulate the laws emanating from

nineteenth-century advances in the physical sciences, social theorists constructed grandiose models of social development. How extraordinary it would be if the forces of human history – the result of the interaction of innumerable human minds – were so readily revealed by observation as simple laws. Yet, 'like many characteristic nineteenth-century products of this kind' (Hayek, 1952a, pp. 130–1) this was the Marxist claim; and Marxism is the primary vehicle through which historicism gained widespread respect. (The Austrian counter to Marxism is examined in Chapter 6.) Hayek likens the resulting narrative to that of 'somebody observing and recording the doings of another race':

> his records would in a sense be history, such as, for example, the history of an ant heap. Such history would have to be written in purely objective, physical terms. … But such history could not help us to understand any of the events recorded by it in the sense in which we understand human history. (Hayek, 1952a, pp. 138–9)

Motivated by a fear 'of starting from the subjective concepts determining individual actions' and a concern 'to avoid using as data the concepts held by individuals', scientism succumbs to the 'collectivist prejudice' (Hayek, 1952a, pp. 64–5) of treating 'social phenomena … as if they were objects directly perceived by us as wholes' (Hayek, 1952a, p. 94). It is a prejudice that has inspired a 'methodological collectivism'; and, yet,

> the wholes as such are never given to our observation but are without exception constructions of our mind. They are not 'given facts,' objective data of a similar kind which we spontaneously recognize as similar by their common physical attributes. They cannot be perceived at all apart from a mental scheme that shows the connection between some of the many individual facts which we can observe. (Hayek, 1952a, p. 96)

Different complexes cannot be grouped as instances of the same collective. Each represents an order that can be defined only in terms of relations that reflect intelligible human attitudes:

> [i]n other words, the wholes about which we speak exist only if, and to the extent to which, the theory is correct which we have formed about the connection of the parts which they imply, and which we can state only in the form of a model built from those relationships. (Hayek, 1952a, p. 98)

For its explanation that unemployment (as a whole) is caused by deficient aggregate demand, and for the analysis that supports it in terms of robust relationships between aggregate investment, total income and the level of saving,

Keynes's economics, together with its legacy of the statistical forecasting which is macroeconomics, is an illustration of scientism.[10]

Many of the popular notions about the nature of social structures are 'no more than provisional theories, popular abstractions' (Hayek, 1952a, p. 64) that should not be mistaken for the data to be studied. The data of the social sciences are the concepts that guide individuals' behaviour. They are known directly to us through introspection; and they are different from the popular theories that individuals may have about their actions. The legitimate scientific method of introspection contrasts with the 'collectivist prejudice' of the scientistic method that adopts 'the speculative concepts of popular usage as definite facts' (Hayek, 1952a, p. 65). If it were true that it is possible to understand social phenomena as a whole, the possibility would be denied of less extensive theories, such as those that comprise the legitimate discipline of microeconomics.

The 'specific theoretical method which corresponds to the systematic subjectivism and individualism of the social sciences' (Hayek, 1952a, p. 65) is that of individualism, which Hayek sets against the methodological collectivism of the scientistic approach with 'its tendency to treat whole like society or the economy, capitalism (as a given historical "phase") or a particular industry or class or country as definitely given objects about which we can discover laws by observing their behaviour as wholes' (Hayek, 1952a, p. 92).

In very general terms, science has two vantage points. The first is appropriate in relation to simple phenomena and it allows components to be discovered within a whole; the second is appropriate in relation to complex phenomena and it allows a whole to be built from components. The former offers a general (holistic) view of the systematic interrelationships of the material world, whose component elements may be accessed through the application of 'objective' scientific methods that reveal detail within the whole. In understanding metals, for example, the most rudimentary categorisation is made by the immediate sensory qualities of colour, density and so on. Thereafter, in working metal with fire and water, various mechanical properties are revealed; and with the application of ever-more sophisticated scientific methods, electro-chemical and molecular structures become identified. Although understanding is always incomplete and susceptible to modification, details of mutually consistent characteristics unfold against a set of universal physical laws. In Hayekian terms, immediate differentiation by sensory qualities is replaced by 'objective' categorizations of material differences.

The second vantage point presents an ever-widening perspective upon our primary experience of social relationships. Here the application of methods appropriate to social science may 'lead to the *discovery* of principles of structural coherence' of complex spontaneous social orders. Unlike physical matter, which is presumed to conform to universal structures (laws), the presumption for the human sciences is quite different. Psycho-biological and

socio-historical processes are evolved systems; and memory is critical to all systems that follow a path of evolutionary adaptation. Although constrained by the universal laws of physical science, there is a vital ancestral heritage that brings uniquely evolutionary aspects to human science; that is to biology, neurology, psychology and social science. By reason of their superior usefulness, a series of evolutionary path-dependent adaptations – modifications of physiological, behavioural and organisational characteristics – are selected and preserved (both genetically and institutionally) by way of trial, selection, retention and replication.

Economic facts and economic theory

Scarcity is the definitional characteristic of economic resources that are continuously and simultaneously in the process of being discovered and exhausted. The economic problem is to make the best use of dispersed knowledge so as best to coordinate human activity and to make efficient use of scarce resources. Economics is the study of acts of choice made necessary by the scarcity of means. Although economics is concerned with the way in which men behave towards other men and material objects, it cannot explain individual human action. Economics cannot establish laws of behaviour for individuals; but behaviour can be categorised to form elements from which theoretical models are constructed. The general factual assumptions upon which economic theory is constructed are of the kind that people engage in trade to earn an income; that a higher income is preferred to a smaller one; and so on. These assumptions permit 'hypothetical predictions' of patterns that are both testable and valuable, and which can point to important guidelines for either action or no action. An economic fact is necessarily subjective:

> it is probably no exaggeration to say that every important advance in economic theory during the last hundred years was a further step in the constant application of subjectivism. That the objects of economic activity cannot be defined in objective terms but only with reference to human purpose goes without saying. (Hayek, 1952a, p. 52)

An economic fact is a mental sketch of recurrent processes or persistent relationships. The task of economics is to extend the theoretical scheme whereby economic facts are set consistently within a common framework. A consistent theory is judged for relevance and adequacy. A theory is relevant if the mental patterns it evokes are repeated. A theory is adequate to the extent that it can encompass sensory information.[11]

Decisions taken by man are based upon ideals (that is, upon ethical postulates or, less urbanely, nurtured predispositions) and upon reason (that is, upon the current state of knowledge); but the progress that economics has made lies in a third dimension, and it has changed attitudes to practical

problems. Economics has made scientific progress through the extension of insights into the interdependence of economic phenomena. It has advanced in the view which it takes of the relevance of knowledge, most particularly in the role of competition and the limited horizons of any single planner. These themes are developed in the next chapter.

The economic problem and economic analysis

Economic decisions are taken upon the basis of a mix of incomplete and inaccurate information. In making the heroic assumptions that this set of information is both correct and complete, the methodology associated with the neoclassical revolution of the late nineteenth century avoids the 'problem of knowledge'. Neoclassical economics reduces the economic problem to that of achieving an efficient allocation of given resources across known competing ends. Hayek finds little to recommend this approach.

Where a resource has a life span of very short duration, it may not be possible to defer its use until some future period. This is the kind of resource that is 'given' to the present, and which presents a situation analogous to that of the neoclassical paradigm. To this limited extent (and begging the questions raised by the problem of dispersed knowledge) there is some justification for neoclassical analysis. However, the use of most resources can be deferred and such analysis is compromised to the extent that these, more typical, resources are also involved.

Within the neoclassical framework, formal analysis involves the manipulation of tautologies to arrive at 'a series of propositions which are necessarily true because they are merely transformations of the assumptions from which we start' (Hayek, 1937, p. 34). Logical deductions drawn from tightly specified assumptions relating to resources, techniques and goals reveal the theoretical conditions that define an economically efficient outcome. Thereby important insights may be achieved, but these can relate only to the intentions of a single mind. It is quite hopeless to attempt to extend that logic to a social process where 'the decisions of many individuals influence one another and necessarily succeed one another in time' (Hayek, 1946, p. 93). Propositions about causal relationships can be achieved only with the identification of empirical processes whereby knowledge is acquired and disseminated.

Where they are relevant (that is, to the decisions taken by a single individual or agency) the formal features of neoclassical economics can be accommodated by Hayek's economics. This is because his approach straddles two scientific methodologies. Both the relevance of deductive reasoning and that of empirical verification are emphasised. Thus, Hayek only partially accepted Mises's view of economics, which was that all economic laws could be deduced from properly specified axioms relating to human action. Hayek accepts the relevance of axiomatic reasoning based upon first principles

'which are known beyond possibility of dispute'; these are the 'essential facts' that are necessary to explain social phenomena and that are 'part of common experience' (Hayek, 1949, p. 126). However, this use of purely logical deductions must be accompanied by an understanding of the socio-economic structure that supports causal sequences of human interaction. It is the inarticulated knowledge, captured by generally accepted institutional practices, which compensates for each individual's unique ignorance and uncertainty.

Deductive reasoning is pertinent only in respect of the decisions of a single agent, but empirical propositions are essential if the formal apparatus of economic analysis is to serve as a basis for explanations of socio-economic coordination between individuals. An empirical proposition is one that relates to a number of agents and which says that 'if we find such and such conditions, such and such consequences will follow' (Hayek, 1946, p. 94). The empirical content of economic analysis consists of propositions relating to foresight, to anticipations and to the acquisition of knowledge. So, as a brief summary of Hayek's methodology, economic analysis is categorised as (1) the manipulation of tautological propositions and (2) the investigation of causal processes.

The theory of rent provides a useful illustration of this distinction (see Hayek, 1952a, pp. 55–7). In Ricardo's original context, the theory concerns a resource defined in physical terms: land. The theory states that, where land is combined with other factors to produce a product, variations in the value of the product cause greater changes in the value of land than in the value of other factors that have alternative uses. This original proposition may be represented in two parts. The first is theory: a set of logical deductions from the assumptions. Here, rent relates to production using combinations of different factors in proportions that can be varied. The theory states that if all factors, bar one, can be used to produce other products, a change in the value of the product affects the value of factors with other uses to a lesser degree than it affects the value of the factor with no other uses. The second part is an empirical statement. As a general observation, land is more limited in its uses than labour. Like all empirical propositions, this can be disproved. For example, in some circumstances, the particular attributes of labour with specific skills may cause its wage to vary more (than the value of the land with which it is combined) as the value of the product varies. In this alternative presentation, the application of the theory of rent to particular cases is not reliant upon the objective fact of land. Rather, it depends upon the subjective perception of the relevant features of particular circumstances. What is true of the theory of rent is true of price theory generally.

The empirical investigation of causal processes does not imply the use of statistical methods, which Hayek believes to be generally inappropriate to the study of economics. Economic theory describes patterns that appear in the most general of circumstances, but rarely allows specific predictions to

be derived from that knowledge; and statistical aggregations are of little use in surmounting this difficulty:

> [n]obody would probably seriously contend that statistics can elucidate even the comparatively not very complex structures of organic molecules, and few would argue that it can help us to explain the functioning of organisms. Yet, when it comes to accounting for the functioning of social structures, that belief is widely held. (Hayek, 1967, p. 31)

Statistical aggregates eliminate complexity. The citation of numerical frequencies of different classes of individual elements relies upon the implicit assumption that interrelationships between those elements are unimportant. The statistical approach of modern econometrics – in providing (say) estimates of the parameters of production functions for an industry – can only mask essential differences. Similarly, because competitiveness cannot exist without many diverse elements, each with its distinct patterns of behaviour, a scientific understanding of the role of competition is not revealed by statistical aggregates. Where such essential features are overlooked, the application of econometrics is symptomatic of the unwarranted application of the methods of the physical sciences which, in dealing primarily with simple phenomena, can rely upon robust causal relationships between things and things.

Equilibrium

The concept of equilibrium is a fictional reference point against which all other situations suffer comparison. In order to gauge the likely consequences of any action, initial conditions must be taken fully into account. The reaction to change in any one quarter is more readily clarified if the economy is in an initial state of equilibrium. In the most general terms '[a]n economy is in equilibrium when it permeates messages which do not cause agents to change the thesis which they hold or the policies which they pursue' (Hahn, 1973, p. 25). Equilibrium serves 'as a guide to the analysis of concrete situations, showing what their relations would be under "ideal" conditions, and so helping us to discover causes of impending changes not yet contemplated by any of the individuals concerned'. (Hayek, 1941, p. 28). Although, in a practical situation, an economy is unlikely ever to be in a state of equilibrium, the concept is indispensable to economic analysis:

> its field of application is identical with that of economic theory, since only with its assistance is it possible to give a summary depiction of the very great number of different tendencies of movement which are operative in every economic system at every point of time. (Hayek, 1928, p. 75)

It is Hayek's contention that economics is possible as a *scientific* study only if the economy has a prevailing tendency to move toward equilibrium. It is only by the presumption 'that such a tendency exists that economics ceases to be an exercise in pure logic and becomes an empirical science' (Hayek, 1937, p. 44), but it is a presumption which 'on empirical grounds we have reason to believe to exist' (Hayek, 1937, p. 55). The 'empirical grounds' are the institutional arrangements (property rights, advertising, market processes, contracts, conventional practice and so on), that coordinate the processes by which knowledge is gained.

While the concept of equilibrium is relevant both to Austrian and to neoclassical analysis, the contexts in which they are relevant are distinctly different. The comprehensive mathematical analysis provided by Léon Walras (and which features in economics textbooks as 'Walrasian general equilibrium') addresses multi-commodity production and exchange under the neoclassical assumptions of perfect competition (which include perfect knowledge, instant price flexibility and zero transactions costs).[12] Walrasian equilibrium is the apotheosis of the neoclassical schema.

For the Austrian School, the *static* framework of perfect knowledge and fixed resource constraints has no place. Instead, it is recognised that the acquisition, the extent and the relevance of knowledge greatly influence human action and, inescapably, the very notion of equilibrium. In this *dynamic* context, equilibrium analysis concerns relationships between actions (and their consequences) that are taken at successive points of time, and the nature of social processes that set tendencies towards equilibrium. Here, '[t]he passage of time is essential to give the concept of equilibrium any meaning' (Hayek, 1937, p. 37). So, the equilibrium concept is distinct from the concept of the stationary state. Although this is implicit in Alfred Marshall's separation of short- and long-run equilibrium, a more refined clarification was crucial for the development of Hayek's economics, particularly in regard to the theory of investment, capital theory and the analysis of business fluctuations.

Equilibrium has a clear meaning only when applied to a single individual. The actions of an individual are derived from a plan of action that, in equilibrium, is both coherent and consistent with the information available to that individual and which he believes to be true. If the information turns out to be false, the plan must alter. In general, any new information can disrupt these relationships and necessitate the formation of a new plan. Actions consistent with that new plan would constitute a new equilibrium. In reaching beyond consideration of the single individual, the application of equilibrium analysis to relationships within a competitive society pose particular problems. Despite initial doubts, Hayek accepted the usefulness of the idea of some kind of balance between the actions of different individuals. Although each individual might be in equilibrium, in the sense described above, it does not follow that separate plans are mutually

consistent. For collective equilibrium to exist, the many separate plans must be (1) based upon common expectations of external circumstances and (2) fully adjusted to one another. Only then might it be possible for all planned action

> to be carried out because the plans of any one member are based on the expectation of such actions on the part of the other members as are contained in the plans which those others are making at the same time. (Hayek, 1941, p. 18)

Moreover, it would be necessary for these plans to be both mutually compatible and in conformity with the actual sequence of events.[13]

In this dynamic counterpart to Walrasian general equilibrium, the situation is one of continuous change, where every event is correctly anticipated by all. This is fanciful, of course, though no more so than the static structure of the neoclassical world,

> since in order to arrive at a stationary equilibrium it would be necessary to pass through a phase in which the changes required to bring about a stationary state were still going on but their results were correctly foreseen. (Hayek, 1941, p. 16 fn 1)

Dynamic equilibrium provides the theoretical structure for the analysis of economic systems, where the task is to understand an existing state of affairs in order to reach 'a prognosis of what is likely to happen in the future' (Hayek, 1941, p. 22). Do plans tally, or is disappointment inevitable? Only the fiction of dynamic equilibrium provides a coherent basis for making that judgement; and it allows explanation in terms of causal sequences by revealing how and why an individual might feel compelled to alter any chosen course of action.

Hayek's analysis might be viewed in terms of a Leontieff matrix, where the cells are not related by fixed input-output coefficients, but by interdependencies between prices (of raw materials, intermediate goods, factors and commodities). Further, these price relativities are not in equilibrium, although across the additional dimension of time there is an assumed tendency that entrepreneurial activity within the market process moves those relativities towards an equilibrium configuration.[14]

In sharp contrast to the neoclassical model, perfect knowledge (or, in the dynamic context, correct foresight) is not a precondition for obtaining equilibrium. Rather, it is the defining characteristic of equilibrium; but there is no supposition that correct foresight must extend indefinitely into the future. Equilibrium lasts only for 'so long as anticipations prove correct' (Hayek, 1937, p. 42). Furthermore, it relates only to the information obtained by each individual in making his own particular decisions.

An individual's plan can be upset either because it was, from the first, mutually inconsistent with other individuals' plans or because of some change in external circumstances. Again, this contrasts strongly with the neoclassical world, where the situation (perceived by participants) is either one of equilibrium or disequilibrium, as shown by relationships within the tautological structure. In Hayek's equilibrium, causal sequences can proceed for some time before mutual inconsistencies become revealed to the extent that (at least) some of the participants are forced into altering their individual plans.

In addition to the mutual compatibility of the many separate plans, equilibrium requires correspondence between those subjective plans and the objective facts. While the former may, or may not, be brought about by the constraints imposed by the latter, equilibrium relationships 'cannot be deduced from the objective facts, since the analysis of what people will do can start only from what is known to them' (Hayek, 1937, p. 44).

The division of knowledge

Walrasian general equilibrium analysis neglects the informational aspects of market competition. The fullest use of dispersed knowledge is imperative to achieving an efficient allocation of resources. Hayek addresses the relevance of markets in expanding the use of dispersed knowledge in four publications: 'Economics and knowledge' (Hayek, 1937), 'The Use of Knowledge in Society' (Hayek, 1945), 'The Meaning of Competition' (Hayek, 1946) and 'Competition as a Discovery Procedure' (Hayek, 1968).

'Economics and knowledge' is notable for Hayek's 'claim that the coordination problem is *the* central problem'; for his 'emphasis on subjectivity'; and for his 'new definition of equilibrium' (Caldwell, 1988, p. 514):

> in his early work Hayek virtually identifies economic theory with equilibrium theory; he thought that any legitimate economic theory must make use of some concept of equilibrium. Hayek does not abandon this belief in 'Economics and knowledge,' for he seeks to define equilibrium for both the individual and for society. What has changed is Hayek's new emphasis on subjectivism: any adequate definition of equilibrium must now take into account the fact that knowledge is subjectively-held and dispersed. (Caldwell, 1988, p. 529)

Economists had tended to overlook the problem of knowledge. In conflating two different kinds of propositions – 'the a priori and the empirical' – economists had obscured the 'relevance' of any particular analysis 'to the phenomena of the real world' (Hayek, 1937, p. 56). The empirical task for economics is to investigate the manner in which individuals' plans are brought into harmonious relationships; and how to achieve the best use of

relevant knowledge, which is not given to anyone in its totality:

> [h]ow can the combination of fragments of knowledge in different minds bring about results which, if they were to be brought about deliberately, would require a knowledge on the part of the directing mind which no single person can possess? (Hayek, 1937, p. 54)

How can fragments of dispersed knowledge contribute to the achievement of equilibrium 'in the special sense in which equilibrium is regarded as a sort of optimum position' (Hayek, 1937, p. 53)?

The axioms of economic theory (from which tautological propositions are derived) postulate conscious (or rational) human action as against an instinctive response. Empirical propositions are conceptually different; they are based upon assumptions about (1) how people acquire knowledge and learn from experience and (2) the possession of the knowledge necessary for equilibrium to prevail; that is, 'relevant knowledge'.

Hayek emphasises the forces whereby subjective information in the minds of independent individuals is brought into a correspondence with objective facts. It is axiomatic to neoclassical analysis that this is so; but, in the framework of dynamic equilibrium, it is for economics to explain the processes by which this is achieved. Hayek emphasises subjectivism and the effectiveness of markets in reaching optimality of 'a sort'. The 'knowledge and intentions of different members of society are supposed to come more and more into agreement' (Hayek, 1937, p. 45); but this could happen only if 'the subjective data of different people … were due to the experience of the same objective facts' (Hayek, 1937, p. 44). The problem is 'how the "data" of different individuals on which they base their plans are adjusted to the objective facts of their environment (which includes the action of other people)' (Hayek, 1946, p. 93). In attempting to explain this process of harmonisation, economics must deal with 'propositions … about causation in the real world' that rest upon 'statements about how knowledge is acquired and communicated' (Hayek, 1937, p. 33). Social order relies upon achieving a high degree of correspondence between 'objective facts' and 'subjective data'. Economics must explain this process with empirically testable theories of expectation formation and learning:

> [the] empirical element in economic theory … consists of propositions about foresight … [and] … the concept of equilibrium itself can be made definite and clear only in terms of assumptions concerning foresight. (Hayek, 1937, pp. 33–4)

Hayek focuses upon the necessary and sufficient conditions for dynamic equilibrium to exist and upon empirical verification of the tendency to equilibrium, as the outcome of 'the spontaneous interaction' of a multitude of

individuals. The issue of the division of knowledge is central. The tendency to equilibrium is supported by empirical evidence that prices exhibit a consistent tendency to correspond to costs; but knowledge of current prices and expectations of future prices are but a small part of the problem of knowledge. Wider aspects relate to how, and under what conditions, different commodities might be obtained and used.

'Relevant knowledge' accrues to an individual in consequence of an original plan and the action that follows. For an individual in possession of relevant knowledge there are no surprises; but relevant knowledge falls far short of all that knowledge which, if made known by some accident, would cause an individual to alter his plan. So, equilibrium is not an absolute; and it is quite unlike the optimally efficient outcome of the neoclassical tautologies. Equilibrium is relative to the knowledge an individual is bound to acquire in the course of following through an initial plan; and for this possibility to exist, it is necessary for there to be 'some regularity in the world which makes it possible to predict events correctly' (Hayek, 1937, p. 49).

The joint emphasis upon subjectivism and efficient markets is taken further in 'The Use of Knowledge in Society', where 'the problem of a rational economic order' is defined as 'a problem of the utilization of knowledge which is not given to anyone in its totality' (Hayek, 1945, p. 78). It is impractical to expect a central authority to deal adequately with 'the economic problem of society [which] is mainly one of rapid adaptation to changes in the particular circumstances of time and place' (Hayek, 1945, p. 83). It is not that the information is not there, but that the statistical procedure of 'lumping together … items which differ as regards location, quality, and other particulars leaves the central planner in ignorance of these circumstances of time and place' (Hayek, 1945, p. 83).

Non-theoretical practical inarticulated knowledge is crucial and it is the function of markets to incorporate those multifarious exogenous 'particulars' into decision processes. Many of the decisions that are most effectively left to the 'man on the spot' also draw upon endogenous (private) knowledge that derives from the unique position and activity of every agency. Access to endogenous knowledge is gained only through the direct compliance of information-possessing agents: 'the method by which such knowledge can be made as widely available as possible is precisely the problem to which we have to find an answer' (Hayek, 1945, p. 81). An implicit complication is that no *ex-post* appraisal is possible: only the actor knows what he knew. So it becomes necessary to determine the nature of the institutional structures that are likely to facilitate the most effective use of endogenous information; that is, structures that 'provide inducements which will make individuals do the desirable things without anyone having to tell them what to do' (Hayek, 1945, p. 88).

'The Meaning of Competition' gives further emphasis to the nature of social relationships as empirical processes of knowledge acquisition and

dissemination: 'the decisions of many individuals influence one another and necessarily succeed one another in time' (Hayek, 1946, p. 93). This is the purposeless, continually re-adjusting, spontaneous market order (catallaxy) that has nothing remotely equivalent to the optimal conditions for achieving some well-defined organisational goal (economics).

In addition to 'the mutual adjustment of individual plans' (a catallactic achievement), Hayek reasserts that the outcome is 'in some sense a maximum or optimum' (Hayek, 1968, p. 183) in that 'as much will be produced as we know to bring about by any known method' (Hayek, 1968, p. 185). Competition 'is not a zero-sum game, but one through which, by playing it according to the rules, the pool to be shared is enlarged'; but

> [t]he so called 'maximum' … cannot be defined as a sum of particular things, but only in terms of the chances it offers to unknown people to get as large a real equivalent as possible for their relative shares, which will be determined partly by accident. (Hayek, 1968, p. 186)

Whereas the logic of economic choice defines *a priori* a set of optimum conditions, the catallactic mechanism of the invisible hand is an empirical process. To qualify as a social (rather than as a mathematical) science, economics must address social processes: how does convergence (social equilibrium) occur in the context of changing preferences, technologies, endowments, and expectations? Explanations derive from an appraisal of social cohesion and economic performance under different institutional structures.

Levels of economic planning

An individual's objectives are set in the context of coherent decisions formulated as part of a rational plan of action. Decisions are guided by experience and by knowledge; information that is conveyed to an individual or that is acquired directly: the 'various ways in which the knowledge on which people base their plans is communicated to them is the crucial problem for any theory explaining the economic process' (Hayek, 1945, p. 78). The guiding principle for policy is to find the most effective way of utilising widely dispersed knowledge: the principle of effective planning. Is it to be achieved by centralised decision making or by allowing decisions to be taken independently by individuals in the processes of competition? Which information can be accessed only variously by different individuals? Which can be accessed more readily by a body of experts? (And are there likely to be problems in the choice of experts?)[15]

A presumption may favour the expert for scientific knowledge; but scientific knowledge falls far short of comprising all knowledge. There is also a body of unorganised knowledge: knowledge of rules governing particular

circumstances and special processes at different times and in diverse locations. Here, 'practically every individual has some advantage over all others because he possesses unique information of which beneficial use might be made' (Hayek, 1945, p. 79). Such information is no less vital than the scientific knowledge of technical experts; but, because it lends itself less readily to identification and documentation, there is a tendency for it to be underrated. It is ironic that the pace of technical inventiveness should have encouraged this tendency, for it has increased the requirement for rapid entrepreneurial response. New techniques bring both opportunities and problems of business organisation and economic cohesion: '[i]t is perhaps worth stressing that economic problems arise always and only in consequence of change' (Hayek, 1945, p. 82). Responses to change are unlikely to be handled effectively by a unitary decision-making body, however well-intentioned, experienced and educated are its members. Communications to that centre would be neither sufficiently rapid, nor sufficiently detailed; and even if they were, the ability to digest, to assess and to react promptly would be absent.

The *minutiae* of interactive changes lie beyond the encompassment of a single mind. In attempting to gain insights into such complex procedures, the use of statistical aggregates is methodologically unsound. The kinds of knowledge upon which economic activity depends are rarely quantifiable; and statistics are a crude amalgam of items, whose important differences go unrecorded. Where centralised planning is conducted upon the basis of implausible statistical artefacts, no account can be taken of the special circumstances of time and place that would be of critical importance if decisions were taken at the local level. Yet, while decentralisation ensures access to local information, are not wider aspects likely to be overlooked?

Generally speaking, comprehensive information is not required for a local decision. That adverse weather conditions, or labour unrest, or civil war, or increased demand has exacerbated the relative scarcity of raw materials, is only incidental to the need for a local planner to make adjustments. Reasons for increased prices are of no consequence. Whereas an immediate accommodation may give way to more radical adjustments as more information becomes available, the essential point is that there need be no concern with events beyond their impact upon the local environment. It is unnecessary for traders to know why prices change. It is enough that they have changed; in reflecting the relative scarcities of commodities, relative prices are knowledge substitutes that guide individuals in formulating their decisions. Market prices are also the basis by which entrepreneurship is encouraged. Intertemporal and interspatial price differentials are a necessary prompt for 'alertness' and 'futurity'. How is it, then, that market prices can serve both as information (equilibrium prices reflecting relative scarcities) and as an incentive to entrepreneurial initiative (disequilibrium prices signalling opportunities)? An analogy with scientific discovery gives the clue to the answer; an

entrepreneur is no more an equilibrium price-taker than a scientist is a theory-taker:

> [i]n both cases a background of unquestioned prices or theories is relied upon subsidiarily by the entrepreneur or scientist, but the focus of the activity is on disagreeing with certain market prices or scientific theories. (Lavoie, 1985b, pp. 83–4)

If market traders were all price-takers – if entrepreneurs were systematically ignorant of profitable opportunities – prices would be chaotic; but 'the empirical observation that prices tend to correspond to costs of production' (Hayek, 1941, p. 27, fn 2) is unlikely as a recurring random coincidence. Rather, it is the outcome of a coordinating market process:

> [p]rices are not only conveyors of information in the standard sense – imperfect conveyors, in fact, given that they are disequilibrium prices – they also contain the incentives to the correction of their imperfection. (Thomsen, 1992, p. 58)

Here, there is a division of labour such that an entrepreneur is alert to only some of the many disequilibrium price discrepancies: '[e]ach entrepreneur will concentrate on exploiting the price differences he has noticed, while accepting other prices unquestioningly' (Thomsen, 1992, p. 60). In this manner, market prices are adjusted as a more efficient distribution of resources is achieved, but with the majority of traders remaining in ignorance of the reasons for the vast majority of price adjustments.

It is better to assign authority and responsibility for economic decisions to those with local knowledge, for the individual on the spot, so that the 'continuous flow of goods and services is maintained by constant deliberate adjustments, by new dispositions made in the light of circumstances not known the day before' (Hayek, 1945, p. 83). Such decentralised planning delivers no uniformity in the types of decision taken, because there are wide differences in managerial and business competence. Even where techniques of production are identical, differences in the acquisition of (and the response to) new information and in making the necessary adjustments to retain a competitive advantage, produce wide variations in profitability that reflect the degree to which consumers' needs are met: '[t]he function of competition … is precisely to teach us who will serve us well' (Hayek, 1946; 1949, p. 97). So, there is an important distinction to be drawn between the coordination of action and the coordination of knowledge. Traditional societies – those that do not rely upon an extensive network of markets – may achieve coordination of actions. Although harmony may be everywhere apparent, the absence of an institutional framework to encourage entrepreneurship brings a lack of coordination of knowledge. Such societies may be stable – and stagnant – because

of that omission; action may be highly coordinated but progress inhibited for the reason that isolated islands of knowledge remain unbridged.

Market coordination

The accusation that liberal economists make a 'theoretical leap … of *assuming* that individuals' actions are co-ordinated harmoniously' (Dow, 1985, p. 85) is countered by the principle of spontaneous adaptation ('universal Darwinism'). In particular regard to social adaptation, agent-based computational economics (ACE) may be cited. In contrast to the hypothetical central auction of general equilibrium models, autonomous agents engage in a continuous process of inductive learning and re-adaptation to their local environment. ACE models demonstrate how regularities emerge from self-interested choices that are made on the basis of local knowledge. For example, Vriend (2002) uses an ACE model to illustrate a

> situation in which a number of persons are attempting to work out their separate plans … [where] … the causal factor enters … in the form of the acquisition of new knowledge by the different individuals or of changes in their data brought about by the contacts between them. (Hayek, 1949, pp. 93–4)

The model sets a two-stage iterative process of reinforced learning within a population of 250 agents. In each successive period, agents choose in random order between two items, each of which is characterised by the expected value (unknown to the agents) of the utility it generates. Every agent is presented with an identical choice: between two random values sampled from the uniform distribution ($Eu \pm 0.25$), whose mean (Eu) is a random value from the uniform distribution ($0.25 < Eu < 0.75$). To illustrate: an item characterised by the expected value $Eu = 0.4$ delivers a utility level in the range 0.15 to 0.65, 'with every utility level in this range equally likely to occur' (Vriend, 2002, p. 816).

Although Eu is unknown to the agents, their choice is informed by earlier choices (and the respective utility values delivered) made by a random sample of n other agents. An agent's own decision rule is then decided by a classifier system (CS) on the basis of 'bids' (based on the decision rules previously applied by, and the utility values previously obtained for, the sample of n agent choices). So, at stage (i) CS selects a rule (from an arbitrary set of rules) for the agent's current choice between two utility values ($0 < u < 1$); that selection is based upon 'bids' assigned to the rules. At stage (ii) CS adjusts the strength assigned to the current rule; it is increased/reduced if the rule delivers a utility value that is greater/less than the strength previously assigned: '[a]s a result, the strength of each rule converges to the weighted average of the rewards from the environment generated by that rule' (Vriend, 2002,

p. 819). It is not simply that 'agents learn to use better rules … that lead to higher utility levels … [but] … there is also an *externality*, as the choice of the given agent is added to the information pool on which the choices of future agents will be based' (Vriend, 2002, p. 826). An extended series of iterations shows that 'self-organization is a continuing, ongoing story, in which the emerging order unravels time and time again' (Vriend, 2002, p. 836). This illustrates how 'individuals' actions are co-ordinated harmoniously', not by assumption, but through limited interaction and reinforced learning, such that practices prevail through 'a process not primarily of reasoning' but, more simply, 'because they were successful' (Hayek, 1973b, p. 18).

The meaning of competition

Within neoclassical economics, perfect competition is the ideal market order in that, in equilibrium, it achieves an efficient allocation of given resources. However, it is illegitimate to extend analysis that is appropriate only to the decisions of single omniscient individuals, to dynamic inter-relationships between individuals acting under uncertainty. The latter require an understanding of causal processes within a network of markets. Within Austrian Economics, the entrepreneurial instinct, the pursuit of profit and the communicative network of relative prices is encapsulated by 'competition'; and equilibrium is the 'effect of the competitive process' (Hayek, 1949, p. 94). Here, competition is a discovery procedure:

> [i]t cannot be said of competition any more than of any other sort of experimentation that it leads to a maximisation of any measurable results. It merely leads, under favourable conditions, to the use of more skill and knowledge than any other known procedure. (Hayek, 1979, pp. 68–9)

The market process is a communication mechanism whereby the effects of many continuously changing determinants are communicated. Price signals allow planners to harmonise the separate parts of their local plans; and price signals bring compatibility to the diverse intentions of a multitude of local planners: no single person oversees the whole field, but 'limited individual fields of vision sufficiently overlap so that through many intermediaries the relevant information is communicated to all' (Hayek, 1945, p. 86). Under the neoclassical ideal of perfect competition, it is 'as if' knowledge of important changes spreads so rapidly and adaptation takes place so quickly that processes in the period between any two states of static equilibrium can be disregarded; but it is precisely those processes during that neglected interval which must be understood. Otherwise economics has no claim to be a social science.

The assumption of perfect knowledge ignores the role of the price system in communicating information; and misleading standards have been set in judging its efficiency. 'Super-normal' profits are earned because change occurs, reaction takes time, and because each entrepreneur (local planner) is uniquely different in assessing and reacting to new situations. The rapidity of adaptation to change is determined by the self-interest of the parties concerned and, in a dynamic economy, there will always be incentives to reach greater economic efficiency: 'the lowest costs at which a thing can be produced are exactly what we want competition to discover' (Hayek, 1979, p. 70).

The entrepreneurial reward is to receive a (temporary) excess of revenue over costs, which the processes of competition immediately begin to erode. In objective terms, it is generally impossible to determine whether high profits are the result of improved techniques, or whether an investment yield is 'adequate' in the context of *ex ante* perceived risks. However, the presumption must be that monopoly profits are the desirable outcome of competitive processes. Only where profits can be shown to persist, because they are based upon some privilege that restricts competition, are they a cause for concern. That competition is the only means by which the dispersed particular knowledge of many individuals can effectively be utilised is the central theme of Hayek's economics. This emphasis is perhaps most clear in respect of Hayek's part in the debate with intellectuals of socialist persuasion, which is the subject of the next chapter.

6
The Socialist Calculation Debate

> On the moral side, socialism cannot but destroy the basis of all morals, personal freedom and responsibility. On the political side, it leads sooner or later to totalitarian government. On the material side it will greatly impede the production of wealth, if it does not cause actual impoverishment.
>
> (Hayek, 1978b, p. 304)

A review of the socialist calculation debate presents an opportunity to set Hayek's economics within the broad context of economic thought. Hayek is the most prolific, most influential and most successful twentieth-century propagandist for the Austrian School of economics; and he is an unswerving defender of the individual against the collective. The socialist calculation debate permits a clear illustration of each of these fundamentals. On one side the case is presented that a competitive price system is the only means by which the dispersed particular knowledge of all its many participants can be effectively utilised; and on the other side is the idea that a planning board can master that same knowledge, but to a greater advantage.

The initial focus of the debate is upon the competing views of Marx and Mises; and it switches to those of Lange and Hayek. Thus, the debate involves both the Marxian and mathematical models of socialist planning, but the issue eventually focuses upon the perceived merits of 'competitive socialism', as the impracticality of a fully planned social order are generally acknowledged. Within this hybrid competitive socialist order, the prices of consumer goods and wages are to be freely determined in competitive markets, but with common ownership of the means of production. Factor prices are to administered from the centre, on the basis of observed imbalances in demand and supply across individual markets (see Lange, 1936, pp. 72–3).

In a retrospective view of the socialist calculation debate, the conventional wisdom is that the thesis of a total abolition of markets and prices is matched by the antithesis of complete *laissez-faire* to give the synthesis of market socialism, and that the latter is practically viable. This comfortable

view of a reconciliation that preserves the best features of both systems is challenged by a detailed reinterpretation of the literature (see Lavoie, 1985a). While this scholarly re-examination provides a primary source for the outline presented below, the focus of this chapter is upon the Austrian School as against other approaches to economic analysis, and upon the rationale that sees decentralised independent decision-making within a market economy as the only system capable of supporting the extended social order of an advanced trading economy.

Classical economics

Economics has a relatively short history. It began in earnest only after the demise of feudal society. In the seventeenth and eighteenth centuries, economic discourse turned upon two doctrines: that of Mercantilism (which views export sales as the basis of state power, to which the interests of the individual are held to be subservient) and that of Physiocracy (which traces the origin of wealth to agriculture and which espouses liberalisation in a direct opposition to the Mercantilists). Contemporaneous with the Physiocrats was Adam Smith's seminal work – *An Enquiry into the Nature and Causes of the Wealth of Nations* – of 1776, which upholds the principle of liberalisation, but which denies that agriculture alone is the source of wealth. Smith's thesis is that the nation's wealth is the sum of the output of its productive citizens and that the welfare of all is best served through the pursuit of self-interest.

Smith's ideas were to be refined, developed, augmented and transformed into the economics of the classical school, where the work of David Ricardo is influential for its enunciation of the labour theory of value: all value is identified as the embodiment of labour energy. The setting of a Robinson Crusoe economy provides a useful example. Crusoe's time is limited so that the availability of his labour input is scarce. Does he use his time to fish by hand, or to make a net? Fish, which otherwise might have been caught by hand over the period required to make a net, determine the value of the net. The value of fish and the value of the net are therefore related by their respective embodiments of labour input. This conclusion is based upon the labour theory of value.

Yet, labour value is not unique in reflecting a genuine scarcity. Many other nature-given resources are genuinely scarce, so that rent and interest payments are of equal status to labour's wage. Friedrich von Wieser develops this argument,[1] the essence of which he attempts to capture in the concept of a 'natural value'; this is a value that exists originally, rather than one that is the consequence of a temporary disequilibrium between demand and supply (i.e., quasi-rent). In addition to labour, Wieser argues that both land and capital are original sources of natural value and, whether under collectivist or market systems, production must account for those resource costs.

Markets fall short of the ideal of an effective allocation mechanism whenever there is a divergence between market values and natural values; and where that divergence exists, the question arises of possible improvement through centralised planning. So, while Wieser's concept of natural value is a denial of the labour theory of value, it does not, by itself, threaten the Marxist case for central ownership and direction of the means of production.

Marx's critique of capitalism

Marxian economics begins when a political journalist and champion of the working class turns social historian and discovers, in Ricardo's labour theory of value, a ready paradigm for the views on capitalism to which he is already committed. The desire to achieve effective use of scarce resources is a feature of all economic systems. The specific manner in which this is attempted is dependant upon the historical development of social structures. Karl Marx argues that all human understanding is derived from historical and cultural processes; and in this there is a close parallel with Hayek's view of the evolution of the structures of civilisation. From his study of capitalism – *Das Kapital* (1867) is the best known of his works and the only one published during his lifetime – Marx attempts to gain insights into the emergence of socialism as an historical progression from capitalism. Consistent with this position, Marx denies the approach whereby an exercise of imagination, unconstrained by the lessons of history, might conjure a viable socialist plan. Marx also dismisses the idea that, through a gradual introduction of elements of conscious planning into specific areas of the capitalist system, the market economy might be set in a new direction. There could be no rational selection of the choice attributes of a market system. (Again, this is close to Hayek's dismissal of the constructivist rationalist approach to economic reform.) For this reason, both interventionism (central control of small scale organisations run on entrepreneurial lines, with the purpose of eliminating unearned income) and syndicalism (workers' control of each factory and of industries by democratic syndicates) are denied. Neither interventionism nor syndicalism can deliver mechanisms either to coordinate activities or to ensure that the system reproduces itself.

Marx envisages the self-destruction of capitalism as the ironic consequence of the institution of the price mechanism. Prices are a twin force in that they serve both as a guide for production decisions and as a reflection of an antagonism between buyers and sellers. When many different producers perceive profitable opportunities, the result is a systematic overproduction of some products alongside a deficiency of others that might otherwise have been produced. Through its lack of planning foresight, the market price system squanders resources. Where there are markets, there are unintended outcomes and a requirement for resources to seek out necessary information. Under capitalism, individuals are increasingly subjected to an

alien social power – a mutual interdependence into which they are driven by specialisation – over which they have no control. Under capitalism, ever-greater concentrations of production allow fewer wills to exercise greater power. There is a solution: by extending the organisation that exists within a single firm across society as a whole, conscious planning under socialism might replace these imperfections of the market system. So, Marx envisages the natural emergence of a socialism in which no part of the market mechanism is preserved. Marxian socialism envisages an abandonment of all market relations and a reengagement of the bond between producers and their products.

There is no doubt that there are many situations where the efficiency that is possible within a business organisation offers a superior alternative to the market. This is illustrated most simply by the very existence of the organisation known as the firm. Business organisations offer a clear alternative framework for the discovery and use of dispersed and local knowledge. The crucial question relates to its viable extent. Marx believes that, as a historical process, there is no limit to the degree to which the organisation, as exemplified by a single firm, might be extended. However, as the organisation is taken to the ultimate degree of the whole economy, power must necessarily be exercised through a common will. At that point, expropriation by the state on behalf of the labouring class becomes a simple matter; and within this new 'collectivism' it is possible for each man to retain the equivalent of his own production.

Here, there is a crucial question with regard to the practical limits to the growth of the organisation, beyond which its advantages (from the elimination of the costs of market transactions) are outweighed by the advantages that accrue from the discipline of competitive market forces (which release the potential gains of entrepreneurship). The boundary between market institutions and organisational institutions is ill-defined and is itself subject to entrepreneurial initiative (see Loasby, 1989, p. 188). While the rationale for the organisation is acknowledged by the Austrian School, the nature of the circumstances in which the advantages of the organisation outweigh its limitations warrant greater attention. Instead, concentration is upon the relevance of institutions to the market system. The Austrian supposition is that the economic efficiency of the organisation becomes inferior to that of market processes at a relatively small scale of operation; certainly far short of the economic system as a whole.

A particular difficulty within the organisation, which Hayek notes, is in respect of the impact of expert advice. This concerns the likely over-development of a particular item of policy, when it is necessary to take an issue through a series of successive decisions by professional experts. For example, one expert may show the necessity for a number of medical procedures, after which another expert decides upon the administrative structures necessary to meet those ends, following which a third expert explains the requirements

for drafting the required legislation. In this, no one person may 'feel that he is in a position to look at the whole' and, in consequence, the end result is

> not really the result of co-ordination and mutually adjusted decisions but the product of a summation, in which one decision makes the next inevitable … The resulting measures do not rest on the kind of division of labour where at each step, a man is free to accept or not to accept as the basis for his decision what some particular agency offers him. The single scheme which emerges, to which there is no alternative, is determined by the internal necessities of this process, which has little to do with any comprehension of the whole by any one mind. (Hayek, 1960, p. 511, fn 10)

Capitalism and economic calculation

An influential counter to Marx came in 1920, in the form of an essay from Ludvig von Mises – 'Economic Calculation in the Socialist Commonwealth' – which sets out to establish that 'rational economic planning is impossible in a socialist commonwealth' (Mises, 1920, p. 20). This, the initial focus of the calculation debate, is examined in the next section; but as a preliminary, it is useful to have a brief *résumé* of the developments that challenge the relevance of the labour theory of value. This challenge was mounted in the work of Merger, Jevons and Walras, with the marginalist revolution of the 1870s. In this new approach, labour takes its value from its utility, in the sense of the potential to create items of value. The primacy given to choice sees this value as the subjective assessment of an individual mind. Value is determined by the assessment of price in terms of perceived forgone opportunities.

From its inception, the Austrian School (which has its origins in Menger's work) has consistently applied the subjective approach in economics; but elsewhere a spurious objectivity was introduced and brought to the fore. It is in this development that modern microeconomics became dominated by the neoclassical school, which is distinguished from its Austrian cousin by its twin focus upon objectively given (as against subjectively perceived) conditions and upon static (as against dynamic) issues. Modern microeconomics is dominated by an analytical approach whereby the optimal conditions for economic efficiency are identified in the context of certain knowledge: of given resources and competing ends. Once achieved, there is no need for subsequent decisions. There is nothing further to ponder. The context is static. The world is an uneventful place, because entrepreneurship is assumed to have exhausted every opportunity for profitable gain.

This modern microeconomic presumption of an opportunity cost that is reflected in the price, of a well-defined preference function that is precisely aligned to a budget constraint, of known technologies, of a given set of mutually consistent factor prices, and of a universal awareness of all feasible

alternatives, has proven useful in providing constructs that convey a notion of economic efficiency. It is not a valid criticism to point out that this is an unrealistic scenario. Its very usefulness lies with its contrast to events. Yet, it becomes seriously misleading if it is taken to suggest that any of those items could ever be objectively knowable:

> [t]he fundamental Austrian complaint against neoclassical economics is that its concept of equilibrium already assumes the solution of the economic problem, which is the problem of discovering – or inventing – possibilities and making good use of them. (Loasby, 1989, p. 156)

Since the purpose of action is to bring about an improved situation, all action is entrepreneurial. In the neoclassical world this vital entrepreneurial element is missing. Although neoclassical formality can clarify the purely logical features of an economic problem, it offers no solutions, because these are dependent upon an entrepreneurial appraisal of consumption and production possibilities. That information is generated by competitive processes, whereby subjective perceptions of participants become matched ever more closely against each other, as plan is set against plan.

Three aspects of economic choice reveal essential differences between the neoclassical and the Austrian approaches (see Lavoie, 1985a, pp. 104–6). Optimisation – the pure logic of choice – is the first aspect. This is the single focus of neoclassical economics, to the neglect of two other aspects, namely, the vital elements of 'futurity' and 'alertness'. With that neglect, profit does not have to be sought; it is simply maximised. This is seriously misleading, because it is as a consequence of competition that the most successful firms achieve an approximation to those equilibrium values that, under the neoclassical approach, every firm exhibits. By contrast with the neoclassical system, where correct substitution ratios between products are inexplicably established, the focus of the Austrian School is upon the processes whereby such relationships are likely to be obtained. The context is dynamic, so that action is both a process of discovery and an intention to alter the course of future events. Action is decided against perceived likely outcomes. A course of action is resolved by the *anticipation of change* and by the *degree of alertness* to potential possibilities. It is the entrepreneurial function that encompasses these second and third aspects of economic choice.

Mises's counter to Marx

In his 1920 essay, Mises sets out to refute the possibility of a rational distribution of resources under socialism. Mises demonstrates that any rational calculation must be based upon market pricing, not only of all productive factors but also of all intermediate and final products. Marx and Mises both recognise that money inhibits the perfect coordination of a hypothetical

frictionless economy, where production is in the correct volume and for a specific destination. Yet, paradoxically, the use of money facilitates the production of intermediate goods for the market where, for the most part, sales cannot be anticipated.

Only when items are exchanged are values assigned to them; and although 'exchange-value' is not 'subjective value', the former is determined by 'valuations of all participants in trade' (Mises, 1920, p. 97). Mises's case – that calculation under socialism is theoretically impossible – relies upon two related aspects: (i) the necessity for a set of market determined prices; and (ii) the commensurability of traded goods.

It is in respect of commensurability that Mises is pitted against Otto Neurath[2] and the idea that (incommensurable) political and ethical judgements are often unavoidable. Mises's response is that political or ethical judgements that entail the sacrifice of economic goods can be measured by the value of those goods. Now, if this were the sum of Mises's 'response to the problem of non-economic goods' it would indeed be 'implausible' (O'Neil, 1998, p. 117), but it is not. Although the choice (for example) between rescuing either bank notes or people from a house fire might be evaluated (preposterously) upon that basis, such ethical considerations would (in truly 'social' circumstances) be directed by conventional rules (of the kind 'women and children first') rather than by opportunity cost. This Mises affirms: '[a]nyone with a genuine sense of moral values experiences no hardship in deciding between honour and livelihood' (Mises, 1920, p. 100). The crucial aspect of Mises's case for exchange-values is in respect of capitalistic roundabout processes of production, because '[t]he human mind cannot orientate itself properly among the bewildering mass of intermediate products and potentialities of production without such aid' (Mises, 1920, p. 103).

So where Marx finds a solution that dispenses with money, Mises offers an alternative theoretical framework, which purports to explain the failure of socialist programmes whenever they are attempted. Mises emphasises the necessity of money prices and, in particular, the manner of their emergence out of the competitive struggle between entrepreneurs. Only under very simple autarkic systems (Robinson Crusoe) would it be possible to dispense with money but still be possible to judge accurately the precise composition of production to meet consumption needs. This would be helped by the use of direct production methods: that is, by the virtual absence both of produced means of production (machines, tools, vehicles and so forth) and of a wages fund, necessary to support extended (or roundabout) capitalistic methods.[3] (The use of roundabout methods is the subject of Chapter 8.)

Mises contends that Marx never explains how a centralised planning authority could grasp the full complexity of relationships between producers. There is no legitimate analogy to be drawn between the limited decisions facing Robinson Crusoe and those to be taken by a planning board in an advanced capital-using economy, where production decisions are guided by

calculations of profit and loss. The adoption of extended and time-consuming (roundabout) production methods requires local decisions, guided by the ever-changing signals of market prices. Beyond that, every entrepreneurial decision to make adjustments to the degree of capital intensity necessarily influences the level of interest rates that, in turn, causes relative factor prices to change. By these mechanisms, time becomes incorporated into the calculation: consumption, saving, and investment plans are thereby coordinated without a necessity to accomodate every detail of the intricate structure of production.

While Marx sees in capitalism an inherent tendency to produce an ever greater concentration of units of production that leads ultimately to a coordination of all production by one central plan, he overlooks a crucial prerequisite for technologically advanced production planning. This is the guidance provided by rival bidding for factors and resources in the market place. When a single firm becomes over-centralised, it is unable to place a value upon factors and resources under its control and it loses ground to less centralised competitors. For this reason, Marx's prognosis for capitalism is flawed. In practical terms, there is no tendency to that ultimate degree of concentration. Even at its most advanced stage, capitalism necessarily relies upon market prices – the consequences of entrepreneurial rivalry – to give directions that enable decisions to be taken that are most likely to achieve an effective use of resources.

Since human action is directed towards improving future states of affairs, an element of uncertainty pervades every decision. Rather than exacerbate that uncertainty, a system of market prices reduces it to the minimum that is concomitant with the dynamic nature of economic life. Mises cites four advantages in the use of market prices to serve economic calculation under capitalism:

1. market prices emerge as the consequence of action by every trader. A system that attempts directly to assess use value (determined by consumers' decisions) neglects information provided by the nexus of exchange values;
2. production decisions that are guided by market prices reflect every influence within the market. By their impact upon exchange values, consumer preferences influence the capital structure;
3. in revealing the profitability, or otherwise, particular decisions, accounting practices direct resources to their most valuable uses;
4. complex choices are simplified by comparisons based upon money prices.

The computation of costs and prices within competitive markets is an *actual* shortcut to the solution of millions of *hypothetical* equations. The processes of competitive rivalry between entrepreneurs produce a spontaneous coordination that cannot be replicated by artificial means. There is no way to deliver a centralised and comprehensive understanding. The finest degree of

coordination is necessary to gain the full potential of complex capitalistic production methods; but knowledge of opportunities, markets, new techniques and so on is generated only through market rivalry, that is stifled under a system that attempts to coordinate production by a unified plan. With the ordering mechanism of an impersonal price system, there need be no concern with the diverse implications that stem from individuals' actions, nor with the reaction of others to those actions.

Economic calculation and the price system function as a knowledge coordination system. Price adjustments are continuously engaged in bringing the market system to harmonious dynamic equilibrium, in which speculation is a vital force. Speculative entrepreneurship forms the data on optimal prices and sources. Personal incentives both motivate and inform speculative action. Though far from perfect, signals from the accountancy of profit and loss (whether within the household, the firm or some other organisational institution) are an indispensable guide to economic judgements. There is no claim to ethics, no claim to optimality. It is not that the system of market prices offers the best arrangement to achieve effective means to produce and to distribute wealth. More simply, the claim is that the system of market prices offers the *only* solution to the economic problem. By their active and competitive bidding, entrepreneurs push money prices towards an ever more mutually consistent configuration; and this coordinating process has no counterpart, when the means of production are placed under common ownership.

Socialism and economic calculation

Paradoxically, both classical long-run analysis and neoclassical (Walrasian) general equilibrium theory give an exaggerated idea of the efficacy of market capitalism in producing cohesion, and this is exploited by Oskar Lange in his construction of socialist counterarguments. In a famous reassertion of the benefits of a centrally planned economy – a 1936 essay 'On the Economic Theory of Socialism' – Lange shows that, given the same information set that is available in a theoretical market economy, a central planning board would be able to devise policy rules to replicate the theoretical outcome of optimum resources allocation.

In the abstract world of a neoclassical economy, the conditions necessary for a theoretical equilibrium under perfect competition are utility maximisation by consumers, profit maximisation by producers, and the free entry and exit of firms. The practical circumstances in which these characteristics might be obtained are not considered. So there are no reasons why a *theoretical* socialist planning board could not replicate the outcome of a theoretical neoclassical economy; but, in practical terms, the alternatives of socialist planning and market capitalism are poles apart.

Utility maximisation by consumers is obviously unaffected by the implementation of the central planning of production. Lange shows how a theoretical

equilibrium under socialism is obtained if two rules of conduct are followed by local production plant managers. The first, an instruction to minimise average costs, ensures equalisation (across all factors) of the ratio of the marginal product to unit factor cost. This gives optimal factor combination. A second instruction – to apply marginal cost pricing to units of output – replicates the optimal scale of output under theoretical perfect competition. When this same instruction is followed at the level of each industry, the impact of free exit and entry is also simulated. All that remains is for plant managers to receive a set of planning board prices for factors of production, which are necessary as the basis for plant costings.

The theoretical Walrasian auction (*tâtonnement*) achieves a balance between the supply and demand for goods and services through a straightforward process of price adjustment, administered by an imaginary auctioneer. As the auction takes place, all trade is suspended until a set of prices is established at which every market is cleared. If the actual equilibrating process of capitalism were to be explained by recourse to the Walrasian auctioneer, there would be no reasons why a planning board could not also arrive at the same set of equilibrium prices. More to the point, the method by which the planning board (or indeed the Walrasian auctioneer) might evaluate that set of correct prices has never been satisfactorily explained. Clearly, a planning board would require time to consider the evidence before setting (what it would hope to be) market-clearing prices. Since a planning board cannot have the Walrasian option of suspending activity while *tâtonnement* takes place, production and trade must take place at disequilibrium prices.

So, the initial practical situation faced by a planning board is the same as under market capitalism. The difference is that, under capitalism, trade at disequilibrium prices is modified by entrepreneurial reaction to price movements: signals that are not available to the planning board. In actual markets, trade cannot be made to wait upon the declaration of a consistent set of relative prices. Trade is conducted at false (that is, disequilibrium) prices; and it is this feature that has been identified as having the potential to inhibit the progress to equilibrium. Upon this basis, the assertion (from the socialist side of the debate) is that a central plan has the advantage (having no price signals) of not being influenced by false price signals!

The sharp dichotomy between short-run and long-run decision horizons is another feature that the market socialist literature takes from neoclassical economics. Lange's rules for the conduct of a production plant manager are relevant to the given technological framework of the short run. As time passes, many new options present themselves, but these leave no method by which a planning board could determine whether a plant manager is meeting his duty to minimise expected average costs or to equate expected marginal costs with expected prices.

Lange's recognition that a planning board would lack necessary information caused him to propose the system of partially decentralised planning: '[i]n

this model, the prices of consumer goods and wages are determined by a market, whereas the factor prices are fixed by the central planning board' (Lavoie, 1985a, p. 121). In order that all participants in the system should be price takers, the planning board would set the 'market' prices of consumer goods 'by observing the levels of inventory stocks of the various products, adjusting the price up if the stocks were being depleted or down if they were accumulating' (Lavoie, 1985a, p. 182). From that empirical evidence of implied discrepancies between demand and supply, the planning board would calculate an appropriate set of price adjustments. Thereafter, it is assumed that all the specific decentralised knowledge of tastes, local availability of resources and technological parameters, would be known to plant managers, who would be able to derive (given the planning board's prices) the least-cost combination of factors of production for the optimal volume of output.

Beyond all the formal arrangements for price setting, Lange argues that, in removing uncertainties inherent in a market system, a centrally planned economy would enjoy added advantages over the anarchic forces of capitalism. Moreover, where a business failure under capitalism leads to a chain reaction of failures, it is Lange's contention that socialism can localise its mistakes. Implicit in this assertion is the assumption that a planning board has knowledge of the complex sequences that can follow upon each and every mistake; but to trace out, in advance of their execution, the implications of rival producers' plans and to weigh the relative merits of those hypothetical events is not a practicable proposal. No more in business than on the battlefield would even the most honest and fullest declaration of information by rivals prove sufficient to arrive at a certain forecast of the outcome of a hostile engagement. Of course, if such omniscience were available to a planning board, there would be no rationale or requirement for the devolution of decision-making to the local plant level. However, even with these obvious practical failings, Lange's results received the widest attention, to the neglect of their refutation by the Austrian School.

It is not the problem of economic choice that distinguishes socialism from capitalism, but the practical means of achieving solutions. It is an impractical alternative to market entrepreneurship that production plans should be based upon a central evaluation of the complex economy-wide implications of diverse input and output configurations. Yet the central planning ideal suggests a unified and non-rivalrous administration of resources allocation, where it would be necessary to centralise relevant knowledge of the availability of factor inputs and (with available technology) the various configurations of potential outputs; and it would be necessary to weigh the relative importance of those inputs and outputs. Instead of allowing market competition to generate the forces by which prices are adjusted, precise calculations would be necessary to bring the demand for and the supply of diverse goods into a single harmonious relationship. This is a solution with impossible

requirements, including those for accessing data sources, for revising data and in undertaking computational procedures.

A further difficulty that arises from price-fixing at the centre, concerns a situation where producers tender for a non-standard product that is required once only. Here there are no operational means to apply the planning board's precept to fix a price so as to achieve a balance between demand and supply. However, this particular problem would be obscured by the general necessity for a planning board to work with broadly manageable (but meaningless) categories of commodities. In itself – and through a slow, cumbersome process – this pragmatic device would generally lead to an inadequate differentiation of prices. Every local decision would therefore be based upon composite prices set to clear non-existent markets for arbitrary catagorisations of heterogeneous goods.

By the failure to appreciate the methodological gulf that exists between Austrian (disequilibrium) economics and neoclassical (equilibrium) economics, much of the socialist calculation debate is at cross-purposes. Where Austrian analysis perceives the economy as a *mêlée* of competing and contradictory plans, and is conducted against the (dynamic) criterion of multi-plan coordination, neoclassical analysis is centred upon the (static) criterion of Pareto efficiency. Even leaving aside the question of how the details of a centralised plan might be determined, a more important objection is to the rationale itself; that is, the counterpoint is made that the incentives, that are implicit in the margins that exist when trade is undertaken at false prices are an integral part of the processes by which markets move towards equilibrium. In these, the function of the entrepreneur is vital:

> [a]s a result of his actions, the price in one particular market is brought closer to equilibrium, and other people are better-informed about the opportunities available; knowledge is the dual of equilibrium. (Loasby, 1989, p. 160)

Yet, while so much attention is devoted to the detail of the computational methods that might be employed, the more important focus for the Austrian School is the question of relevant knowledge.

The socialist calculation debate draws from Hayek three new arguments, each of which points to 'the theoretical impossibility of efficient calculation under socialism': these are that 'in the real world goods are not easily specified … costs were not objectively given … [and] …. knowledge is uncentralizable' (Streissler, 1992, pp. 65–6). To assume that – with the exception of a set of correct prices – all the necessary information is available to gain general equilibrium is to trivialise the complex processes of dispersion and transmission of knowledge. Such knowledge is no more likely to exist in the mind of a plant manager than it is to be at the disposal of a central planning board. In regard to production technologies, the presumption that plant managers would be able

to communicate details of feasible factor combinations might be true of tried processes, but innovative projects would raise formidable adjustment problems. In a market economy, efficient methods become evident only as some producers succeed while others fail. There is no Walrasian auction, but a process of discovery as efficiency and ingenuity are put to the test in an open competition in which 'design, commerce and marketing … contribute much more to 'surplus value' than mere production' (Streissler, 1992, p. 67).

The failure to realise that (in real time) an economy is never in equilibrium, caused Lange to disregard the crucial disequilibrium aspects of choice; that is, the anticipation of change and the alertness to potential possibilities. The essential flaw in basing decision-making upon a set of *known* prices, is that it bears no relationship to entrepreneurial decision-making in the face of *uncertain* prices. A quasi-competitive scheme, that allows trade between different sectors under common ownership, cannot replicate competitive rivalry between independent owners. To illustrate, a planning board has no means to allocate its capital to undertakings that promise the highest prospective yields, for these are unknown; and there is no basis for rival bidding by plant managers, who could not be expected to bear the inherent risk whilst having no claim upon the potential rewards.

Once it is acknowledged that markets are unlikely to have been trading at equilibrium prices, the planning board has no means to know how imbalances between supply and demand should be corrected. Moreover, to wait until demand and supply discrepancies materialise is to invite protracted periods of readjustment. In a market economy, entrepreneurs who are successful (and likely to survive) are those who, by correctly *anticipating* changes, make their adjustments well in advance. It is the function of market rivalry to provide information – to produce a dynamic structure of competitive prices – that is vital to allocative processes. Neither the Walrasian auctioneer nor the planning board has the requisite knowledge to determine those prices.

Central planning has no substitute for the entrepreneurial equilibrating processes of a market economy. That essential characteristic of foresight, by which an independent entrepreneur balances profit against risk, is protected ultimately through the survival of those who succeed. Entrepreneurship is the causal force whereby prices are bid up and down as part of a continuous process of coordination. That the real world differs from the neoclassical perfect competition model (in which all producers are price takers) is not a criticism of capitalism, but a consequence of the omission from the neoclassical model of any consideration of the mechanisms by which prices change. That Lange should borrow the idea that every producer is a price taker is, in the Austrian view, illustrative of the impracticality of his proposals.

Institutions

Common to various approaches taken by market socialist economics (with this terminology used to denote Lange's partially decentralised planning) is

a refusal to focus upon such practical issues as an institutional framework, the nature of property rights and the means to harness knowledge. It is not the possibility of socialist planning that is questioned, but the possibility of successful socialist planning. In many important aspects, criticisms of socialist planning are akin to those levelled against the notion of social justice, that are examined in Chapter 4; it relies upon impossible certainties. The practical case against socialism is that the replacement of market institutions by central direction reduces living standards: that the abolition of the price mechanism leads inevitably to economic malaise.

Whose preferences are to determine the mix of production, and how? If the preferences of individual consumers are to be given weight then, once the distribution of purchasing power has been determined, individuals might be permitted to bid freely in markets for consumer goods. Although a planning board might discover consumer evaluations by permitting a free market to operate in final goods, it would also need to estimate producer evaluations of productive factors, for which reason the planning board might decide to permit producers to bid freely for factors of production. Practical means are necessary and the lack of obvious substitutes for market prices brings many socialists to the idea that the allocative advantages conferred by competition can be preserved. Even so, there remains a general insistence that the state should retain ownership of the means of production.

This directs attention to another important question: if state ownership supplants private ownership, is there any particular rationale for the institution of private property? If economic decisions could be reduced to pure optimisation, the difference between a private owner's decisions and the decisions of a civil servant would disappear; but this would be to ignore the elements of 'futurity' and 'alertness'. Present decisions shape the future and opportunities exist to be exploited, providing there are incentives to motivate those who are alert to the possibilities. So, if the planning board is to retain its responsibility for capital goods, how might the performance of local plant managers be monitored? If they were unaccountable, there would be little substance to common ownership. If their every move were prescribed by rules, this would be an effective reversion to a fully centralised economy. So, by which criteria are the planning board to entrust society's capital to individual managers? At best the system would be one

> of quasi-competition where the persons really responsible will not be the entrepreneur but the official who approves his decisions and where in consequence all the difficulties will arise in connection with freedom of initiative and the assessment of responsibility which are usually associated with bureaucracy. (Hayek, 1949, p. 203)

For these reasons, Hayek dismisses as 'pure illusion' (Hayek, 1949, p. 203) the possibility that, in the absence of private ownership, competition might

nevertheless perform its allocative function. A price system with relevance to a dynamic economy is simply a contradiction of collectivism.

Hayek sets the boundary between a decentralised market economy and socialist central planning by one criterion; that is, where 'the question who is to exercise command over a given quantity of resources for the community, or with what amount of resources the different "entrepreneurs" are to be trusted … [is] … decided by one central authority.' This gives 'the smallest degree of central control which would still enable the community to retain command of the income derived from the material means of production' (Hayek, 1949, pp. 133–4). With anything less than this, the situation is one of state intervention in a market economy. While not socialism, state intervention is inherently mistaken, since every attempt to administer price ceilings or floors would be challenged by shortages or over-production. Such interventionism should not be confused with measures implemented by the state to improve the legal framework for effective competition. Market capitalism has need of rules, but of the kind that is centred upon no specific end. This is a critical distinction. Rules are necessary in order for those engaged in competitive rivalry to understand the basis upon which they operate. In such circumstances participants have no reason to apologise for their successes or to resent their failures. A legal framework is essential for a market economy to function; a definition of entitlements – 'property rights' – indicates that which is legitimate in the attempt to gain at the expense of a rival. Such rules are quite unlike those set in a socialist economy, where the purpose of rules is to replace individual initiatives with directions designed to take the economy towards preordained objectives.

The absence of any focus upon the responsibilities to replace the legal institution of private ownership might be explained by the wish of socialist economists no to stray beyond familiar territory. Instead, there is only an exposition of the principles for optimal resources allocation. Again, in parallel with the neoclassical approach, market socialist economists neglect all the political, legal, sociological and psychological aspects of the economic problem, so that the question of motivation in the absence of self-motivation is not addressed. So, there are serious doubts: that there could be sufficiently detailed articulation of the rules necessary to achieve a desired outcome; that plant managers could possess the kind of knowledge necessary to implement such rules; and that managers would have any incentive to follow the rules.

The equivalence that exists between the hypothetical decisions of an *omniscient* socialist planning board and neoclassical general equilibrium reflects the abstract unhistorical setting of the latter. This is seriously misleading. Institutions evolve through human interaction over time, so that they become the embodiment of more knowledge than could ever be recovered by any single individual. Social life is made possible only by an acceptance of conventions that give a secure basis upon which any individual might

devise a new plan of action. Institutions permit rational choices to be made in the absence of reliable knowledge of specific circumstances; and since '[t]hey help us to act sensibly beyond the bounds of rationality' (Loasby, 1989, p. 165) there can be no possibility of any rational appraisal of existing social institutions.

Even though it is a feature of the Austrian paradigm that 'elementary laws of value' are independent of social institutions, it is nevertheless the case that the role of social institutions in the economy (both of an organisational and of a spontaneous kind) receives explicit recognition. Together with the institution of money, those other institutions that have spontaneously emerged – most notably, of the law and of accountancy procedures – are crucially relevant to the coordination of economic choices. Social institutions that have evolved and survived have demonstrated their relevance to those who use them.

Freedom and the economic system

The Road to Serfdom, published in 1944, is the most widely known of Hayek's many books.[4] A sketch of its central argument six years earlier (in a short pamphlet whose title is the heading above) sets the book as a continuation of the socialist calculation debate. In regard to its potential to achieve a superior level of economic efficiency, the socialist case had been refuted. Socialism is a flawed economic system. The price mechanism is necessary to make efficient usage of dispersed and unarticulated knowledge and to incite the entrepreneurial process of discovery. Further evidence against the case for socialism is that new technologies give no bias towards the creation of large-scale monopolies; and although the supply of some commodities might benefit from compulsory standardisation, that immediate and ephemeral gain would compromise economic progress by confining future developments to a single standardised source.

With *The Road to Serfdom*, Hayek engages ethical considerations to buttress the case for a decentralised liberal market economy. Technical experts are the most likely to enthuse after planning, because many technical objectives are practically realisable (when they are made the sole objective) and because experts are confident of their ability to convince planning directors of the value of their particular objectives:

> [i]n our predilections and interests we are all in some measure specialists. And we all think that our personal order of values is not merely personal but that in a free discussion among rational people we would convince the others that ours is the right one. (Hayek, 1944b, p. 40)

Technical expertise can represent only a very limited view; and there is a dangerous short step from 'the saintly and single-minded idealist to the

fanatic' (Hayek, 1944b, pp. 40–1). The 'fundamental fact' upon which 'the whole of the philosophy of individualism is based' is that 'the limits of our powers of imagination make it impossible to include in our scale of values more than a sector of the needs of the whole society' (Hayek, 1944b, p. 44). Common action should, therefore, be restricted to fields where individuals can agree upon common ends, as in the case of a military strategy. In other areas, central control is rarely based upon majority agreement. More often it rests upon the largest minority.

Looking back upon the 'mess of things' produced during the first half of the twentieth century, Hayek's fear is that the lessons of the past would be lost to a generation yearning for change. The irony was that the post-Second World War clamour for a 'new order' was likely to produce more of the same. The gulf between the Western democracies and the excesses of Nazism was deceptively reassuring. While not imminent, there was a real 'danger of repeating' the experience of Germany after The Great War. For these reasons, Hayek takes the opportunity 'of one who still has the leisure for literary work' to produce an unashamedly political tract to warn that the forces that had been at work in Germany were gaining strength in the United States and the United Kingdom.

The emergence of totalitarian regimes in Germany, Italy and the Soviet Union was a feature of developments to which western democracies were also susceptible. These regimes were the culmination of a movement away from ideals that had served the advance of Western civilisation since the Renaissance and whose essential feature is the status of the individual: 'that is, the recognition of his own views and tastes as supreme in his own sphere … and the belief that it is desirable that men should develop their own individual gifts' (Hayek, 1944b, p. 11). In the twentieth century, however, the political freedoms and universal 'tolerance' that were 'capable of producing a complex order of economic activities', had had become the victims of totalitarian government. The slide from the principles of nineteenth-century liberalism was barely perceptible in the United Kingdom until 1931 when 'the country finally took a headlong plunge and, in the short space of the inglorious years 1931 to 1939, transformed its economic system beyond recognition' (Hayek, 1944b, p. 9, fn). The deep economic malaise of the 1920s and 1930s had exposed many faint hearts. In economics, well-constructed theory was abandoned in response to a siren appeal for social justice while, in politics, there was an 'increasing similarity between the economic views of the Right and Left in their common opposition to the Liberalism that used to be the common basis of English politics' (Hayek, 1944b, p. 135). Ideas from which totalitarianism emerges were rapidly spreading. Traditional morality, based upon abstract general principles and with recourse to individual human conscience as its final court of appeal, was losing out to expediency.

The developments that arose from forces that had been at work in Germany, and which Hayek fears might be repeated, were traced to one specific phenomenon. This is the single direction of the thrust of organised capital and labour in their joint support for 'the monopolistic organisation of industry'. With the continued growth of such an aggregation of power, it is inevitable that the state should take an ever-increasing interest and influence. The ultimate extreme of this development is a totalitarian dictatorship, where the distinction between socialist and fascist disappears: '[t]o both the real enemy, the man with whom they had nothing in common and whom they could not hope to convince, is a liberal of the old type' (Hayek, 1944b, p. 22).

Hayek recognises a general regeneration of constructivist rationalism, in which socialism promises economic freedom in the form both of material increases in wealth and of an equality between individuals 'in the range of choice' and in the distribution of wealth. Political freedom – from coercion, from the arbitrary power of men – that had been gained over the centuries, was deemed to be worthless without economic freedom; that is, freedom from the deficiency of means that limits choice. So, there was a reinterpretation of the meaning of freedom:

> [t]he so called economic freedom which the planners promise us means precisely that we are to be relieved of the necessity of solving our own economic problems and that the bitter choices which this often involves are to be made for us. (Hayek, 1944b, p. 69)

Liberalism was more and more represented as a negative creed because of its reliance upon slow evolutionary progress. The pace might be quickened. The means and the promised solution to economic ills required that the spontaneous forces of the free society should give way to a conscious implementation of social policy.

For those who would see, it is clear that the collectivisation of power – which is inevitable under socialism – is inimical to the democratic system. The imposition of a totalitarian regime requires a uniformity of interests which is practicable only within a small group in which an individual wins respect by his efforts towards common ends. So, the collective can extend only as far as the unity of purpose; and group cohesion is strengthened by a sense of superiority over outsiders. The inherent contradiction of the collectivist philosophy is that *international* socialism remains theoretical; and that, where practised, socialism is violently nationalistic: '[c]ollectivism has no room for the wide humanitarianism of liberalism but only for the narrow particularism of the totalitarian' (Hayek, 1944b, p. 105).

It should cause no surprise that benevolence is not a characteristic of centrally planned economies. Sooner or later a planner is confronted with the

choice of abandoning the plan or assuming dictatorial powers; and the latter is a choice more readily adopted by the unscrupulous. In both Germany and Italy, the Fascists were quick to remedy the reluctance of socialists to dictate. Hayek cites three reasons why a 'strong group with fairly homogeneous views is not likely to be formed by the best but rather by the worst elements of any society' (Hayek, 1944b, p. 102). These are

1. the higher the level of educational attainment, the greater the diversity of views;
2. the docile and gullible are most easily swayed by rhetoric;
3. the ease of obtaining agreement on the negative programme of hatred of the outsider.

In its initial stage, the process by which totalitarianism destroys the market system shows in the corporate organisation of industry, with control in the hands of independent monopolies. This 'is the inevitable first result of a situation in which the people are united in their hostility to competition but agree on little else' (Hayek, 1944b, p. 30). However, once the consumer is at the mercy of a monopoly of capitalists and workers, it is considered necessary for control to be exercised by the state and to be made progressively more complete and detailed.

Where the division of labour is extensive, (almost all) economic activity is part of a social process. Under these circumstances, it follows that economic planning must imply (almost total) social control. When the state takes over the means of production, there is much more than a transfer of power. Rather, a new power is created which formerly did not exist. When power is dispersed, no one can determine the income or position of particular individuals so that, although a poor child is less likely to obtain great wealth than a child of wealthy parents, only the competitive system leaves the outcome dependent upon himself rather than upon the favours of the mighty:

> [t]here will always exist inequalities which will appear unjust to those who suffer them, disappointments which will appear unmerited, and strokes of misfortune which those hit have not deserved. But when these things occur in a society which is consciously directed, the way in which people will react will be very different from what it is when they are nobody's conscious choice. (Hayek, 1944b, p. 79)

Now while democracy is a device for safeguarding both the civil peace and individual freedom, unless it is guided by fixed rules it can become an arbitrary power.

It by no means inevitable that a dictatorship should destroy freedom. Indeed, it is possible for a dictatorship to confer more cultural and spiritual

freedom than a democracy. The point is not that dictatorship leads to planning. Rather, it is that planning leads to dictatorship, because dictatorship is the most effective instrument with which to enforce the plan. From a consensus that planning is necessary and from the inability of a democratic assembly to agree upon a plan, there arises a demand for delegation: for power to be given to an authority to make (arbitrary) decisions. Here is the serfdom. Once it becomes centralised as an instrument of political power, economic power creates a dependency that is 'scarcely distinguishable from slavery' (Hayek, 1944b, p. 108).

It is the function of centralised planning to weigh one set of interests against another so that, in the end, the chosen set prevails and becomes imposed upon all of the people. In contrast, the rationale of the rule of law is that the government is bound by rules, such that individuals know the limits of the state. In every other respect, constrained only by the rule of law, individuals are free to organise their own affairs. It is very important that the state should remain in ignorance of the consequences of the rule of law; for if it knows (or insists upon knowing) the outcome of its action, the law ceases to be an instrument to be used by the people and becomes an instrument to be used upon the people.

Liberalism under the rule of law falls far short of complete *laissez-faire* and may have to live with some ambiguities. When, for example, the state controls weights and measures (and defines fraud) or when it administers building and factory regulations, the measures taken may turn out to have been unwise but, if they are generally applicable and intended to harm no particular individuals, they are not illiberal. In practice, the immediate effects upon certain individuals may be known but, providing these are of secondary consideration and providing the long-term effects are unforeseeable, the liberal principle is upheld. However, where the immediate and predictable effects upon specific groups of individuals are important, the situation is less easily resolved. In practice, there may arise many difficult cases where there is no sharp boundary between universal and particular effects.

On other issues, judgement is clear-cut. For example, foreign exchange control is 'the decisive advance on the path to totalitarianism and the suppression of liberty', because it is the means of restricting foreign contact to those who meet official approval. Here is the explanation for Hayek's frequent return over many decades to the practical problems of guiding monetary policy. Currency controls are 'the complete delivery of the individual to the tyranny of the state' (Hayek, 1944b, p. 69). In a still wider consideration, no higher price has been paid for the abandonment of liberalism, than in the field of international relations. Mindful, perhaps, of the call from Keynes, for a 'policy of an autonomous rate of interest, unimpeded by international preoccupations, and of a national investment programme'

(Keynes, 1936, p. 349), Hayek warns that there 'is little hope of international order or lasting peace so long as every country is free to employ whatever measures it thinks desirable in its own immediate interest' (Hayek, 1944b, p. 163). International relations must be permitted freely to exist between individuals rather than nations, unless they are to become 'the source of friction and envy'. The protectionism that continues to pervade the trading relationships between sovereign states is indicative of the lessons still to be drawn from the socialist calculation debate.

7
Neutral Money and Monetary Policy

> The notion of a monetary economy as distinct from a barter economy with money is still a challenging one.
>
> (Desai, 1982, p. 169)

Neutral money

A reliable monetary system is indispensable to an extended division of labour, which is the basis for economic advance. In facilitating exchange, money releases man from a close dependence upon nature and upon the narrow confines of local markets; but it forces an individual to rely upon the entrepreneurial success of other individuals: upon 'human effort that we cannot know about or control' (Hayek, 1988, p. 90). This is indeed 'unnerving'. Price signals are the means of communication for billions of interactive participants within an extended economic order, whereby the delicate balance between over- and under-production is maintained by continuous readjustments. It is vital that those signals should not be corrupted by extraneous influences or swamped by the inflationary impact of monetary expansion. It might appear curious, therefore, that Hayek should remain true to his early conviction of the *wrongness* of the (widely held) view that price stability should be the objective of monetary policy.

While Hayek accepted the general content of the traditional quantity theory of money, he was sharply critical of the interpretation that money affects individual prices only *via* its influence upon the general level of prices. The first formulations of his counter-arguments were published in German in 1929, with their English translation appearing as *Monetary Theory and the Trade Cycle* in 1933. In a series of four lectures at the LSE – published in 1931 as *Prices and Production*, with a revised and extended edition in 1935 – Hayek sought to show the magnitude of the 'task of monetary theory', which he saw as 'to cover a second time the whole field which is treated by the pure theory under the assumption of barter' (Hayek, 1935b, p. 127). These and

later publications show the development of Hayek's monetary theory as a quest for the Holy Grail of neutral money; that is, for a monetary policy regimen that creates no impediment to the 'voluntary decisions of individuals'.

The concept of neutral money

The concept of neutral money was a term first used by Knut Wicksell,[1] but it was given no technical precision. Subsequent usage was sufficiently loose for neutrality to be seen as the guiding principle for monetary policy. Here is the source of the 'widespread illusion that we have only to stabilise the value of money in order to eliminate all monetary influences on production' (Hayek, 1935b, p. 126). According to Hayek's interpretation, neutral money.

> refers to the set of conditions, under which it would be *conceivable* that events in a monetary economy could take place … as if they were influenced only by the 'real' factors which are taken into account in equilibrium economics. (Hayek, 1935b, p. 130)

With the meaningful objective of neutralising monetary influences, the essential consideration is the impact that money can have in disturbing the structure of *relative* prices. Hayek emphasises that monetary disturbances affect real sectors of the economy through induced changes in relative prices and the rate of interest; and he focuses upon forced saving as the mechanism by which this occurs. (These aspects receive a detailed discussion in Chapter 9.) In the presentation of this analysis, Hayek's four LSE lectures had been a sensation 'for their revelations of an aspect of classical monetary theory which for many years had been forgotten' (Robbins, 1971, p. 127) and Hayek's appointment to the Tooke Chair of Economics was announced later in that same year. Soon after his appointment, the first challenge (of surprising ferocity) emanated from the University of Cambridge. London's enthusiasm for Hayek's work had not been matched by his reception at Cambridge.

In advance of his LSE lectures, Hayek had 'completely bewildered' (Kahn, 1984, p. 182) his audience by his presentation of a condensed version in a paper to the Marshall Society (see Chapter 9). More generally, economists at Cambridge reacted badly to Hayek's arrival: '[p]ossibly wrongly but in Cambridge we had the impression that the intention was to set Hayek up as an idol to serve as an antidote to Keynes' (Kahn, 1984, p. 181).[2] Certainly a drama unfolded in the ensuing five years. Keynes asked Cambridge's Piero Sraffa to review Hayek's *Prices and Production* for the *Economic Journal*. At virtually the same time, Lionel Robbins invited Hayek to review the two volumes of Keynes's *Treatise on Money* for *Economica*. Hayek's two-part review article, which appeared in August 1931 and February 1932, was highly critical of Keynes for the concentration upon purely monetary effects to the

neglect of the structure of production processes:

> Keynes' reply to the first half of Hayek's review appeared, together with Hayek's rejoinder, in the November 1931 issue of *Economica*. This exchange led to a heated correspondence between Keynes and Hayek from December 1931 to February 1932, of which eleven letters survive, including a letter from Hayek to Keynes on Christmas day with a reply the same day. (Dimand, 1988, p. 57)

However, the full salvo of the Cambridge response came with Sraffa's offensively hostile review article, published in March 1932. Hayek's reply appeared in June, alongside Sraffa's rejoinder. Thereafter, others joined the fray, including Ralph Hawtrey, A.C. Pigou and Dennis Robertson; and between 1932 and 1936 Hayek produced a further ten articles on the subject.

Although Sraffa accepted the validity of Hayek's emphasis upon 'the relative prices of commodities', he wanted to impose the condition that 'money itself is one of the commodities under consideration' (Sraffa, 1932a, p. 44). Although misconceived, this proposal provides a useful insight because, if Sraffa's requirement were met, the precept of neutral money would become meaningless. If money were a commodity, it could not be neutral. The crucial point is that, as a definitional characteristic, money has no intrinsic value. Otherwise, there is confusion between the essential (token value) and the non-essential (commodity value) aspects of money. Money, *per se*, cannot be a commodity. Yet, in one other important sense, money *is* like any commodity in that it has no *general* value. Under barter, economic significance attaches only to the constantly changing price relativities of commodities. Just as there is no meaning to the general value of a commodity so, too, for money, the concept of 'a general value … conceived as the reverse of some price level' (Hayek, 1935b, p. 29) is a distraction. This is the nub of Hayek's concern with the traditional quantity theory and (much later) of his concern with modern Monetarism.

According to Sraffa's reading of *Prices and Production*, neutrality is achieved by keeping constant the MV of the quantity theory (Sraffa, 1932a, p. 43), but it is an incorrect reading. While this is Hayek's recommendation for the exercise of monetary policy, he does not argue that the rule would ensure neutrality. If it were that simple, the impact of monetary policy might be more easily assessed; but the neutrality of money is unlikely to be empirically verifiable. Neutrality is a theoretical concept; and a theory of neutral money seeks to identify conditions that can set in motion those 'tendencies towards a stage of equilibrium which are described by general economic theory' (Hayek, 1935b, pp. 130–1). This is no simple stratagem; there is no 'maxim which is immediately applicable to the practical problems of monetary policy' (Hayek, 1935b, p. 129). Moreover, as an ideal, it competes 'with other

important aims of monetary policy.' In particular, it may prove opportune to compromise the aim of neutrality with that of avoiding 'excessive frictional resistances' (Hayek, 1935b, p. 131) in the real economy.

The objectives of monetary policy

The principle objectives of monetary policy are: (1) the greatest possible realisation of the forces working towards a state of equilibrium; and (2) the avoidance of excessive frictional resistances.[3] In regard to the first objective, market prices have the twin function of serving (as equilibrium prices) to provide information on relative scarcities and (as disequilibrium prices) to signal opportunities for entrepreneurial initiative. This means that neither can be done perfectly (see Chapter 5). Furthermore, when considered together, the two objectives can 'be realised only alternatively' (Hayek, 1935b, p. 131). For example, if long-term contracts were set in terms of money, and if monetary policy were tightly bound by the precepts of neutrality, undesirable frictions might be exacerbated. In particular, the existence of long-term contracts might give rise to differences between 'actual' and anticipated future price levels. Even if a long-term contract were to be agreed at a set of equilibrium prices, it is virtually certain that these would cease to be equilibrium prices before the termination of that contract.[4] In general, considerations of this kind could constitute a serious impediment to allocative efficiency:

> [i]t is quite conceivable that a distortion of relative prices and a misdirection of production could only be avoided if, *firstly*, the total money stream remained constant, and *secondly*, all prices were completely flexible, and, *thirdly* all long term contracts were based on a correct anticipation of future price movements. This would mean that, if the second and third conditions are not given, the ideal could not be realised by any kind of monetary policy. (Hayek, 1935b, p. 131)

The prerequisite for a 'functioning economy' is price and wage flexibility. In the early days of the Great Depression, Hayek had believed that a short period of deflation would deliver the beneficial effect of breaking the rigidity of wages; but this view changed to the more emphatic position that 'there is no justification for supporting or permitting a process of deflation'. In particular, positive intervention by the monetary authorities could bring advantages 'in the later stages of a depression' when 'deliberate attempts to maintain the money stream' would be justified to counter the 'cumulative process of secondary deflation' (Hayek, 1975a, p. 5; see also Hayek, 1978b, p. 210).

While there are no monetary policy guidelines to guarantee money neutrality, the last of Hayek's LSE lectures itemises the considerations behind the policy recommendation that the 'amount of payments' (i.e., MV) 'should remain invariable'. The checklist covers most of the issues that were later to

emerge as central in the subsequent discussion of monetary economics, from Keynes's *General Theory* through to the post-Monetarist era of the 1990s:

1. Despite special difficulties arising from the 'notorious rigidity of wages', the overriding need is to avoid 'misdirections of production'; and so, money should not be varied with production. Rather, individual prices should fall in proportion to individual increases in productivity.
2. Adjusting the amount of money in circulation, to levels that keep the average of prices constant, would not ensure that money could 'exert no active influence on the formation of prices' (Hayek, 1935b, p. 108). *Prima facie*, Hayek suggests that the money supply should be kept constant.[5]
3. The quantity of money in an open economy is liable to fluctuations, which raises practical difficulties for the policy objective of a constant circulation.
4. The traditional Banking School case that money in circulation responds to the needs of trade more specifically relates to the varying provision of different *forms* of money; but, with a comprehensive definition of money to include all forms of credit and other money substitutes, a response to the needs of trade implies no necessity for a 'change in the total quantity of the circulating medium' (Hayek, 1935b, p. 113).
5. Although beyond official control, changes in the volume of money substitutes have the same impact as changes in the amount of money proper. While commercial credit rests upon the expectation of its convertibility into other forms of money, its flexible provision shows that monetary policy need have no direct concern to respond to the varying needs of trade.
6. The credit system is akin to an inverted pyramid. The lowest part corresponds to cash; the next tier to central bank credit, followed by commercial bank credit and commercial credit. Only with respect to the first two (or three) tiers could there be direct official control. Ratios between different credit forms can change so that, even if the credit base remains constant, the total volume of exchange media could rise and fall. To achieve a constant circulation of all media of exchange would require intricate counteraction with respect to the credit base.
7. Although changes in the proportion of money transactions to the total flow of output (the coefficient of money transactions) suggest corresponding changes in the money supply, this depends upon whether or not an absence of corresponding changes would lead to unwarranted changes in the structure of production.
8. Changes in the demand for money caused by changes in the coefficient of money transactions would justify corresponding changes in the money supply.
9. Any changes in the velocity of circulation would be equivalent to a change in the money supply, and 'would have to be compensated by

a reciprocal change in the amount of money in circulation if the amount of money is to remain neutral towards prices' (Hayek, 1935b, p. 124).

10. Not only would it be necessary for changes in the money supply to be precisely tailored to changes in velocity, it would also be necessary to confine adjustments precisely to those areas where change is required; that is, to the location of the original changes to velocity. Clearly a high degree of omniscience is a prerequisite for neutral money; from which the only practical maxim … is probably the negative one that the simple fact of an increase of production and trade forms no justification for an expansion of credit, and that – save in an acute crisis – bankers need not be afraid to harm production by over-caution. (Hayek, 1935b, p. 125)
11. Conditions under which money would remain neutral 'will never be given in the real world'.

In the absence of secure guidelines for a neutral money regimen – 'all money at all times … [is] … a kind of loosejoint in the otherwise self-steering mechanism of the market' (Hayek, 1960, p. 325) – monetary authorities might nevertheless reasonably look for some indication of the existence of obvious pitfalls. Here, Hayek is able to show how these are related to monetary expansion, which is likely to direct capital investment into inherently non-viable areas, both as a consequence of a change in the rate of interest and as a consequence of a change in relative prices (see Chapter 9). An unwarranted monetary expansion has the potential to cause economic waste and unnecessary human misery.

The natural rate of interest

If money were neutral in its effects, the market rate of interest would be equal to the 'natural rate' as set by saving and the demand for loanable funds. Hayek argues that Knut Wicksell is the source of the widely held but erroneous belief that, with the rate of interest always at its natural rate, the general price level would be stable (for example, see Keynes, 1936, p. 242). Hayek contends that this would only be the case if saving were zero. However, if there were positive levels of saving and investment, the result would be a cumulative expansion of productive capacity so that, without an accommodating expansion of money, commodity prices would be pushed ever lower. So, if monetary policy were set to stabilise prices, it would be necessary to match the expansion of production with an increase in money in circulation; but this provision of new money would also have the effect of pushing the market rate of interest below the natural rate: '[t]he banks could *either* keep the demand for real capital within the limits set by the supply of savings, *or* keep the price level stable; but they cannot perform *both*

functions at once' (Hayek, 1935b, p. 27). Hayek's conclusion was that monetary policy could be effective in the control of either the rate of interest or the money supply, but not both. So, even if the precise stability of some aggregate price index were achieved, a policy of monetary expansion could not be neutral. The detail of Hayek's analysis of the disruption caused – and of the cumulative implications for the structure of production – are examined in Chapter 9. Here forced saving has a key role; and it occurs because monetary expansion pulls the market rate of interest below the natural rate.

Forced and voluntary saving

In an economy in which resources are fully utilised, additional investment can take place only if a smaller proportion of current output is consumed; that is, if there is an increase in saving. However, if *new* credit were taken up primarily to finance investment expenditure, resources would be redirected from the production of consumption goods to the production of investment goods, *without* any prior increase in voluntary saving. Even though resources are fully utilised, saving must nevertheless occur. It would be forced saving: a consequence of the production of fewer consumption goods. Initially, the full impact might be hidden by the depletion of stocks of consumption goods but, eventually, shortages would cause prices to rise, thereby reducing the spending power of all, except those with access to new credit. (As a concept, forced saving had very early origins, and it received close attention from writers during the eighteenth and nineteenth centuries.)

It is a crucial characteristic of Hayek's monetary theory of business fluctuations that developments brought about by forced saving cannot be sustained. Thus, in reviewing the first edition of *Prices and Production*, it is a fundamental criticism for Sraffa to have argued that there is no difference between the impact of a change in voluntary saving and the impact of monetary expansion. According to Sraffa, the effects of monetary expansion could not be undone. Rather, it is simply that

> [o]ne class has, for a time, robbed another class of part of their incomes; and has saved the plunder. When the robbery comes to an end, it is clear that the victims cannot possibly consume the capital which is now well out of their reach. (Sraffa, 1932a, p. 48)

That this point is effectively repeated –

> [m]y simple-minded objection was that forced saving being a misnomer for spoliation, if those who had gained by the inflation chose to save the spoils, they had no reason at a later stage to reverse the decision. (Sraffa, 1932b, p. 249)

– indicates a failure to appreciate Hayek's intervening remarks to the effect that, although there would have been no physical change, the value of

capital would have been diminished as an unavoidable consequence of monetary expansion:

> [i]t is of very little use for the machine manufacturer to hold tight to his capital goods when the producer who used to buy the machines is either unable, or finds it unprofitable at the higher rate of interest, to do so now. (Hayek, 1932c, p. 240)

It is most likely that Sraffa found the point obscure: only when the full extent of the heterogeneity of capitalistic methods of production is given explicit consideration, does the nature of the change in incentives and of their impact upon investment decisions become apparent. Although *Prices and Production* had begun to reveal this complexity, more precision and greater clarity were needed.

Keynes: the added dimension

That Keynes (as *Economic Journal* editor) should both allow the strident expression of Sraffa's criticism and then interject to counter a point made by Hayek (see Hayek, 1932c, p. 249, fn 1) suggests some greater involvement. The effects of chronic unemployment and the deep world recession had brought purely political considerations to the fore. It made strange bedfellows of Keynes and Sraffa who, from quite different personal convictions, were antagonistic to the view that free markets and non-intervention offered the most likely route to sustainable prosperity.

Only a short time earlier, Hayek's critical review of Keynes's *Treatise* had been countered by the promise of a revised position; but Keynes's preparation of *The General Theory* was leading to a position where he, too, would deny the relevance of forced saving. According to Keynes, there is no robbery, because this saving is 'as genuine as any other saving' (Keynes, 1936, pp. 82–3). In the context of *The General Theory* – both in regard to its 'multiplier' process and to the assumed abundance of unused resources – the necessity for *prior* finance in order that investment expenditure should take place did not arise. Such fanciful distractions had no place within Hayek's theoretical framework: 'the assumption that all goods and factors are available in excess makes the whole price system redundant, undermined and unintelligible' (Hayek, 1972, p. 103).

Monetary expansion is undesirable because of the implications of a divergence between the natural and the market rates of interest. There was no general appreciation of the full repercussions of monetary adjustments. Rather, too much had been shouldered upon monetary policy, especially during the interwar period: '[t]he same superficial view which sees no other harmful effect of a credit expansion but the rise of the price level, now believes that our only difficulty is a fall in the price level, caused by credit contraction' (Hayek,

1933a, pp. 18–19). While it is true that deflation can cause great harm and that it is a general feature of recession, deflation is usually not the original cause of recession; nor in its reversal, 'by forcing more money into circulation', could monetary policy lead the way to lasting prosperity.

The use of monetary expansion to lift an economy from depression is certain to exacerbate both its severity and duration. When the requirement is for industry to liquidate maladjustments created during a period of excessively rapid business growth, credit expansion not only helps to sustain structures that are unsustainable, it gives further encouragement to unwarranted structural developments. Moreover, this damage can be augmented by other measures (such as trade barriers) designed to protect an inherently non-viable investments. However, it is important to remember that deflation can exist as a secondary phenomenon, induced by 'the maladjustments of industry left over from the boom … an effect of the unprofitableness of industry' (Hayek, 1933a, p. 19). An appropriate measure to diminish the impact of 'secondary depression' is to provide 'employment through public works at relatively low wages so that workers will wish to move as soon as they can to other and better paid occupations' (Hayek, 1978b, p. 212).

Specifically, Hayek alludes to events prior to the Great Depression. In the booming US economy (up to 1927) prices had not risen and there was every reason to suppose that the recession that was bound to follow would be exceptionally mild. That this was not so is attributed to the deliberate action of the US authorities who succeeded, by means of an easy-money policy, inaugurated as soon as the symptoms of an impeding reaction were noticed, in prolonging the boom for two years beyond what would otherwise have been its natural end. And when the crisis finally occurred, for almost two more years, deliberate attempts were made to prevent, by all conceivable means, the normal process of liquidation (Hayek, 1935, p. 162).

The delicate balance between levels of production, investment expenditure and the composition of heterogeneous capital stock, is easily disrupted by monetary measures. Once disturbed, processes are set in motion such that men and machinery are deployed across sectors of the economy in patterns that cannot be sustained as part of a new dynamic equilibrium. The nature of capital, and the incentives for expenditure upon various kinds of capital investment, must be understood in order to appreciate the full extent of the havoc that can result from monetary mismanagement. These are the topics to be covered in the next two chapters.

8
Capital

> The notion that the problems of capital are problems of the necessity for time to elapse between effort and result in production is, at its first impact, arresting in its suggestion of simplicity and power. The advancement and secure founding of knowledge demanded imperiously that this conception should be examined by a powerful mind with dedicated zeal and object thoroughness. To have done this once and for all is Hayek's very great achievement.
>
> (Shackle, 1981, p. 253)

> Like so many things … which I have attempted in economics, this capital-theory work more shows a barrier to how far we can get in efficient explanation than sets forth precise explanations.
>
> (Hayek, 1994 p. 142)

Capital as a factor of production

Factors of production are necessary as inputs in order to produce outputs of commodities (i.e., final consumption goods). The definition of a factor of production is 'anything which can serve as an input into the productive process when that is taken as a whole' (Hicks, 1983b, p. 121). Capital meets this definition because it can be shown to have an impact upon 'the time-shape of the flow output' within a fixed period of time and, thereby, upon the total volume produced. A capital investment presents itself as an opportunity to have fewer commodities in 'present' periods in order to benefit from more commodities in 'future' periods:

> [i]t could happen that on the faster growing path, the total of output … when it is taken over the whole period, is greater than it is on the slower path. The faster path, therefore by sacrificing some earlier outputs, has substituted later outputs which are larger. So looking at the total of

> production over the whole period, there is on the faster path an increase in production. … To what is it to be attributed? We have to invent a factor of production to which to attribute it. … Senior called it Abstinence; Marshall and Cassel called it Waiting; Böhm-Bawerk Roundaboutness; Barone and Wicksell just Time. (Hicks, 1983b, p. 125)

In short, a production method that is 'capitalistic' or 'roundabout' is one that sacrifices some jam today in order to have more jam tomorrow (see Figure 9.6 and the associated discussion). in Hicks's terminology, production increases as the consequence of an 'inter-temporal switch in output'. The nature of the productivity gained from the use of roundabout production methods – and Hayek's part in its theoretical underpinnings – is closely examined in this chapter.

The idea of capital as a *durable* factor of production is popularised by the neoclassical schema. The marginal analysis of modern microeconomics presents a theory of production such that, with given technology (a 'production function' that relates output to inputs of capital and labour), factor productivities, hiring costs and the level of activity, there exists an optimum combination of capital and labour. In the 'short run' capital is fixed, so that variations in production are determined by variations in the input of labour. Although neoclassical theory views capital as (durable) plant and machinery, the resources and the time required to build machines is not discussed. Instead, there is either short-run analysis where capital is immutably fixed or long-run analysis where the combination of capital and labour and the level of output have already been optimally adjusted to relative factor prices and to the technical parameters of the production function. These are the familiar textbook details that derive from the (implausible) assumptions that inputs of capital and labour are unambiguously quantifiable, independently priced and readily substitutable.

Within the Austrian framework, capital comprises a stock of *non-permanent* factors of production, that takes time to produce and that provides a flow of output over a finite period. The use of capital implies a 'roundabout' production method that can be structured to take more, or less, time. Within the Austrian framework, it is of the *essence* that time is required to 'produce' capital and that the process of producing commodities degrades that capital. If part of the output from a roundabout production method is set aside to cover amortisation, capital can be replaced; but non-permanency is the key definitional characteristic.[1] An important implication is that, when the cost of hiring labour increases so, too, does the cost of producing machines. So, the neoclassical notion of substitution between capital and labour in response to changing factor-price ratios is no longer straight-forward.

Commodities are produced using many different inputs (machinery, buildings, transport and even commodities themselves) that may be used up long before the commodities being produced are completed. All of these

constitute capital, since each is a non-permanent asset that contributes *indirectly* to output at some future date; and each is used only if its gross returns are expected to cover amortisation and to leave a competitive net yield. This theoretical definition of capital draws heavily upon business usage; that is, from the requirement in business to distinguish 'the 'substance' of an asset (which has to be replaced) from its yield; that is, for dividing gross returns between amortisation and interest' (Hayek, 1941, p. 89).

The terminology 'working capital' is employed in order to distinguish work-in-progress (that is, final goods that are only part complete, or complete but not yet sold). Alternatively, working capital is regarded as a subsistence fund from which to pay wages before products are completed and sold. Working capital is also used to signify that part of the capital stock that is turned into final goods during the current period. More generally, the classification of capital rests upon its remoteness from its ultimate transformation into final goods; this remoteness underlies all roundabout methods of production. Working capital is less remote than durable forms of capital in that it is 'liquidated' after a relatively short period of time.

Investments in durable goods – those which are 'not destroyed in a moment by a single act of use' (Hayek, 1941, p. 78) – constitute a subcategory of capital; and a further distinction is drawn between durable goods that have a life of fixed length, irrespective of use, and those with a life that varies in proportion to the intensity of its use. Although pure forms of each may be hard to find, Hayek cites buildings and machinery as illustrations of each type respectively. Often there may be little choice but to accept durability as a characteristic of a particular capital investment. The difficulties in manufacturing a hammer, that is capable of driving only a single nail into wood, can be imagined. While it might be technically possible, the cost of producing the one-blow hammer would be certain to exceed the value of this task. In many circumstances, there may be no viable alternative to the use of durable capital; and, though it may become redundant in its initial use, capital is not *fixed* if it can be used in some alternative process.

However durable capital is, it is never fixed in any absolute sense. Amortisation funds may be redirected, so there is always a potential to switch capital between different uses; and the degree of mobility will vary depending upon the flow of returns in its current use and the period and magnitude of the flow in its alternative use. However, a major difficulty in following the consequences of such change is that the transfer cannot be achieved in isolation of associated changes within complex inter relationships.

Austrian capital theory

The concepts of a 'produced means of production' (that is associated with the labour theory of value) and of a 'fixed factor of production' (found in the neoclassical approach) rely upon a static context for evaluating the use of

capital. There is a grey uniformity to events past, present and future. By contrast, Austrian economics *assumes* a world of flux where, although the history of a particular resource (and the amount of labour effort that it embodies) is irrelevant, important decisions relate to how that resource might be used (and the determination of its value) in the face of an uncertain future. The origins of the Austrian theory of capital are to be found in Menger's *Grundsätze*. The theory was further developed in the 1880s, by Böhm-Bawerk, and in the 1930s by Hayek.

Capital is involved in all but the most rudimentary of production methods. Böhm-Bawerk defines a unit of output as the outcome of a sequence of inputs, each of which provides a necessary contribution to that output. In that context, capital can be uniquely 'assigned' to a given product, so that (for this special case only) the approach is entirely compatible with an equilibrium cost of production theory of value. Production within an unambiguous sequential industrial hierarchy, together with the Austrian idea of roundabout (as against direct) methods of production, was the typical theoretical approach up to the 1920s. Until then, Hicks suggests that economists had not conceptualised the economic system as a *network* of industries cross-trading with each other, in the manner later stylised by Wassily Leontieff as input-output analysis.[2] At Hayek's LSE seminars in the 1930s, Hicks (1983c, p. 98) recalls some unease over Hayek's use of Austrian theory in regard to durable capital.

According to Hicks, Hayek thought that 'fixed capital could be 'reduced' to working capital; but it has now become quite clear that this cannot be done' (Hicks, 1983c, p. 98). Although Hicks rightly suggests that, with joint supply, a cost of production theory of value is unachievable, Hayek demonstrates (*The Pure Theory of Capital*, 1941) how Austrian theory accommodates complex interdependences within the structure of a modern capitalist economy. Thus, whatever the impression left by his LSE lectures, Hayek did examine the issues raised by durable, non-permanent resources, concluding that 'there can be little doubt that under modern conditions the much more important role is played by durable goods' (Hayek, 1941, p. 126).

The Ricardo effect

The 'Ricardo effect' is central to the decision to use more, or less, roundabout methods of production. According to the labour theory of value, relative prices are determined by the different amounts of labour required to produce each product. In the early years of the nineteenth century, David Ricardo argued that this could not be true if capital were used. The reason is that a machine – capable of the same output (by a roundabout method) as that produced by (the direct method of), say, one hundred man-years – must embody fewer than one hundred man-years of work. If this were not so, there would be no reason to use the machine. As a corollary, an increase in wages must

raise the cost of one hundred man-years by a greater amount than it raises the cost of a machine that can produce the same output as one hundred man-years.

The Ricardo effect relates to the impact of an increase in wages, which is to encourage *both* the substitution of machines for men *and* a fall in the price of machine-produced goods in relation to those produced 'directly' by men (see Moss and Vaughn, 1986, p. 550). In reverse, the Ricardo effect would be triggered by a rise in the price of consumption goods that reduces real wages, in which case men would be substituted for machines (as direct production methods become relatively more profitable than roundabout production methods).

The yield from capital investment

Capital is used because it has the potential to raise production to levels above those reached by direct methods. How is this achieved? What is the source of this improvement? Hayek argues that the yield from the use of capital comes from the manner in which techniques, resources and raw materials (the use of which would otherwise prove non-viable) are drawn into the production process. Investments *create* economic resources out of non-resources; and that released potential can generate still further opportunities. An illustration may serve to clarify.

A farming community has the potential of waterpower close to hand, but decides not to forgo production (and consumption) of foodstuffs over the period necessary to build a waterwheel and a mill house. Sites upon the banks of the stream remain a non-resource; and, even if the community begins to set aside foodstuffs to allow for the construction of its first mill, some time may elapse before development raises such sites to the status of a scarce resource. Only when all potentially useful sites are occupied would a further increase in demand allow riverbank sites to earn economic rents.

In its time, the realised potential of waterpower makes it possible to draw into production other factors that would otherwise remain uneconomic. So, in the earliest stages of instigating roundabout methods of production, 'investments' constitute 'only the services of those resources which might also have given an immediate return' (Hayek, 1941, p. 63), so that there is a reduction in current output; but the yield on roundabout methods comes from drawing latent resources into the production process. As this happens, formerly non-resources contribute to the current level of consumption and the opportunity then arises of combining these within still more roundabout methods. Should this happen, there is an another postponement of consumption; and so,

> as investment proceeds more and more of those natural resources which were only potential resources are utilised and gradually drawn into the

> circle of scarce goods, and have in their turn to be counted as investments. (Hayek, 1941, p. 64)

The ultimate yield of any particular investment is determined by many factors and relies upon decisions taken by *others*. The income of future customers and the composition of their expenditure depend upon anticipations for the period ahead, and success is determined by how well each production plan fits within the structure to which all plans contribute. The outcome is an evolutionary process, in which each change provokes re-assessment, revision and still further change.

The latent potential of non-resources – that is, non-economic non-productive 'factors' – has been represented as 'a long-forgotten argument' with which 'Hayek parts company … with several other prominent Austrian writers, whose yield theories put heavy emphasis on time preferences as opposed to capital productivity' (Garrison, 1995, p. 1235). However, there is no argument here that cannot be reconciled with the different emphases that are possible. The vital need for continuing sustenance determines: (1) the lowest value which can be set for intertemporal preferences (the discount rate); (2) the maximum rate of input into a wages fund; and (3) the maximum rate of capital accumulation. All are inextricably tied. If 'choice' sets intertemporal preferences above the minimum vital level, capital accumulates at below the maximum attainable rate. So, choice (time preference) influences capital's productivity. Yet, capital's inherent benefits can influence that choice: if jam promised for to-morrow is sweet enough, more of to-day's consumption will be postponed.

The diversity of capital

There is a variety of incentives to provide capital for the production of final goods in the near and distant future. For example, there may be a simultaneous need to provide a new ferry for next year and a bridge to be ready five years hence, when the ferry may (or may not) be rendered obsolete. Many different circumstances encourage different entrepreneurs to undertake shorter- or longer-term investments. Against a limitless range of possibilities, the most important consideration concerns complementarities and compatibilities as the capitalistic structure of production develops continuously in the face of changing opportunities and incentives. In this regard, Hayek points to the narrow confines for a coherent configuration of capital-goods as compared with final goods. With the latter, market adjustments to relative prices make it relatively easy to accommodate whichever combination of final goods has been produced; but, within the capitalistic structure of production, there are very specific quantitative relationships 'which must be preserved if those parts are not to become completely useless' (Hayek, 1941, p. 25). For example, however much the price of a railway locomotive is reduced, an absence of track leaves that investment with a very low return.

Investment, the division of labour and technical progress

The advantages of roundabout methods of production are sometimes confused with those that arise from the division of labour and from technical progress. The issues are quite separate. While a greater efficiency derives from the division of labour – the performance of a given set of operations by a larger number of men – this must *shorten* the period of production.[3] The use of capital *lengthens* the period of production. Even so (and this may explain the confusion), the division of labour may accompany the introduction of a more roundabout production process, where 'it becomes possible to use certain capacities, materials and tools which could not have been used if all the labour had to be applied in the way that would give the final result by the shortest possible route' (Hayek, 1941, p. 71). Here a distinction is drawn between the vertical division of labour (through a series of *successive* processes) and the horizontal division of labour (which involves the *simultaneous* application of different skills). Only the former requires an extension to the period of production.

The yield from roundabout methods *per se* is not derived from superior technology. The choice of a (more or less) roundabout method of production may be taken in the context of a given state of knowledge. New technology is as likely to shorten the period of production as it is to lengthen it.

The dimensions of capital

The first explicit introduction of time into the theory of production is credited to W.S. Jevons[4] (see Hayek, 1941, p. 113), whose approach relates to continuous inputs. This is but one of a number of structures. Investments may be made in either (or both) of two ways: resources may be committed at a point of time or over a period of time. Similarly, their corresponding returns may be obtained at a point of time or over a period of time.

A firework display is an example of a product that requires inputs over a period of time, to give virtually instantaneous consumption (continuous input/point output). At the other extreme, a walking stick cut from a tree is produced virtually instantaneously, but its services are consumed over many years (point input/continuous output). Most goods constitute hybrids in varying degree (continuous input/continuous output).

(a) Roundaboutness: time taken to produce capital

Roundaboutness can be measured by the time taken to 'produce' capital and it matters not whether this time is given to the production of fixed capital or is embodied in the form of work-in-progress, for example in the form of payments to labour in advance of the final product being ready for market.

For any given length of the period of production, investment continues until (for the marginal incremental unit) the cost of inputs, grossed up to the

point of sale, is equal to the revenue from the sale of final goods, that is

$$y_0 = \int_{n'}^{0} a e^{rt}\, dt = a(e^{rn'} - 1)/r \tag{8.1}$$

where y_0 is the revenue from the sale of all final goods at the present time $t = 0$ (or, alternatively, the capitalised value at time $t = 0$ of the revenue expected from final goods sold over a subsequent period of time extending into the future); a is the value of continuous constant annual labour inputs committed over a period extending from an earlier point of time ($t = n'$) up to the present ($t = 0$); n' is the point of time when labour inputs first began and r is the rate of interest.

(b) Roundaboutness: durability of fixed capital

An alternative definition of capital may be adopted, in which time is required, not to *produce*, but to *utilise* capital. In other words, unless all final goods are sold instantaneously at time $t = 0$, capital is further tied up. Now, the relevant period is the expected operational life of capital. New investment is undertaken for so long as the present value of net revenue – expected from the sale of final goods in the future – exceeds the value of the capital; so new investment ceases when

$$x_0 = \int_{0}^{n''} b e^{-rt}\, dt = b(1 - e^{-rn''})/r \tag{8.2}$$

where x_0 is the value of capital at time $t = 0$, b is the value of continuous annual net revenue from final goods, n'' is the point of time in the future at which net revenue expires and r is the rate of interest.

(c) Roundaboutness: combining the period of production with durability

Of course, these two aspects of capital are not mutually exclusive. The first presumes that time is necessary to produce a machine which then delivers output instantaneously. (This is equivalent to work-in-progress finally being finished.) The second presumes that machines are acquired instantaneously and that sales returns accumulate over a period extending into the future (durability). These extreme cases may be combined. (For simplicity, it is assumed that inputs are first committed over a finite period of time up to $t = 0$ and that this is followed by a flow of net revenue over a subsequent finite period of time. A less tractable situation would exist where the two processes overlap. This is not considered.)

In a situation where the accumulation and the structure of capital were optimal, equilibrium would show in the equality between the aggregated present value of past inputs and the aggregated present net[5] value of future

outputs. In effect equation (8.1) would be set equal to equation (8.2). On rearranging, the following equation (8.3) is obtained:

$$b/a = (e^{rn'} - 1) / (1 - e^{-rn''}) \tag{8.3}$$

and for the special case where $n' = n'' = n$

$$b/a = e^{rn} \tag{8.4}$$

(d) Capital intensity

Capital intensity is a concept introduced by Böhm-Bawerk. It is the *average* period of production and relates to the time taken to produce capital (or to deploy working capital) It is most simply calculated as the aggregate sum of investment periods (where inputs are applied at a constant uniform rate) divided by the total *number* of inputs. For example, with a production period of three years in which a inputs are applied in the each of the first, second and third years, the average period of production (m) is defined as

$$m = (3 + 2 + 1)/3 = 2 \tag{8.5}$$

In this example, inputs remain in the production process on average for two years. Although it might appear to be absent, the part played by the rate of interest r in this definition of capital intensity is revealed in recognising that equation (8.5) may be derived from

$$a(1+3r)+a(1+2r)+a(1+r) = 3a(1+mr) \tag{8.6}$$

In solving for m (the average period of production), the interest rate r disappears because it is applied only at a simple rate. If the rate of interest were applied at a compound annual rate, equation (8.6) would be replaced by

$$a(1 + r)^3 + a(1+2r)^2+a(1+r) = 3a(1+r)^m \tag{8.7}$$

to give a definition of capital intensity that was suggested by Wicksell. With compound interest, earlier inputs are weighted more heavily than later inputs so that, for a uniform stream of inputs, equation (8.7) gives a larger value for the average period of production (m) than equation (8.5). (For example, where $r = 0.07$, $m = 2.01$.) For the continuous case (using equation (8.1)), m is found from

$$a(e^{r3} - 1)/r = 3ae^{rm} \tag{8.8}$$

Equation (8.8) gives a smaller value for m than both equations (8.5) and (8.7). (For $r = 0.07$, $m = 1.53$.) The reason is that, in the case of continuous

compound interest, inputs applied during the first year attract compound interest for approximately 2.5 (rather than 3.0) periods; and in the second for 1.5 (rather than 2.0) periods; and in the third for 0.5 (rather than 1.0) period.

Clearly, the measurement of capital intensity is affected by the distribution of inputs over the period of production. Until now, this has been assumed to be uniform. Within the context of appropriate incentives (*pace* the Ricardo effect), it is conceivable that technology might allow some (but not all) inputs to be moved in time within the period of production. While this would leave the absolute *length* of the production process unchanged, the capital intensity measure would indicate a change in the average period of production. This calculation would no longer be in the simple forms of any of the above equations, all of which deal with the application of inputs *uniformly* across the period of production.

In comparison with the length of the period of production, capital intensity holds more information relating to the structure of production and to the impact of changes in the ratio of input prices to final goods' prices. If ever such analysis were considered meaningful, capital intensity would be sensitive to relative prices, interest rates and variations in the time profiles of both inputs and future earnings.

(e) Capital intensity: combining the period of production with durability

Equation (8.8) has its counterpart within the context of roundaboutness defined in terms of the durability of capital; that is (referring back to equation (8.2))

$$b(1 - e^{-rm''})/r = n''b\mathrm{e}^{-rm''} \tag{8.9}$$

Furthermore, in respect of the equilibrium condition (where, from equations (8.1) and (8.2) respectively, $y_0 = x_0$) the two dimensions of capital intensity may be merged, with the effect of setting (the general form of) equation (8.8) equal to equation (8.9); this gives equation (8.10)

$$n'a\mathrm{e}^{rm} = n''b\mathrm{e}^{-rm''} \tag{8.10}$$

where a is the value of continuous annual labour input, b is the value of continuous annual net revenue from sales, n' is the limit of time over which inputs are applied, n'' is the limit of time after which net revenue expires, m is the average period of production (inputs), m'' is the average period of production (durability) and r is the rate of interest.
Manipulation gives

$$(m + m'') = ln\,(bn''/an')/r \tag{8.11}$$

which shows how two dimensional capital intensity ($m + m''$) takes into account input magnitudes (a) output magnitudes (b), the gestation period (n'), the durability of capital (n''), and the rate of interest (r).[6] While uniform flows of both a and b give the simple result of equation (8.11), variable magnitudes would deny tractable solutions. Furthermore, if the rate of interest that is applied to inputs were different from that used to discount output values, then this would inhibit the aggregation of ($m + m''$).[7] The problem is still further complicated:

> [i]n order to arrive at an aggregate figure of the amount of waiting involved in each process we have to assign different weights to the different units of input, and these weights must necessarily be expressed in terms of value. But the relative values of the different kinds of input will inevitably depend on the rate of interest, so that such an aggregate cannot be regarded as something that is independent of, or as a datum determining the rate of interest. (Hayek, 1941, p. 143)

but these perceptive and original comments were either overlooked or ignored by participants in a protracted dispute between Marxist and neoclassical economists – the 'capital theory controversy' – which extended into the early 1970s. This necessitates a slight digression.

The capital theory controversy

Battle-lines in the capital theory controversy were drawn in 1953, when Joan Robinson opened with an assault upon the neoclassical concept of a production function that affords symmetric treatment to two factors of production, capital and labour. With the neoclassical production function, a change in relative factor prices gives an incentive to substitute units of the relatively cheaper factor for units of the other. Given the ratio of prices and adjustment to an optimal combination of factors, the distribution of factor incomes turns upon the respective quantity of each factor used within the production process.

Robinson's criticism relates to the unit of measurement for capital. Capital is divers and can be measured (as a whole) only in value terms, but a value for capital is only obtained as the capitalised value of the future income stream that is generated, which means that the *quantum* of capital is dependent upon those earnings. So the situation is one in which the quantity (or value) of capital is dependent upon its price, but the quantity (or value) of capital must be known in order to determine its price.[8] In obscuring these difficulties, neoclassical economics had erected a theory of income distribution based entirely upon the calculus of constrained optimisation within the context of a production function and given (independent) factor prices. So, if the price of labour rises and/or that of capital falls,

substitution takes place and (guided by the technology of the production function) there is a rise in the ratio of capital to labour which increases labour's (marginal) productivity and reduces that of capital. The distribution of income (between capital and labour) thus turns upon production technology and relative factor prices that are not explained. This is an anathema to those with a Marxist commitment to a labour theory of value. After protracted and heated debate, the capital theory controversy terminated as an intellectual stalemate. The protagonists were exhausted while most of the spectators had long departed.

The attack upon the 'profound truths' of the neoclassical 'parables' (see Harcourt, 1972, p. 122), launched by neo-Marxists, was an attack upon an easy but inappropriate opponent, whose own defence was facilitated by the simplistic notions of timeless marginal analysis. The assumption of given resources, homogeneous factors of production and independent prices – upon which the idea of a deterministic explanation for factor income shares is based – can only be regarded as essentially flawed. It is mathematics; and socially vacuous.

Within the Austrian framework, many of the issues raised by the long controversy had little relevance; these include the distribution of income between homogeneous factors of production and the quantification of capital. Other issues, relating to the admission of capital as a factor of production, to the ideological stances taken in respect of capitalism, to the relevance of the concept of 'social' justice in the context of the distribution of income, to the incentives for capital accumulation, to the array of choice relevant to the investment decision and to the causes and consequences of economic growth, had already been adequately addressed within the Austrian framework which shows there to be few tractable outcomes.[9]

Investment, output and the value of capital

With the insights from Austrian theory, it must be recognised that more simplistic approaches to the part of capital inevitably mislead. Under different sets of relative prices for labour and raw materials, each technical combination of inputs corresponds to a unique average period of production, which means that it is futile to attempt to summarise data relating to the 'investment structure' by 'trying to combine them into a single productivity function of waiting or of capital' (Hayek, 1941, p. 145). Furthermore, only if capital were available in free form – like the wage subsistence fund assumed by Böhm-Bawerk, Wicksell, and Jevons – would it be easy to redistribute investments between longer or shorter periods of gestation.

Changes in the stock of capital through time 'mainly depend on the foresight of the entrepreneur capitalist', whose main function is 'to attempt to maintain his capital so that it will yield the greatest possible return' (Hayek, 1941, p. 332). Those with the greatest perception gain at the expense of others and, in an

uncertain world, new capital is financed as much from unanticipated windfall capital gains as from income generated by normal business success.

With the emergence of each new profile as a preferred choice for the future stream of income, the composition of capital is continuously reshaped. The valuation of this stock is itself affected which brings into question the very notion of a given quantity of capital or of the 'supply of capital' which, in essence, can only be described in 'terms of the totality of all the alternative income streams between which the existence of a certain stock of non-permanent resources (together with the expected flow of input) enables us to choose' (Hayek, 1941, p. 147). Together with various combinations of other resources, each constituent part of the stock of capital may be used in many different ways; and the sacrifice made in order to achieve any particular income stream can be stated only in terms of the potential income streams that might otherwise have been achieved.

Since each separate investment has an impact upon the market valuation of output across *all* periods of production, investments are necessarily interdependent. Only in a static world would it be possible to link a given constant stock of capital uniquely with a given constant stream of income. If a unit of input were relocated to a longer period of investment, this would raise the stream of output forthcoming at whichever date corresponds to this longer investment period; and it would reduce the rate of output at some earlier date. The value of these output streams would be correspondingly affected; and so, too, would the yields on the more/less roundabout investments. It is this that imposes the constraint upon extensions to periods of investment. As the output stream at an earlier date falls when resources are reallocated to longer-term projects, 'the value of the marginal products of units of input invested for that earlier date increases, with the result that it becomes profitable to invest more for that date' (Hayek, 1941, p. 191). However, this is as far as it is possible to take the notion of a marginal productivity of capital,[10] for the latter does not come in a free form, to be applied readily to an endless variety of different uses. Entrepreneurs optimise their aggregate yield by equating yields at the margin; but the valuation of their capital is an *outcome* of their deliberation, rather than a datum against which to make their decision.

A capital investment simulation

Although Hayek's achievement in having perfected Böhm-Bawerk's time-lapse theory of capital is widely acknowledged, there is a view that it constitutes little more than an exercise in pure logic, which is 'of doubtful practical value' (Fletcher, 1989, p. 246). So, although *The Pure Theory of Capital* is described as 'a remarkable contribution to knowledge', that comment is qualified by the remark that the work shows it to be 'inconceivable that any statistical or practical use can be made of the Austrian theory of capital' (Shackle, 1981, p. 250). While there can be no argument in relation to the

statistics, such derogation is unwarranted. As compared with the rival neoclassical theory of production, Austrian capital theory is more practical by its closer proximity to business experience: of the necessity for time to allow capital gestation and to permit revenue to be earned. Furthermore, neoclassical theory assumes independence between the value of labour and the value of capital, which begs the question of 'who produces the capital?'. With the Austrian approach, the value of labour and the value of capital, the rate of interest, the period of gestation and the duration of the stream of earnings are all closely interrelated.

From the infinite variety of configurations that are possible, the simulation below uses arbitrarily set parameters to reveal some eminently practical lessons:

period for input and output $n' = n'' = 5$
initial interest rate $r = 0.05$
net revenue per period $b = 10$

whereas the (equilibrium) value for

labour input per period $a = 7.79$

is derived from equation (8.4). The capital value of such a project will grow continuously over its gestation period. Inputs of 7.79 units per period are applied in each of five successive years. With the interest rate at 5 per cent, the capital value attained after five years is at a maximum of 44.24 units (obtained from either equation 8.1 or equation 8.2). Thereafter, net revenue of 10 units per period is earned in each of the next five years, and this steadily detracts from that maximum capital value. The full details are shown in Table 8.1.

The simulation is developed further by assuming a series of ten identical schemes running in parallel, with a one-period lag between the corresponding successive stages of each scheme. This produces a 'steady state' equilibrium; that is, the operation as a whole has a constant aggregate capital value that is equal to the horizontal sum of the second row of Table 8.1 (i.e., 230.04 units), a constant stream of inputs (38.94 units, that is 5 times 7.79 units) and a constant stream of outputs (50 units, that is 5 times 10 units) per period. These data and their associated ratios are given in the first row of Table 8.2.

From the data in the second and third rows of Table 8.2, the effects of a rise in the interest rate are to *raise* the capital–labour ratio and to *lower* the

Table 8.1 Simulated capital values for a 10-year project with $n' = n'' = 5$

time	−5	−4	−3	−2	−1	0	1	2	3	4	5
value	0.00	9.75	19.03	27.86	36.25	44.24	36.25	27.86	19.03	9.75	0.00

Table 8.2 Simulated values for a series of ten 10-year projects with $n' = n'' = 5$

Interest rate	Capital	Labour	Output	Capital labour ratio	Capital output ratio
0.05	230.04	38.94	50	5.91	4.60
0.10	212.41	30.33	50	7.00	4.25
0.15	196.78	23.62	50	8.33	3.94

capital–output ratio. Any temptation to argue that these are precisely opposite to the results derived from the assumptions of the neoclassical theory of production (with a substitution of labour for capital as the interest rate is raised) must be resisted, since that substitution occurs with a rise in the relative price of capital. In the timeless impractical neoclassical world, variations in the interest rate are irrelevant to the relative prices of capital and labour (whatever capital there is)!

Table 8.2 also indicates a decline in labour units at higher interest rates. There are two parts to the explanation for this: (1) labour units are the residual in the calculation of each new equilibrium; (2) net revenue per period is assumed to remain unchanged, so that the discounted value (at a higher discount rate) gives a smaller number of capital units. In other words, an increase in the interest rate reduces both the capitalised value of future earnings and (in consequence) the number of labour units. There is no physical reduction in the number of inputs or of output. It is simply that, in order to accommodate the higher interest payments, capital owners must take a capital loss (of approximately 7.5 per cent) and labour must experience an earnings reduction (of approximately 22 per cent). The former would be well understood in the practical world of business and financial markets. With respect to the latter, if sticky money wages inhibit the necessary adjustment to maintain the equilibrium solution, unemployment might be the more likely consequence. This, too, strikes a familiar chord.

Capital and macroeconomics

In the practical world of business, the function of investment expenditure is to provide the capital necessary to increase the supply of consumption goods in the future. However, Keynes's *General Theory* provides a macroeconomic analysis where investment is treated as a component of aggregate demand that may be used to boost employment both directly and indirectly *via* the multiplier process. In setting aside the functional purpose of investment, to produce a short-run model of employment and national income, Keynesian macroeconomics neglects a hugely important area of economics; that is, the determinants of the changing levels and composition of production through time.

Hayek argues that the strategy of an expansionary monetary policy as the means to reach full employment is explained by Keynes's ignorance of

Austrian capital theory. The successful implementation of roundabout production methods requires a prior provision of resources that is delivered by voluntary saving. Forced saving (which accrues whenever inflated consumption goods' prices reduce real wages) is not a viable alternative, because the Ricardo effect tells cumulatively against roundabout production methods. The relevance of monetary expansion is clear. A macroeconomic investment boom launched upon the back of monetary expansion is an inevitable failure. Keynesian (so-called) full-employment policies are implausible because of the Ricardo effect.

From his ignorance of capital theory, Keynes purveys the simplistic notion that the prime determinant of investment is the demand for consumption-goods. Hayek uses a river analogy to explain the complex relationship between investment, final goods and employment. The river represents the continuous flow of capitalistic production, which can vary quite independently of the level of the tide (sales of final goods) at its mouth. In its upper reaches the volume of water is affected by the immediate flow from tributaries to the main stream (variations in new and replacement investment), which is determined by relative factor prices, technological change and the interest rate. In any given period, there is no obvious correspondence between changes in the upper reaches and the sale of final goods; nor between the sale of final goods and employment. Even so, Hayek asserts that revival of final demand in a slump is generally 'an effect rather than a cause of a revival in the upper reaches of the stream of production' (Hayek, 1983, p. 46).

The equilibrium levels and distribution of investments depend upon individual time preferences: the desire to consume relatively more/less in the present in order to be able to consume relatively less/more in the future. Variations in the levels and direction of business investment expenditures determine the proportions of different goods (both consumption and capital goods) to be produced both now and in the future. It is the balance between the levels and composition of expenditures, on the one hand, and the levels and composition of output, on the other, that determines business profits. There may, or may not, be close correspondence between flows of expenditure and flows of outputs, and the manifold discrepancies that can occur have great economic significance. An exact compatibility between these dynamic forces is the definition of equilibrium; but, given the 'utter unattainability' of this concept, it is perhaps inevitable that economists should be repeatedly forced back to the question of 'what in fact the process of history must be like' (Shackle, 1981, pp. 252–3).

The dynamic complexity of Austrian microeconomics was swept aside by the Keynesian macroeconomics revolution. As an error of judgement, for which he was ever to reproach himself, Hayek gave no time to an immediate and studious critique of *The General Theory*. His realisation of the importance of an argument to refute the interventionism of 'a somewhat comprehensive socialisation of investment' (Keynes, 1936, p. 378) came too late. Even so,

The Pure Theory of Capital is acknowledged as a profound work: the boldest attempt yet made to reveal the forces within the 'seething cauldron of history' (Shackle, 1981, p. 253). It is a travesty that Hayek's intellectual achievement should have been obscured by the rampant surge of the new macroeconomics.

Where resources are fully employed, there is an obvious trade-off between the provision of goods for current consumption and the provision of goods for future consumption. Advance through economic growth can be achieved only by present sacrifice. Any attempt to force growth by monetary expansion has inflationary implications that cannot be ignored. Yet, according to Keynes's *General Theory*, this difficulty is absent in the presence of widespread unemployment among productive factors. Under these conditions, monetary expansion is non-inflationary, because of the availability of unused and underused resources. Yet, Keynes overlooked the importance of the composition of those readily available resources. Resources must be immediately at hand in the form of factors of production, in the form of work in progress at every stage of completion and in the form of consumption goods. Only then would there be no shortfalls in levels of production to meet new demands from formerly unemployed workers. However, the message that comes across from Keynes's *General Theory* is that higher levels of investment might be financed by monetary expansion; that is, without inflation and without the necessity for any short-term fall in consumption.[11]

Such events are made possible by the assumptions of an elastic supply of factor inputs and an elastic supply of intermediate products. That such propositions should be embraced reflects upon the limited objectives of Keynes's *General Theory*. Investment appraisal, periods of gestation, cash flow, payback periods and problems of finance are issues that are not pertinent to the problem of raising investment to boost aggregate expenditure to a level that generates full employment throughout the economy. Keynesian economics has been a costly mistake in that it led economic policy to target full employment,[12] with little consideration as to the consequences for the composition of production or to the implications for cyclical activity or economic growth.

9
Business Cycles

> [H]e was one of the few economists who warned about the possibility of a major economic crisis before the great crash came in the autumn of 1929. Von Hayek showed how monetary expansion accompanied by lending which exceeded the rate of voluntary saving would lead to a misallocation of resources, particularly affecting the structure of capital.
>
> (Royal Swedish Academy of Sciences, 1974)

The nature of business cycles

In the period immediately following The Great War, the causes and nature of business cycles attracted much study and discussion in Germany. The impact of the war (and its aftermath) in producing enormous price fluctuations throughout Europe was the immediate stimulus for this interest. The search was for a feature of market economies that might serve as a general explanation for the experience of price instability and business fluctuations.

The manner in which resources are integrated within more, or less, capitalistic (or roundabout) methods of production is the key to Hayek's analysis of business fluctuations. Any change to this structure of production has a cumulative impact. In setting Austrian capital theory within this dynamic framework, Hayek's unique contribution was to explain how monetary expansion sets in train incentives that initiate a boom, but which steadily disrupt the delicate integration of production methods. The inevitable outcome is crisis and slump.

Although Hayek produced a consistent set of theoretical arguments, their long and confused gestation created much controversy: four books and their associated journal articles spanned publication of *The General Theory*. Hayek's hostility to Keynes's method added much heat to the various exchanges. However, the intention is not to focus upon the contemporary debates, nor to set Hayek's theory into the context of the history of business

cycle analysis. Rather, it is to provide an interpretation of Hayek's exposition as a coherent whole.

At the risk of confusion and even some annoyance to those familiar with the original presentations, extensive use is made of modern terminology, especially that relating to investment appraisal criteria. Nevertheless the arguments are always from Hayek, and origins may be readily traced if the quotations in closest proximity are taken as a guide.

Hayek's first major works were *Monetary Theory and the Trade Cycle* (1929) (first English edition, 1933) and *Prices and Production* (1931) (revised and enlarged edition, 1935). *Prices and Production* reproduced four lectures delivered at the LSE in 1930–1,

> at a time when I had arrived at a clear view of the outlines of a theory of industrial fluctuations but before I had elaborated it in full detail or even realised all the difficulties which such an elaboration presented. (Hayek, 1935b, p. vii)

In presenting his revised and extended edition, Hayek warned of its deficiencies, though without regret; for the comments and discussion provoked by the first attempt – 'which could rarely have been equalled in the economic controversies of the past' (Kaldor, 1960, p. 149) – gave the direction 'for a later more complete elaboration'.

Hayek had been brought to the London School of Economics from Vienna in 1931, in what was seen as an attempt to counter the influence of Keynes. Prior to his appointment, Hayek had delivered four lectures, which were well received in London (see Robbins, 1971, p. 127). At this same time, Hayek had also accepted an invitation from Cambridge to address the Marshall Society. There the impression created was rather different. After first explaining that it had been necessary to condense the four lectures into one, and that Hayek had been suffering a high temperature, Richard Kahn describes the evening:

> [t]he members of the audience – to a man – were completely bewildered. Usually a Marshall Society talk is followed by a barrage of discussions and questions. On this occasion there was complete silence. I felt I had to break the ice. So I got up and asked:
>
> 'Is it your view that if I went out tomorrow and bought a new overcoat, that would increase unemployment?'
>
> 'Yes', said Hayek. 'But', pointing to his triangles on the board, 'it would take a very long mathematical argument to explain why'. (Kahn, 1984, p. 182)

The nub of the controversy is straightforward. Hayek argues that business recession is caused by too much investment, too little saving. Keynes holds

the opposite view, and his case for state investment to boost demand became textbook economics. The present focus is upon Hayek.

Monetary Theory and the Trade Cycle emphasises 'the monetary causes which can *start* the cyclical fluctuations' (Hayek, 1933a, p. 17), and this is complemented by *Prices and Production*, which focuses more closely upon 'successive changes in the real structure of production' that are the real phenomena of the trade cycle. Later still, and taking account of recognised defects in the earlier analysis, came *Profits, Interest and Investment* (1939) and *The Pure Theory of Capital* (1941).

In the two earlier books, the impact upon investment incentives of a fall in the rate of interest (brought about by new money or new saving) is coherently discussed (as the 'interest rate effect'). In the two latter books, attention is directed more at the impact upon investment incentives of changes in relative prices (as the 'relative prices effect'; that is, final goods' prices in relation to capital goods' prices). The intention here is to show that these two effects are mutually compatible and that Kaldor (1942) is wrong to represent them as inconsistent theoretical formulations.

Capitalistic methods of production

By lengthening capitalistic processes of production, it is possible to obtain a *greater* quantity of final goods from a given volume of original factors of production; but these goods become available at a *later* date than if shorter processes are used. This is the economic decision: whether it is more profitable to maintain or to alter the structure of production depends upon the balance between the prices received for final products and the prices that must be paid for intermediate goods.

At each stage of production, a margin (the excess of the value of the intermediate good over the factor and material costs of producing it) must exist to provide the inducement to invest. Entrepreneurs allocate resources across the many different stages of production so as to maximise total returns. Where there are differences in time-discounted margins (or yields), investments are switched between stages until yields are equalised (as a consequence of diminishing returns). So, what might cause differentials between yields to open up? Alternative possibilities are (i) a change in the level of saving and (ii) monetary expansion. Both give rise to the 'interest rate effect'.

The interest rate effect

For simplicity, output is assumed to show the same diminishing returns (with respect to the application of additional units of a factor) at each stage of production; but, while the marginal physical product curve for the factor

is identical at every stage, its value (at any point on that curve) is more heavily time-discounted at earlier than at later stages of production.

A fall in the rate of interest must increase yields across all stages of production, but it has the greatest impact at the stage that is most heavily time-discounted. The differential impact is revealed by the illustration of a merchant who sets an optimal structure for his investments in wine. He has the choice of selling wine as soon as it is produced ('plonk') or allowing it to age for either one or two years. At a discount rate of 7 per cent ($r = 0.07$), his appraisal is as follows:

£100 wine sold as 'plonk' is priced at £100 $(1 + r)^0 = a_t$ = £100.00

£100 wine sold after 1 year is priced at £100 $(1 + r)^1 = a_{t-1}$ = £107.00

£100 wine sold after 2 years is priced at £100 $(1 + r)^2 = a_{t-2}$ = £114.49

The present capitalised value (V_t) of each of the three options is £100:

£100 = £114.49$(1.07)^{-2}$ = £107.00$(1.07)^{-1}$ = £100.00$(1.07)^0$

$V_t = a_{t-2}(1 + r)^{-2} = a_{t-1}(1 + r)^{-1} = a_t(1 + r)^0$

$V_t = y_{t-2} = y_{t-1} = y_t$

Now, if initial conditions are such that

$y_{t-2} = y_{t-1} = y_t$ at discount rate r_1

it follows that

$y_{t-2} > y_{t-1} > y_t$ at discount rate $r_2 < r_1$

and that

$y_{t-2} < y_{t-1} < y_t$ at discount rate $r_0 > r_1$

At the highest (lowest) interest rate, the shortest (longest) process is the most profitable. This means that, although yields increase generally as the interest rate falls, the incentive favours 'capital deepening': resources are reallocated to longer duration investments. In reverse, although yields decrease generally as the interest rate rises, the incentive favours 'capital shallowing': resources are reallocated to shorter duration investments.

Less urbanely, a fall in the interest rate gives an advantage to more roundabout (i.e., more capital-intensive) processes. Not only is this so for new enterprises (established upon the basis of new funding), but pre-existing operations have an incentive to switch resources away from direct production

methods and to increase expenditure upon intermediate goods. With a fall in the rate of interest

> the old distribution of factors between stages would evidently not represent an equilibrium position but one at which the discounted value of the marginal product would be different at every stage. And if the total quantity of the factor which is available remains the same the new equilibrium distribution will apparently be one at which not only the price of the factor will be higher but at which also a considerable quantity of it is used in the earlier stages and correspondingly less in the later stages. (Hayek, 1935b, p. 82)

Assuming a fixed, fully employed, supply of productive resources, entrepreneurs with new funds can acquire additional resources only by out-bidding entrepreneurs with whom those resources are currently employed. The extent to which prices are affected, by the interest rate incentive to reallocate resources to reach this 'new equilibrium distribution', depends upon the degree to which substitution is possible. Some intermediate goods are less readily moved, being 'more specific' (less versatile) than others. However, the essential conclusion is that it is wrong to suppose that the interest rate is relevant only as 'a direct cost factor'. More important is 'its effect on prices through its effect on demand for the intermediate products and for the factors from which they are produced' (Hayek, 1935b, p. 83). The stimulus to investment created by a fall in the interest rate depends upon entrepreneurs' expectations of new profits to be gained from the application of additional funds. If all entrepreneurs were precisely correct in anticipating enhanced future yields, additional funds would be directed to stages offering the highest returns and other potential (less profitable) ventures would remain without funds.

Here, the role of the interest rate – an inter-temporal price mechanism – is to achieve an efficient time-allocation of resources. A voluntary decision to increase saving and to reduce consumption expenditure, would cause the interest rate to fall. This would induce appropriate production adjustments in regard to the proportions of final goods (fewer) and intermediate goods (more). In consequence, although new saving is taken up by new investment across the full range of capitalistic stages of production, there is a bias favouring the earliest stages. However, where it is monetary expansion (rather than new saving) that causes the interest rate to fall, the situation is less happily resolved.

Bank credit money and the cumulative process of investment

The rate of interest falls as new money is made available 'by way of credits to producers'. To a degree, the impact of new money is similar to that generated

by new saving but, unlike the latter, investment financed by new money takes place with no corresponding reduction in consumption expenditure. So, while increased demand begins to push up the prices of intermediate goods, the output of final goods may remain unaffected. Even after the switch to more roundabout methods is underway, goods may have advanced so far in gestation (and be so specific as to preclude reallocation) that final goods are forthcoming at an unchanged rate for some time; but, sooner or later, this must end as a consequence of the diversion of resources to the production of intermediate goods (see Hayek, 1935b, p. 88).

As factors are switched into more roundabout projects, a hiatus to the flow of final goods onto the market is inevitable. This reduced supply of consumption goods attracts the description 'forced saving'. Initially, the full impact may be hidden by the depletion of stocks but, eventually (there having been no increase in voluntary saving) inevitable shortages cause the prices of final goods to rise.

The situation is then such that the demand for factors (in greater demand for the production of *both* intermediate goods *and* final goods) causes money incomes to rise. This adds to the pressure upon the prices of final goods, so that the original profitability gap (between the production of intermediate goods and the production of final goods) begins to close.

Entrepreneurial expectations of profits are enhanced by rising prices of final goods and, so long as banks are willing to extend loans, the whole process is cumulative. Yet, the creation of new bank credit cannot continue forever. With its eventual cessation, there begins a difficult period of readjustment as incentives become set for a return to less roundabout processes. (See 'the relative prices effect' below.) This readjustment may even involve a degree of 'over-reaction', if the accumulated shortfall in final goods has created deceptively attractive scarcity price premia.

Asymmetry in the switch from short/long to long/short processes

Monetary expansion lowers the interest rate and raises the profitability of *all* investments, but the profitability of more roundabout processes is raised by greater amounts. Nevertheless, it is entirely rational for entrepreneurs to continue to use capital that is entirely specific to existing short processes (where yields, though not the highest to be obtained, remain above the rate of interest), while switching new investment to more roundabout processes (see Hayek, 1935b, p. 93).

In reverse, the argument is rather different; for, if the rate of interest is *raised* it immediately lies above yields on *all* processes. The gap is the greater the more roundabout is the process, so that long processes are more promptly abandoned. (Although the 'sunk cost' argument applies, the calculation must account for any provision of *additional* funding over the period to completion

of final goods.) With the abandonment of longer processes, the profitability of shorter processes is directly enhanced. Nevertheless, some time may pass before factors that are released from longer processes are recruited into nascent shorter processes that, starting from scratch, only gradually absorb resources. Moreover, their period of unemployment may be protracted, if entrepreneurs hesitate to commit themselves 'once the temporary scarcity of consumers' goods has disappeared' (Hayek, 1935b, p. 93).

The whole process, comprising new money, a lowered rate of interest, the switch to more roundabout processes, the increased scarcity of final goods and the switch back to shorter processes, is described by the Hayekian fable:

> [t]he situation would be similar to that of a people of an isolated island, if, after having partially constructed an enormous machine which was to provide them with all the necessities, they found out that they had exhausted all their savings and available free capital before the new machine could turn out its product. They would then have no choice but to abandon temporarily the work on the new process and to devote all their labour to producing their daily food without any capital. (Hayek, 1935b, p. 94)

Indeed, even these difficulties may be understated if the accumulation of capital allows a growth of population (or, perhaps, an influx of immigrants) far beyond the level that can be gainfully employed without capital.

Hayek draws from these arguments 'the fundamental truth' that it is impossible to increase the level of consumption without *prior* new saving. Even where existing equipment has the (temporary) capacity to produce a higher level of final goods, for this level to be sustained requires commensurate increases in the volume of intermediate goods at every auxiliary stage. This cannot be achieved without prior saving.

In Hayek's view, vast stocks of underused durable capital misled many economists during the depression of the 1930s. The requirement for a prior commitment to many *other* lengthy processes was generally overlooked. Rather than constituting proof of 'an excess of capital and that consumption is insufficient', unused capacity demonstrates that the level of demand for final goods is 'too urgent' to allow investments in long processes to take place, even though much of the necessary durable capital is readily available. Unused plant and machinery is a consequence of former 'misdirections of capital' (Hayek, 1935b, p. 96).

Policy in a business depression

From Hayek's analysis of 'the interest rate effect' comes the conclusion that a policy of cheap credit should not be used to lift an economy from depression. Such measures can only exacerbate the problem of the unemployment that arises from structural misalignments across production processes.

Hayek concedes that, *if* informed and precisely orchestrated control were possible, bank credit expansion *could* achieve remedial action; for it is theoretically possible that an exact timing, amount and direction of new advances might compensate for the first excessive rise in the prices of final goods; and then for the subsequent withdrawal of those advances to offset the impact of enhanced flows of final goods (as the supply patterns of final and intermediate goods adapts to the patterns of demand). However, in an uncertain world, this is asking for the moon! No benefit can arise from credit expansion. What *is* required is

> the most speedy and complete adaptation possible of the structure of production between the demand for consumers' goods and the demand for producers' goods as determined by voluntary saving and spending. (Hayek, 1935b, p. 98)

Any creation of 'artificial demand' introduces distortions into the allocation of resources and work to the detriment of a lasting adjustment. Although unemployed resources might be quickly absorbed by such artificial stimulus, 'new disturbances and new crises' would be the inevitable result.

The relative prices effect

Whatever the causes that set them in train, the intricate distortions caused to the structure of production are 'the decisive factors in determining cyclical fluctuations'. These, rather than 'the superficial phenomenon of changes in the value of money' (Hayek, 1933a, p. 41) – by which these distortions can be set in motion – are worthy of the closest attention.

In part, distortions are created by the 'interest rate effect'. In part, they are created by the 'relative prices effect'. While the first faltering steps towards a description of the latter are to be found in Hayek's earlier works, the analysis was undermined by such confusing exposition, that there can be no surprise that defenders of the Keynesian faith were able to play upon alleged contradictions between the 'two versions' of Hayek's theory.

The two effects illustrated

The effect of monetary expansion is to reduce the rate of interest with no corresponding reduction in the demand for final goods. The immediate impact of the 'interest rate effect' is to lengthen production processes; but, whereas the subsequent higher relative prices of final goods has the effect of increasing yields across all capital investments, it has the greatest impact upon the least roundabout processes. The following numerical illustration is intended to clarify the nature of the differential impact that changes in the rate of interest and changes in final goods' prices have upon investment incentives.

For an investment period of given length, new investment continues to be undertaken if the present value (of net revenue from the sale of the final goods produced) exceeds the cost of the investment. New investment ceases when (in the form of equation 8.2)

$$x_0 = \int_0^n b\mathrm{e}^{-rt}\,\mathrm{d}t = b(1 - \mathrm{e}^{-rn})/r \tag{9.1}$$

where x_0 is the cost of investment at time $t = 0$, b is the value of continuous annual net revenue from final goods, n is the point of time after which net revenue expires and r is the rate of interest.

Levels of investment are assumed to be optimal, each marginal (£100) unit giving an internal yield equal to the market rate of interest of (say) 7 per cent. Values of b may be found for any production method, and the following were obtained from equation (9.1) for selected values of n:

n:	5	10	15	20	25	30
b:	£23.7	£13.9	£10.8	£9.3	£8.5	£8.0

These values reflect a capital structure in full equilibrium.

The interest rate effect

Suppose that a firm has an opportunity to undertake two types of project: 5-year duration and 20-year duration. From the information derived from equation (9.1), these give annual net revenues of £23.7 and £9.3 respectively and yield 7 per cent. The stylised choice is shown in Figure 9.1, where each locus shows the impact – upon the capitalised value of the income stream – of varying the time discount rate. Initial equilibrium is established (at a discount rate of 7 per cent) by an optimal combination of 5- and 20-year duration capital (point A).

Equilibrium is disturbed as monetary expansion is assumed to reduce (temporarily) the interest rate to 6 per cent. This raises capitalised values, respectively, to £102.80 and £106.80 which encourages new investment in *both* projects. However, as resource constraints are assumed to limit the flow of new investment, funds are *switched* away from 5-year duration and into 20-year duration capital. In consequence (diminishing marginal efficiency of capital is assumed), rising/falling yields from the former/latter eliminate inferior/superior returns. This is represented (Figure 9.2) by an outward shift of the locus representing 5-year duration capital and an inward shift of the curve representing 20-year duration capital. The result is a new optimal combination at point B where the capitalised values of the two projects are again equal.

The interest rate effect for an increase from 7 to 8 per cent is represented in Figure 9.3. At existing levels of commitments, capitalised values are

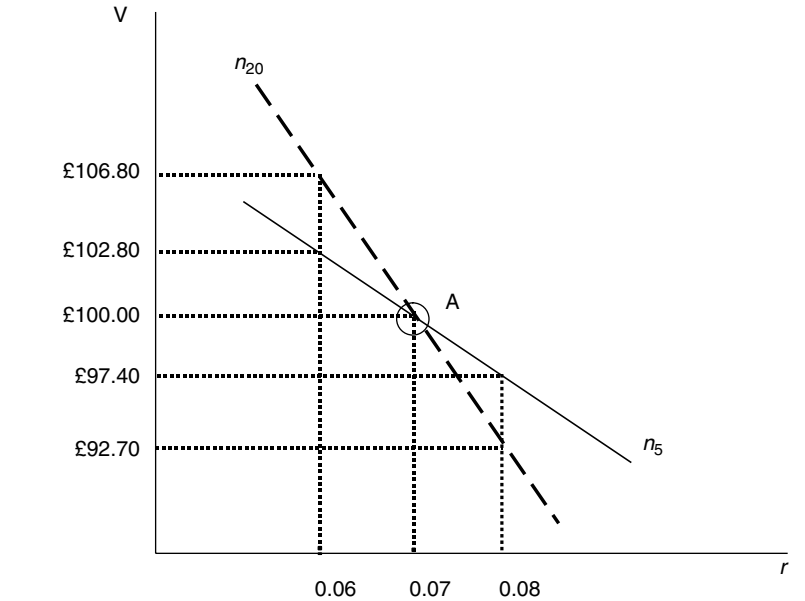

Figure 9.1 Structural equilibrium

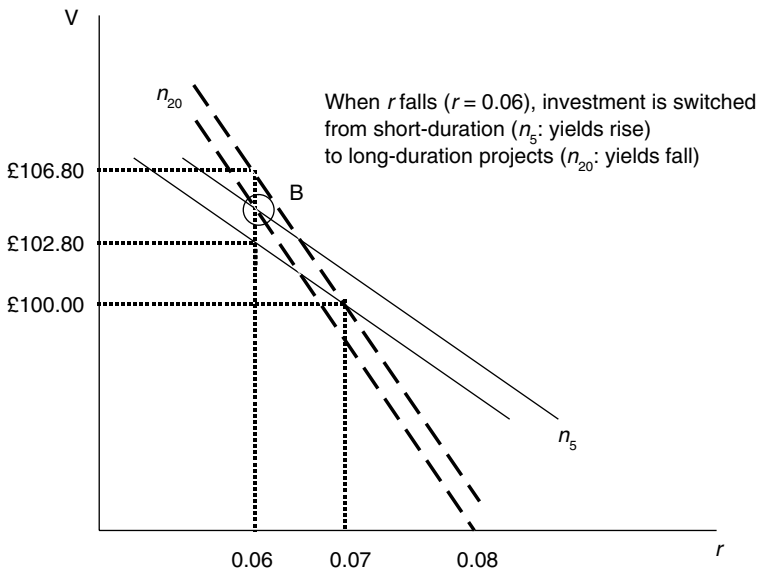

Figure 9.2 Interest rate effect

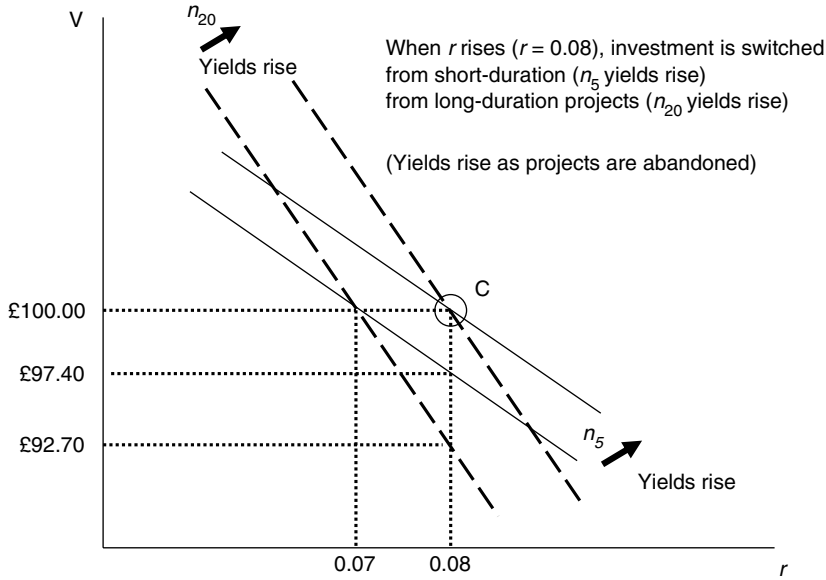

Figure 9.3 Interest rate effect

reduced respectively to £97.40 and £92.70 and, in consequence, resources are withdrawn from both investments. Yields rise (both loci shift outward) until a new equilibrium is reached at point C.

The relative prices effect

To illustrate the impact of an increase in the price of final goods, all *b* values are raised by 5 per cent and set into equation (9.1) to give the following solutions for the unknown *r*

n:	5	10	15	20	25	30
b:	0.089	0.081	0.078	0.076	0.076	0.075

All yields are raised above the original 7 per cent and give the incentive to invest in *all* production projects ('capital widening'); but the incentive is greatest for the least roundabout method of production, which gives the bias for 'capital shallowing'.

For 5-year duration and 20-year duration projects, yields are raised to 8.9 per cent and 7.6 per cent respectively. This is represented in Figure 9.4 by the outward shift of both loci. If there were limitless funds for investment, equilibrium would simply shift from A to D, which would be the new equilibrium at the 7 per cent discount rate. However, with limited resources, the incentive

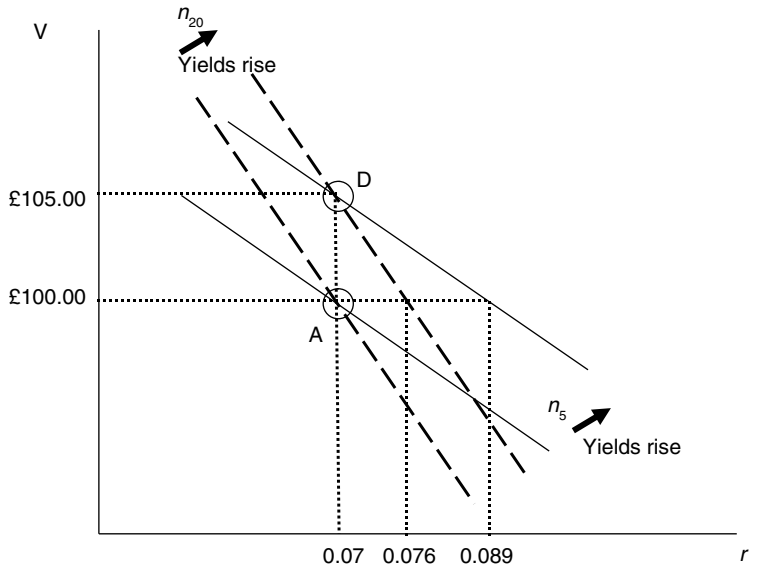

Figure 9.4 Relative prices effect

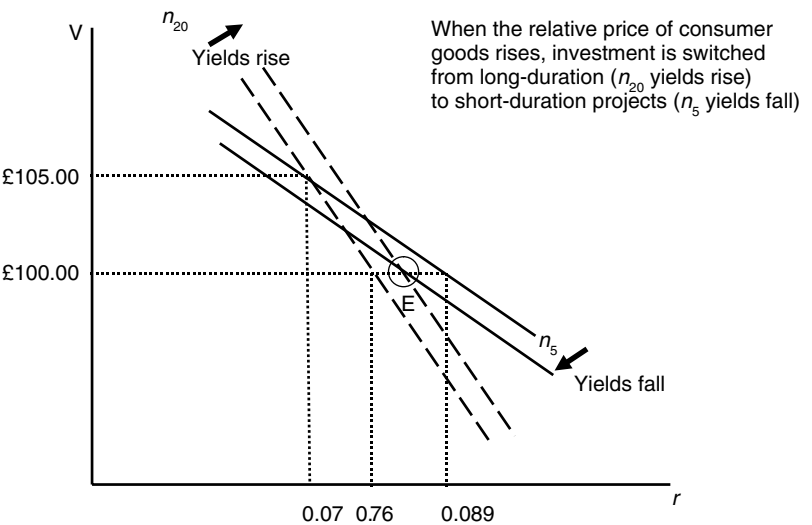

Figure 9.5 Relative prices effect

is to switch out of 20-year duration capital and into 5-year duration capital. With this switch (diminishing marginal efficiency of capital is assumed), the yield from 20-year duration capital rises and that from 5-year duration capital falls. As compared with point C, the 5-year duration curve shifts towards the origin and the 20-year duration shifts away from the origin (Figure 9.5), to give a new optimal investment combination such as that at point E (which, by its location, assumes no change in the flow of investment).

New saving and new credit

Monetary expansion stimulates investment expenditure both by forcing down the market rate of interest (capital deepening) and by forcing up the *relative* price of final goods (capital shallowing). The idea of a *differential* impact upon prices can be traced to Ricardo's *Principles* (see Moss and Vaughn, 1986, p. 548) where it is argued that a diversion of labour, from the production of final goods into the production of intermediate goods (capital deepening), increases the prices of the former and so reduces real wages. This acts as a further stimulus to investment but sets a bias towards *less* roundabout methods (capital shallowing). Hayek takes this argument further:

> so long as investment continues to increase, the discrepancy between prices and costs of consumers' goods must become progressively larger till the rise in the rate of profit becomes strong enough to make the tendency to change to less durable and expensive types of machinery dominant over the tendency to provide capacity for a larger output. (Hayek, 1939b, p. 33)

It was this proposition that was to create so much controversy.

Although the Ricardo effect may be discussed at both the macroeconomic and the microeconomic levels, the methodological approach of the Austrian School directs attention to the impact within individual firms. Hayek emphasises supply constraints arising during a dynamic path of adjustment. Rising consumer goods' prices and unchanged costs of production increase profits across the widest range of a firm's activities; but the greatest increases lie with less roundabout investments.

New investment, previously intended for fixed machinery, buildings and other items of long gestation, is diverted into working capital. While the *average* period of turnover is little affected, the marginal impact upon new investment expenditures is certain to be great (see Hayek, 1942, p. 231). Rapid changes may be introduced into current outlays so that funds earmarked for amortisation may be diverted into working capital. In this way, a firm increases its output while, simultaneously, it reduces its fixed capital. The numerical illustration given above can be drawn upon to show how this can happen.

Suppose again that production is limited to the use of 5-year duration and 20-year duration capital, and that each is operated with 60 units (×£100) of

capital. Given a uniform investment history, this means that 12 units and 3 units, respectively, expire at the end of each successive year. As above, for each to yield 7 per cent, the respective annual output figures are £23.70 and £9.30. The annual value of final goods produced with the 120 units of capital would be £1980 (60 × £23.70 plus 60 × £9.30).

When this situation is disturbed by a rise in final goods' prices, yields on investments rise, but the rise is greater for the less roundabout method. Unless additional funds are available, investment is switched into 5-year duration, but this is possible only at a rate of 3 units per year. The impact upon total capital stock and upon the level of output through time is summarised in Table 9.1.

After five years, the amount of 5-year duration stock reaches 75 units while the amount of 20-year duration stock has fallen to 45 units; and final output (valued at original prices) peaks at £2196 (75 × £23.70 plus 45 × £9.30). Capital stock is at 120 units but, thereafter, declines. The reason is the requirement (from year six onwards) for 15 (rather than 12) units of replacement investment to maintain the stock of 5-year duration stock at 75 units. The 20-year duration stock continues to diminish until year twenty, when none is left. Thereafter, the annual output of commodities is constant at £1777.50 (75 × £23.70).

This illustration shows that a short-term surge in output can be achieved at the cost of a longer-term decline A contrasting sequence of events follows (Table 9.2) if investment is switched from 5-year duration capital into 20-year duration capital. At first annual output falls but, after the fifth year, it begins to rise until, after twenty years, maximum output is gained (£2790.00). Both sequences are shown in Figure 9.6

When there is a rise in the prices of final goods, less roundabout methods take prior claim upon investment funds. Capital shallowing occurs. The initial

Table 9.1 Amortisation funds switched from 20- to 5-year duration capital

	Units of capital		Annual output
Year	**5 year**	**20 year**	**£**
0	60	60	1980.00
1	63	60	2023.20
2	66	54	2066.40
3	69	51	2109.60
5	75	45	2196.00
6	75	42	2168.10
.	.	.	.
16	75	12	1889.10
17	75	9	1861.20
18	75	6	1833.30
19	75	3	1805.40
20	75	0	1777.50

Table 9.2 Amortisation funds switched from 5- to 20-year duration capital

	Units of capital		Annual output
Year	**5 year**	**20 year**	**£**
0	60	60	1980.00
1	48	72	1807.20
2	36	84	1634.40
3	24	96	1461.60
4	12	108	1288.80
5	0	120	1116.00
.	.	.	.
16	0	252	2343.60
17	0	264	2455.20
18	0	276	2566.80
19	0	288	2678.40
20	0	300	2790.00

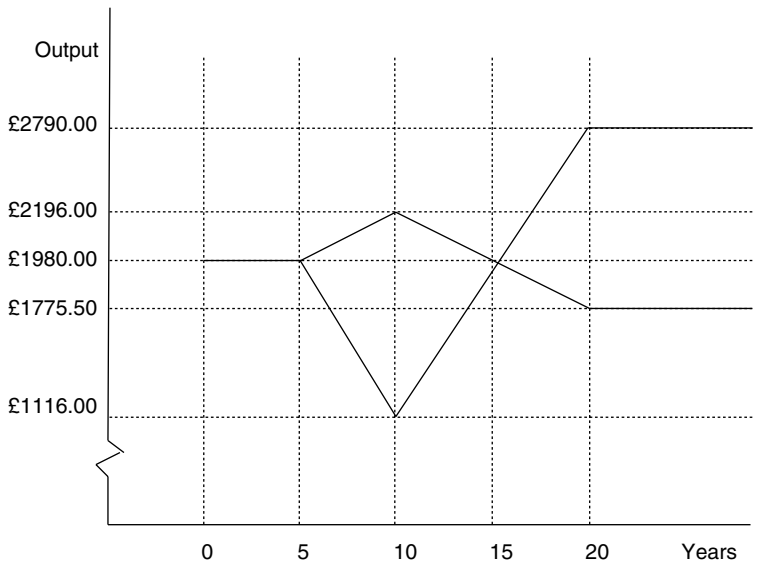

Figure 9.6 Jam today or tomorrow

impact of this Ricardo (or 'concertina') effect is to increase output (even though the level of investment is unchanged) but, ultimately, there is a reduction in the aggregate stock of fixed capital and output. It is this proposition that Keynesian economists appear unable (or unwilling) to understand.[1]

The illustrations have assumed full employment. With unemployed resources, monetary expansion might reduce unemployment, as a low interest

rate and abundant resources allows increased investment expenditure across the full range of roundabout methods. Nevertheless, while abundant resources might mean that 'the decline of investment may be postponed for a long time … it is bound to come' (Hayek, 1939b, p. 31). As new investment places income in the hands of those formerly unemployed, the demand for consumption goods rises; but only by the unlikely device of an *instantaneous* Keynesian multiplier would price rises be avoided. Without that device, consumption goods' prices must rise and create a bias favouring investment in less roundabout methods. (For further exposition, see Steele, 1989, pp. 57–9.)

A short digression on Keynes

Keynes's remedial action for a business recession (additional state investment financed by monetary expansion) relies upon the income multiplier and the existence of involuntarily unemployment. As employment increases, diminishing returns to labour (higher unit costs) raises 'the price of wage-goods' (that is, consumption goods), but creates no tendency for money wages to rise. In consequence, real wages fall and labour is priced back into work. In acknowledging the practical limitations of the multiplier, Keynes considers an extreme case such that, in the first instance, no additional consumption goods are available to meet increased demand. Then,

> the efforts of those newly employed in the capital-goods industries to consume a proportion of their increased incomes will raise the prices of consumption-goods … causing a postponement of consumption. (Keynes, 1936, p. 123)

This 'postponement of consumption' is nothing other than 'forced saving' that has such a telling role in the context of Hayek's business cycle theory. Keynes has no analytical escape. Instead, he asserts that the forces set in train by forced saving do not

> in any way affect the significance of the theory of the multiplier … nor render it inapplicable as an indicator of the total benefit to employment to be expected from an expansion in the capital-goods industries. (Keynes, 1936, p. 124)

According to Keynes, the 'postponement of consumption' lasts until consumption goods industries can adjust to increased demand. Consumption is first above its normal level – to compensate for the temporary postponement – before reverting back to that normal level. Furthermore, any

> [p]rice-instability arising in this way does not lead to the kind of profit stimulus which is liable to bring into existence excess capacity. For the

> windfall gain will wholly accrue to those entrepreneurs who happen to posses products at a relatively advanced stage of production, and there is nothing which the entrepreneur who does not possess specialised resources of the right kind, can do to attract this gain to himself. (Keynes, 1936, p. 288)

Implicitly, Keynes simply asserts the analytical irrelevance of 'the relative-prices effect'.

The inevitable slump

In a boom triggered by opportunities arising from inventions or new discoveries, expansion is constrained by a rise in the rate of interest, which limits the transfer of resources from other uses. In a boom triggered by monetary expansion, this mechanism is absent. With the rate of interest held down by new money, investors take advantage of cheap loans. New investment is resourced by forced saving, as the diminished supply of consumption goods drives up their prices. This sets up the Ricardo effect, whereby *less* roundabout methods take prior claim upon investment funds. The initial impact of the Ricardo effect is to increase output but, ultimately, fixed capital and output are diminished. The numerical illustration above shows how output can rise for a period before dropping to a new *lower* level. It also shows how the amount of investment expenditure can remain constant while capital stock varies.

Monetary expansion and a lowered rate of interest encourages capital investment generally, but it particularly favours indirect capitalistic methods of production; but the subsequent effect of rising final goods' prices is to offset this bias. There is no logical contradiction involved in the integration of these two forces. In bringing them together, Hayek shows an original and perceptive understanding of the central role that interrelated production methods have within the theory of business fluctuations.

It is central to the Hayekian paradigm that every change takes time and incurs adjustment costs. Some change is warranted in that it is directed by market forces to follow an economically efficient dynamic path. Even so, cyclical patterns may be inevitable, given the differential impact upon prices and the lagged response to those signals.

In an investment boom, changes to the structure of production are inevitable; but unwarranted changes are manifest when monetary expansion is responsible. Once the boom is underway, the rate of interest *must* eventually rise either because of limits to saving or because of an end to monetary expansion. A higher rate of interest tells against more roundabout methods. The combined effect of a higher interest rate and of rising final goods' prices is cumulative. While there is no mathematically precise

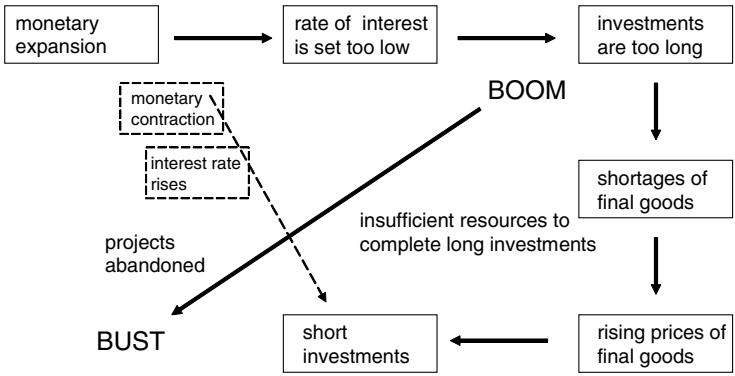

Figure 9.7 Boom and bust

calculation to indicate the end of the investment boom, the expansion cannot be sustained (see Figure 9.7):

> [t]he apparent exhaustion of investment opportunities at the end of the boom will then be due not to the fact that the investment opportunities which have existed before have all been used up, but to the fact that because of the rise in the rate of profits in certain stages … many kinds of investment which were profitable before have ceased to be so. (Hayek, 1939b, p. 34)

With many types of labour specifically attached to particular types of employment, unemployment results from any *switch* of investments; but an investment boom initiated by monetary expansion creates severe distortions to the structure of production. Even prior to the rise in the interest rate, relatively higher yields from *less* roundabout methods cause the abandonment of *more* roundabout projects. The rise in the interest rate accelerates this process. Increasingly, both the reduced demand for intermediate goods and the effect on incomes in declining sectors leads to falling demand for final goods and further unemployment. The boom is bust; but, sooner or later, the recession bottoms out. Again there is no mathematical calculation to show precisely when, but the easing of resource constraints together with falling yields from the production of final goods must set the Ricardo effect into reverse. Investment in more roundabout methods begins once again.

Hayek's retrospective

In later years, Hayek's message becomes more obviously tailored to his audience. For example, with his examination of monetary distortions in the

context of the labour market, trade unions and unemployment, he is careful to engage the attention of a readership well versed in Monetarism and the Phillips curve; and, although he expresses reservations in regard to the position taken on the Great Depression and the likely impact of a policy of prices stabilisation, at no stage does Hayek deny the relevance of his monetary theory of the business cycle.

Hayek's contemporaneous view is that, through to 1927, economic growth in the United States gave no reason to expect other than a mild recession to follow. That this did not happen, he attributes to the deliberate action of the authorities who

> succeeded, by means of an easy-money policy, inaugurated as soon as the symptoms of an impeding reaction were noticed, in prolonging the boom for two years beyond what would otherwise have been its natural end. And when the crisis finally occurred, for almost two more years, deliberate attempts were made to prevent, by all conceivable means, the normal process of liquidation. (Hayek, 1935b, p. 162)

In the two years to 1929, resources were deployed in patterns that could not be sustained. Idle plant and machinery became the consequence of those earlier 'misdirections of capital'. Vast stocks of underused durable capital in the 1930s were symptomatic of the inadequacy of prior commitments to supporting complementary processes. Instead of constituting proof of 'an excess of capital and that consumption is insufficient', unused capacity indicates that demand for consumer goods has been 'too urgent' (Hayek, 1935b, p. 96) to allow the completion of investment projects. In such circumstances, easing credit to stimulate consumption only exacerbates structural misalignments and postpones necessary adjustments. Rather, the need is for 'the most speedy and complete adaptation possible of the structure of production between the demand for consumers' goods and the demand for producers' goods' (Hayek, 1935b, p. 98). Insolvencies would be inevitable.

Astute bankers give the closest consideration to potentially insolvent enterprises. Where a bank's commitments are certain to be written-off by early foreclosure, an extension of credit (as 'distress borrowing') may prove a soundly calculated risk. If, in their turn, commercial banks are able to obtain credit (or, rather, cheaper credit) from the central bank, this must enter their calculations (in raising the expected pay-off to facilitating 'distress borrowing'). For commercial and central bankers alike, these are delicate acts of judgement that should not be confused with the pseudo-remedy of easing credit *to stimulate demand generally* whenever recession looms, for therein lies the affliction and not the cure. It requires no sophisticated theory to understand that cheap credit – that allows workers to be temporarily retained in sectors whose markets have permanently declined – provides no lasting solution. Commercial (rather than central) bankers are privy to the detailed,

local *micro*economic business plans that are relevant to such decisions. That is not to say that all bankers are so astute! Commercial banks may themselves be made insolvent by the insolvency of enterprises to which they have unwisely extended loans.

Whereas Hayek's diagnosis and prognosis are sound in terms of stylised facts that are readily drawn from his theory, he retrospectively discounts their 'practical significance' to the Great Depression, given that monetary policy prior to 1929 had sought merely 'to secure a *stable* price level'. Furthermore, where bank failures and the resulting monetary contraction are effects (not causes) of an economic downturn, these can trigger a 'secondary depression' as goods are unsold, workers are dismissed and prices and wages tend to fall. So, there is a (practically difficult) distinction to be drawn between the structural unemployment that arises in sectors whose unwarranted expansion is the consequence of monetary profligacy, and the general unemployment that is caused by secondary deflation once the inevitable recession is set in train.

Factor reallocations and adjustments to prices and wages are essential to achieve recovery. In the 1930s, trades unions, price regulations, trade barriers and tariff protection inhibited those necessary adjustments. Moreover, although the Federal Reserve operated an expansionary monetary policy (M) to offset the secondary deflation, this was more than compensated (in the face of disequilibrium prices and general uncertainties) by a fall in the velocity of circulation (V). The result was a collapse in total expenditure (MV).

With the price mechanism rendered ineffective in relocating workers to sectors with the potential to deliver products that were wanted, 'the original unemployment … spread by means of the mechanism … [of] …"secondary contraction" ' (Hayek, 1975a, p. 7); but, notwithstanding the retrospective acceptance of the significance of that secondary effect, there is no repudiation of the inappropriateness of monetary measures to redress 'the maladjustments of industry left over from the boom' (Hayek, 1933a, p. 19). The use of monetary policy to lift an economy from depression is certain to exacerbate both its severity and duration. Easing credit not only affords temporary sustenance to unsustainable structures, it encourages further unwarranted developments. Rather, the need is to liquidate the malinvestements that delivered unwarranted business expansion.

So, while Hayek had believed that a short period of deflation in the early stages of the Great Depression might have broken the rigidity of wages, his retrospective view of the likely impact is different: the likelihood that such a measure would succeed probably

> disappeared in 1931 when the British government abandoned its attempt to bring down wages by deflation, just when it seemed likely to succeed … I still believe that we shall not get a functioning economy until wages again become flexible, but I think we shall have to find different techniques for

> that purpose. I would no longer maintain, as I did in the early '30s, that … a short period of deflation might be desirable. (Hayek, 1975a, p. 5)

Hayek's revised assessment is that wage flexibility remains essential; but that one measure to offset secondary depression is to provide 'employment through public works at relatively low wages so that workers will wish to move as soon as they can to other and better paid occupations' (Hayek, 1978b, p. 212). More generally, intervention by the monetary authorities could bring advantages 'in the later stages of a depression' when 'deliberate attempts to maintain the money stream' would be justified to counter the 'cumulative process of secondary deflation' (Hayek, 1975a, p. 5; see also Hayek, 1978b, p. 210). Hayek adds further detail to his reappraisal:

> [i]t is now generally recognised that even those additions to the quantity of money that in a growing economy are necessary to secure a *stable* price level may lead to an excess of investment over saving. But although I was among those who early pointed out this difficulty, I am inclined to believe that it is a problem of minor practical significance. *If increases or decreases in the quantity of money never exceeded the amount necessary to keep average prices approximately constant, we should come as close to a condition in which investment approximately corresponded to saving as we are likely to do by any conceivable method*. Compared, anyhow, with the divergences between investment and saving which necessarily accompany the major swings in the price level, those which would still occur under a stable price level would probably be of an order of magnitude about which we need not worry. (Hayek, 1978a, p. 83; italics added)

These are highly significant observations that buttress the conclusion that Hayek discounts his contemporaneous 'explanation for the onset of the Great Depression'; but the associated conclusion that Hayek 'repudiated his earlier business cycle theory' is unwarranted, for which reason it is no surprise that Hayek should fail to 'indicate what cycle theory should be put in its place' (White, 1999, p. 118). Although Hayek's later commentary tends to focus upon misallocations of labour and consequential unemployment, he alludes more generally to 'factors of production':

> [t]hese discrepancies of demand and supply in different industries, discrepancies between the distribution of demand and the allocation of factors of production, are in the last analysis due to some distortion of the price system that has directed resources to false uses. (Hayek, 1975a, p. 7)

That Hayek concludes that price stabilisation is 'of minor practical significance' to the business cycle is one thing; that he also believes that, 'by creating

employment through inflation, we lay the foundations for a future period of worse unemployment' (Hayek, 1975a, p. 3) is quite another. The latter comment is consistent with the first and draws from Hayek's monetary business cycle theory. As an endorsement, rather that as a repudiation of that theory, Hayek asserts 'one of the chief benefits of a stable currency' to be that of substantially preventing 'those misdirections of production which later inevitably lead to reversals of the process of growth, the loss of much investment, and periods of unemployment' (Hayek, 1978a, pp. 69–70). The pernicious impact of even a 'mild inflation' is in having

> caused misdirection of production and drawn labour and other resources into activities which could be maintained only if additional investment financed by the increase in the quantity of money could be maintained. (Hayek, 1978a, p. 93)

Most emphatically, Hayek reaffirms his commitment to a 'theory which asserts that unemployment is an effect of a deviation of the actual price structure from the equilibrium structure'. However, in consequence of 'the modern fashion [that] demands that a theoretical assertion which cannot be statistically tested must not be taken seriously and has to be discarded', Hayek is left to lament that,

> a theory which, in my opinion is the true explanation has been discarded as not adequately confirmed, and a false theory has been generally accepted merely because it happens to be the only one for which statistical evidence, even though very inadequate evidence, is available. (Hayek, 1975a, p. 7)

As the context for Hayek's original exposition, the gold standard mechanism set a limit to credit expansion. Without that 'built-in stop', the inflationary boom after the Second World War lasted for some twenty years instead of the expected 'five or six years'. Further, Hayek points to a special difficulty in respect of the consequences of an over-expansion of credit in the 1970s as against the 1930s:

> [i]n the misdirection of labor and the distortion of the structure during the past business cycles, it was fairly easy to point to the excessive expansion because it was, on the whole, confined to capital-goods industries. The whole thing was due to an over expansion of credit for investment purposes, so you could point to the industries producing capital equipment as those which had been over expanded.
>
> In contrast, the present expansion of money … has gone into entirely different channels. The additional expenditure has been much more widely dispersed. (Hayek, 1975a, p. 20)

However, the theory is *not* repudiated – 'I do not doubt that in a sense we have today the same kind of phenomenon' – but its practical relevance is more intricate for the reason that, whereas in earlier periods it was possible to identify 'particular illustrations of overexpansion' (Hayek, 1975a, p. 20), in the 1970s, overexpansion was no longer primarily confined to capital goods industries:

> so much of the credit expansion has gone to where governments directed it that the misdirection may no longer be overinvestment in industrial capital but may take any number of forms. You really must study it separately for each particular phase and situation. The typical trade cycle no longer exists, I believe. But you get very similar phenomena with all kinds of modifications. (Hayek, 1994, p. 146)

An illustration of 'very similar phenomena' is provided by an analysis of risk control and risk externalisation. The time discount factor, the inflation premium and the risk premium are the three elements that comprise the market rate of interest. Policy intervention can introduce discrepancies between risks willingly and actually borne. If risk is concealed from lenders (or shifted to others) risk-taking becomes excessive. Although initially manifest as boom, '[e]xcessive risks are converted in time into excessive losses' (Garrison, 1994, p. 124). A capital-based account of legislative and policy-based distortions in risk premia (whereby private sector activity is insufficiently attenuated by considerations of risk) shows US macroeconomics (1980s boom, 1990s bust) to be more plausibly related to Hayek's capital theory than to A.W. Phillips's curve.

The most general point is that price distortions always result from monetary expansion; that, even if the helicopter miracle could be performed, the balance of liquidity within financial assets portfolios would be disrupted. Only if all financial assets were incorporated into the helicopter fable, might there be 'neutral money' (or rather 'neutral financial assets') in the sense that 'events … could take place … as if they were influenced only by the "real" factors which are taken into account in equilibrium economics' (Hayek, 1935b, p. 130). (See O'Driscoll, 1977, p. 130, fn 56 for an analogous point.) A portfolio analysis of 'neutral financial assets' might have emerged but for the abrupt termination of Hayek's work on *The Pure Theory of Capital* (see Hayek, 1983, p. 48; Nentjes, 1988, p. 146).

That Hayek's work on money, investment and business cycle theory should be misunderstood and misrepresented poses nothing new. Its contemporaneous failure to win approval might be attributed to Hayek having 'purposely refrained from combining purely theoretical considerations with discussions of current events' (Hayek, 1933a, p. 18). Further explanation might lie in a methodology in which theory, founded upon introspection, takes precedence over empirical work. Indeed, the economic malaise of the

1930s generated an impatience with sophisticated theoretical analysis. Though inhospitable to Hayek, this impatience produced a fertile climate for the acceptance of Keynes's *General Theory*.

The interplay between heterogeneous investments and the incentives created by monetary disturbances gives the basis for Hayek's distinctive contribution to business cycle theory. That analysis provides an explanation of the *origin* of discrepancies between the supply and demand of different commodities that lead ultimately to 'a general "disproportionality" between supply and demand' (Hayek, 1933a, p. 43). The impact of monetary expansion, first upon the rate of interest and subsequently upon relative prices, is to trigger an investment boom that is followed inevitably by business recession.

Those who, for whatever reason, find little empathy with Hayek's monetary theory of the business cycle, can point to no logical inconsistency; nor (given the complex microeconomic structure of that theory) can they expect to find that its detailed propositions are either 'adequately confirmed' or readily falsified. Moreover, when historical events are shown to support some rival theory, it is totally inadmissible for this to be couched as implicit evidence against Hayek. There is no suggestion from Hayek that monetary expansion is the *only* cause of business cycles. Certainly, Hayek admits: (1) to having overstated the relevance of monetary expansion to the Great Depression; and (2) to recognising that the impact of credit-expansion is 'much more widely dispersed' in the modern economy. Yet, it is equally certain that Hayek remains constant in his of view the relevance of monetary expansion to particular mal-investments and to general economic malaise.

Addendum: empirical corroboration of the Ricardo effect

In the original context of the labour theory of value, the Ricardo effect relates to the substitution of men for machines, whenever money wages rise and/or product prices fall. In the context of Austrian capital theory, the Ricardo effect relates to the substitution of more for less roundabout methods of production, whenever money wages rise and/or product prices fall. These are not the same. Any idea that Hayek's business cycle theory translates into a statement about the proportion of durable capital (to labour) at various phases of the business cycle is simply wrong. Furthermore, irrespective of whether the length of the gestation period, or the length of the production period, or some combination of both is used to determine the 'degree of roundaboutness', this is not the same thing as 'capital intensity'. Under the special conditions (represented by equation 8.11) which allow for quantification of 'capital intensity', there is no basis for the presumption that a less capital-intensive production method will *necessarily* have a greater proportion of the cost of its inputs as direct labour costs.

These observations are relevant in respect of attempts to find empirical corroboration of the theory. According to Hayek's exposition, cheap credit is

the basis for a general increase in the demand for labour in the early upswing; but, in the later upswing the scarcity of consumption goods becomes so great (and their prices are rising so fast) that a reversion to less roundabout methods becomes inevitable. Since the implication of this is that *real* wages fall in the later upswing, empirical evidence that both real and money wages vary procyclically is cited against the theory. Yet, straightforward linear statistical correlations overlooked the distinction between the early upswing and the later upswing. (For a detailed examination of this point, see McCormick, 1992, p. 121.) However, this is not the only difficulty in interpreting the empirical evidence.

In the theoretical expositions, it is generally assumed (as in the case in equation 8.1) that input costs means wages; but wages may not be the sole element of input costs. The reversion to less roundabout methods in the later upswing might be triggered by higher consumption goods prices in relation to *total* input costs. If it is further accepted (i) that input costs incorporate the value of raw materials, semi-produced components, and durable plant and machinery, (ii) that the labour theory of value is not invoked and (iii) that the value placed upon stock items (non-labour inputs) is unlikely to rise *pro-rata* with rising wages and final goods' prices, the empirical evidence becomes even more clouded. For example, where the rise in non-labour input prices is relatively sluggish, there could be a reversion to less roundabout methods even if wages and final goods' prices move in strict unison. Moreover, if the valuation of the non-labour elements of input prices is more likely to keep pace with wages and with the prices of final goods under conditions of hyperinflation, this could explain the continued concentration upon the production of capital goods in Germany in the 1920s (see McCormick, 1992, p. 120).

10
International or National Money?

> [S]ince there is no means, short of complete autarchy, of protecting a country against the folly or perversity of the monetary policy of other countries, the only hope of avoiding serious disturbances is to submit to some common rules, even if they are by no means ideal.
> (Hayek, 1939a, p. 94)

Hayek draws no policy guidelines from the theoretical analysis that shows a causal linkage between bank credit creation and business fluctuations. Rather, bankers must judge the relative advantages and disadvantages of meeting new demands for bank credit. Varying opportunities emanating from the real economy cause changes in the demand for bank credit; but there should be no attempt to stabilise the volume of bank deposits, because '[t]he stability of the economic system would be obtained at the price of curbing economic progress' (Hayek, 1933a, p. 191). Although it might incur forced saving, with the consequence of an unjust redistribution of income, economic progress should not be sacrificed. Although Hayek was confident that developments in monetary theory would shed light upon the problem of the trade-off between that injustice and economic progress, that confidence was undermined by a rival and influential analysis that originates in Keynes's *General Theory*.

The message of *The General Theory* is that the international system of monetary exchange had failed to achieve a balanced prosperity. Keynes's recommendation is for each sovereign state to operate its own monetary policy, independently of wider international considerations; and the implication of his thesis is that the circulation of money between nations should not be determined by the same market processes that determine the distribution of money between regions of a country. This remains is a lively issue – for example, in the context of an optimum currency area and the single European currency – and one that demands consideration of the most fundamental concepts, swept clear of the confusing detail of particular events and institutional arrangements.

A brief history of money

Anything that is used as a medium of exchange has 'moneyness', and so may serve as money. With the convenience of a high value-to-weight ratio, durability and low storage costs, precious metals have been widely used. Although reliable methods of assay and uniform dies to strike recognisable coins were universal developments that reduced the transaction costs of using money, the ascendancy of state coins over privately minted coins came, not from the greater efficiency of state mints, but by decree. State monopolies were created in order to achieve the means to raise revenues on the largest scale.

State mints would buy gold and silver bullion, using as payment the current issue of state coins. A deduction for seignorage covered the costs of manufacturing coins and gave a monopoly profit to the state. The convenience of coinage, the absence of alternative suppliers and the status of legal tender ensure a continuous supply of precious metals; but the temptation to increase the margin of profit proved hard to resist. Ever larger proportions of base metal can be added to coins. While effective in increasing revenues, debasement can be met by a reluctance of traders to deal with state mints and, eventually, may give rise to currency reform.

In the modern era, most coinage is minted from base metal. It may be convertible into gold; or it may not. Such 'token' money is a medium of exchange only to the extent that there is confidence in its general acceptability. This confidence is destroyed if currency is issued to such excess that it becomes worthless. Whenever this happens, there is recourse to barter and/or to the use of various forms of commodity money; for example, scarce, high-value, low-weight cigarettes have served as the substitute for a worthless currency.

The use of chequeable bank deposits became a self-sustaining practice with the growth in the number of deposit holders who would accept cheques drawn on others' accounts. Effective clearing systems between different commercial banks gave further impetus, and the development of centralised banking systems meant that an ever-smaller ratio of reserves to deposits proved sufficient to meet encashment demands. Further, the arrangement whereby a single central bank holds those (gold and foreign exchange) reserves that are suitable for foreign payments, meant that individuals became dependant upon the national reserves for their ultimate ability to pay foreign debts. Here there is a political temptation. The state can raise revenue over long periods by the steady erosion of the purchasing power of state money; that is, by inflation, which causes the domestic currency to depreciate in value (in relation to commodities, gold and foreign exchange). This must raise the question of the fitness of the state to administer monetary control and, indeed, provides the rationale for an independent central bank.

Monetary nationalism

Although free-convertibility and adherence to the gold standard provided a sound basis for stable currencies, the case was made in Keynes's *General Theory* that national authorities should distance themselves from the discipline of market forces by establishing independent monetary systems. In sharp contrast to Keynes, Hayek was 'a convinced believer in the gold standard' (Hayek, 1939a, p. xiii). It had been maligned for much that had been due entirely 'to the mixed character of the system' (Hayek, 1939a, p. 7) in operation (since the recommendation from the 1922 Genoa conference that foreign currency might serve to supplement a nation's reserves of bullion) and which Hayek preferred to call the 'gold nucleus standard'. (The distinction is more commonly described as between the gold bullion standard and the gold exchange standard.)

Again in opposition to Keynes, Hayek also argues that the abandonment of an uninhibited system of international monetary exchange had exacerbated the severity of the Great Depression. Those who see benefits in independent monetary systems, or monetary nationalism, support

> the doctrine that a country's share in the world's supply of money should *not* be left to be determined by the same principles and the same mechanism as those which determine the relative amounts of money in its different regions and localities. (Hayek, 1939a, p. 4)

Against a conventional wisdom that deprecates the operation of an international gold standard, Hayek lists three of its important attributes (see Hayek, 1943a): changes to the supply of money are largely in the right direction, in that gold extraction is encouraged by every increase in the price of gold; the effect of an international currency is created without the requirement for an international monetary authority; and the operation of domestic monetary policy is, of necessity, largely automatic and predictable.

The idea of a reform of the international monetary system upon the basis of wise and impartial management – where subjective judgement is applied to set one interest against another – is idealistic and forlorn. To achieve any measure of success, an international monetary system must incorporate inherent safeguards against arbitrary and unpredictable control. The 1944 Bretton Woods agreement to alleviate the supposed deficiency of international liquidity was subsequently held to be responsible for the progressive decline in the purchasing power of western currencies (see Hayek, 1991a, p. 88). In the Eastern bloc, the situation was much worse, for under repressed inflation the price system becomes largely inoperable.

Keynes had been a leading exponent of independent monetary systems; and he had argued that the 'policy of an autonomous rate of interest, unimpeded by international preoccupations, would restore economic

health and strength internationally' (Keynes, 1936, p. 349). In an earlier thorough examination of the theoretical issues by which monetary nationalism should be judged,[1] Hayek had produced a comprehensive counter to Keynes's argument. This general presentation is worthy of the closest attention. It begins with an important distinction that must be drawn between inherent differences between nations and differences that are a *consequence* of national monetary systems. In principle, there can be no advantages from independent monetary systems unless there are significant differences between the monetary relationships that exist between the regions of a nation and the monetary relationships that exist between different nations.

International monetary transactions

Both nationally and internationally, the availability of credit facilitates mutual gains from trade. From this basis, it must follow that it would be grossly misleading to suggest that international capital movements are directed only by interest rate differentials. The direction and the use of credit, whether within or across national boundaries, is determined primarily by trading advantages as reflected by prices in different areas:

> [c]hanges in short term international indebtedness must therefore be considered as proceeding largely concurrently with normal fluctuations in international trade; and only certain remaining balances will be settled by a flow of funds, largely of an inter-bank character, induced by differences in interest rates to be earned. (Hayek, 1939a, p. 60)

Changes in the demand/supply of goods produced in one area can alter the proportion of world income earned there, but the associated change in the proportion of (world) money circulating in that area are not necessarily be the same. An exact correspondence would exist only if individuals whose money income falls (rises) reduce (increase) their money holdings proportionately. However, unless there is some radical alteration to existing habits of behaviour, changes in income and money are likely to follow the same direction.

Even in the presence of an international money standard in which there is universal confidence, foreign balances offer great convenience. The need to facilitate everyday transactions, together with the availability of interest-bearing deposits as against idle holdings of international money, gave the incentives that were responsible for the gold bullion standard giving way to the gold exchange standard, the basis of which was gold *and* foreign-exchange reserves. In this context, while there are many different categories of international capital movements, the sale and acquisition of the national money (and nominal securities) of one country by the residents of another

has become of crucial importance. As a matter of convenience, international currency transactions generally take the form of adjustments to domestic balances held with foreign banks.

Flexible exchange rates allow a potential for capital gains/losses and provide an additional motive for short-term capital movements. This brings an even greater significance to balances held with foreign banks. With the need to hedge against a multiplicity of currencies, a single liquidity reserve is high-risk cover against debts in different currencies. Continuing speculative purchases/sales of different currencies are to be expected, and their pattern reflects expectations concerning future market adjustments. However, unless there is general confidence that an existing set of exchange rates for national currencies will be maintained, long-term foreign investments are likely to be deterred, which must impede the exploitation of advantages arising from an international division of labour.

From the preceding discussion it becomes clear that international transfers of money facilitate both the trade in goods and services, and the change in ownership of real assets and financial assets. The precise mechanisms, by which the distributional pattern of money in circulation is altered by such transactions, depend upon the type of national monetary system that is in operation. Three cases may be considered:

1. a homogeneous international currency: the gold bullion standard
2. a mixed system, such as the gold exchange standard (or gold nucleus standard)
3. independent currencies.

The degree to which international capital movements *per se* have the potential to create monetary disturbances depends upon which of these systems is operative.

A homogeneous international currency

With a single currency for the world economy, the incentives for capital mobility would be no different between nations than within a nation. Capital would move in response to changes in the inherent attractions and risks of different investments. Short-term international borrowing/lending might also be arranged to accommodate temporary trade imbalances, but such indebtedness would be akin to that between traders operating within a national territory.

A homogeneous international currency introduces no complications to the transfer of currency between different nations. If an individual (whose residence is immaterial to the argument) were to switch expenditure from a country A product to a country B product, the volume of goods exported

from B, and the amount of currency accruing to B, would both increase. In B, someone's money income would rise; in A, someone's money income would fall. The subsequent impact and effects of these changes would be disseminated; but

> we cannot say how many incomes will have to be changed, how many individual prices will have to be altered upwards or downwards in each of the two countries, in consequence of the initial changes. … [That] will depend on whether and to what extent the value of a particular factor or service, directly or indirectly, depends on the particular change in the demand which has occurred, and not on whether it is inside or outside the same 'currency area'. (Hayek, 1939a, pp. 21–2)

The ramifications from any single change might be infinite. Although the greater reduction in the aggregate value of incomes is likely in A, a *majority* of those whose incomes fall might well be resident in B. It follows that arguments couched 'in terms of *the* prices and *the* incomes of the country' (Hayek, 1939a, p. 23) are superficial. It is not necessarily the case that movements in prices and wages within one country are more closely correlated than similar comparisons across national boundaries. According to Hayek, the evidence for such correlations are statistical illusions created by national indices of average price movements.

Apart from extraordinary events, which might create the possibility of large and immediate gains from investments in one particular nation (or even a sudden demand for cash), a homogeneous international standard would present few circumstances in which capital movements would adversely affect real productive activity in the world economy. Two general conclusions may be safely drawn for all likely circumstances. Transfers of money between nations:

1. produce effects that are quite different from those produced by monetary expansion/contraction within a closed economic system. Unlike the latter, transfers of money between nations are neither inflationary nor deflationary; and they create none of those unwarranted changes to price relativities which lie at the heart of the monetary theory of the trade cycle
2. have no general effect in changing the rate of interest in either country. If any such effect were perceived to occur, it is likely to be the result of individuals' reactions to changes in their money incomes, which are associated with such variations in the pattern of monetary exchange. Hayek discusses a number of possibilities: for example, attempts to restore money balances might lead to a reduction in consumption expenditure and a fall in the rate of interest. (see Hayek, 1937, pp. 24–5)

The gold nucleus standard

The gold nucleus or gold exchange standard is a mixed system, in which adjustments are brought about only in a very small part by the transfer of currency; the larger part is accommodated by a contraction/expansion in the amount of bank credit money in domestic circulation. Despite this difference, the final outcome is the same as with a homogeneous currency; namely, changes are achieved in the *value* of currency in circulation (in different countries) by changes in the *quantity* of money units in circulation. Yet, there is one very important difference. It is unlikely that bank credit adjustments would match the currency transfers that would otherwise have occurred. Rather, the burden of change would be more likely to fall disproportionately upon investment activity. With proportional reserve banking, a shortfall of reserves can be made good only by compelling individuals to repay loans. So, unless an imbalance in international currency flows corrects itself quickly, the reserve position of the central bank is endangered, and so it comes under pressure to speed up the adjustment process. It acts by tightening the terms upon which bank credit is extended. By raising interest rates, pressure is brought to bear (generally and indiscriminately) upon all outstanding loans. Thereafter, secondary reactions occur, involving those to whom banks would have lent and those who would have benefited from expenditure based upon those loans.

Even leaving aside the impact of interest rate adjustments upon international capital transactions, this general domestic deflation simultaneously reduces payments abroad and (by lowering the price of domestically produced goods) causes an expenditure switch away from foreign products. In this fashion, the implementation of a discretionary credit contraction is successful in shortening the period of adjustment; but both the extent and the severity of the effects upon individuals are quite different from those produced where there is a homogeneous international currency:

> [t]he transfer of only a fraction of the amount of money which would have been transferred …, and the substitution of a multiple credit contraction for the rest, as it were, deprives the individuals in the country concerned of the possibility of delaying adaptation by temporarily paying for an excess of imports in cash. (Hayek, 1939a, p. 29)

A further effect of such policy – that of moving domestic interest rates away from their natural levels – would have serious (and unwarranted) repercussions upon real economic activity (of the kind discussed in the preceding chapter) over an extended period of time. The disruption to real economic activity would be even more serious if operational reserve ratios differed between nations; for then the international flow of reserves would create a *world* tendency to either inflation or deflation, depending on whether net

new reserves accrued to nations with relatively larger or relatively smaller bank reserve ratios.

Hayek's conclusion is that the mixed system – the gold nucleus standard – is inherently flawed. It is not simply that the use of interest rate adjustments in the face of a diminution of foreign exchange reserves sets up unwarranted changes within the capitalistic structure of production. Rather,

> it is the necessity of 'protecting' reserves rather than letting them go (*i.e.* using the conversion into gold as the proper method of reducing the internal circulation) not the methods by which it has to be done, which is evil. (Hayek, 1939a, p. 33)

The only reform by which the system might be rescued is that of all nations having gold or multiple currency reserves large enough to allow variations in reserves equal in volume to the total adjustment required for the domestic circulation of currency.

Independent currencies

Short-term capital movements are almost certain to be more frequent and more disruptive when banking systems are organised on national lines. The explanation for this lies not with any international aspect of the arrangements. Instead, the problem is caused by the fact that independent monetary systems (by their *raison d'être*) permit impediments to be placed upon the free exchange of funds. Furthermore, the superimposition of the structures of domestic reserve banking means that all of the advantages that can arise from freely mobile short-term capital movements can be sacrificed, at the whim of the monetary authority, to protect the weak liquidity position of domestic financial institutions (including the central bank). When this happens, the requirements of the real economy – free access to finance and capital to support trading developments – are relegated to secondary importance.

Fixed exchange rates

Even a regime of fixed exchange rates offers no protection to entrepreneurial activity, for the reaction of the monetary authority to capital movements remains as a potential threat to real economic activity. With an outflow of capital, the central bank discount rate is raised in order to attract short-term credits. This manœuvre may preclude large-scale domestic credit contraction but, unless funds are attracted only from those areas to which reserves are out-flowing, the effect will be to induce credit contraction in some other country in place of credit contraction at home. Under fixed exchange rates, real economic activity in one country is always under threat from discretionary monetary intervention in another.

Flexible exchange rates

With flexible exchange rates, monetary adjustments can be achieved with no transfer of currency, nor any change in the quantity of money units in circulation. For example, if the effects of a capital outflow are offset by domestic credit expansion, there is a falling exchange rate; and bank reserve ratios are maintained by the rise in value of (the diminished volume of) foreign exchange reserves in terms of the domestic currency.

One of the main advantages, alleged to arise from an adjustable parity, is that it avoids the necessity to reduce money wages in a nation in which innovatory progress is generally slower than elsewhere, or in a particular industry when the demand for its product falls. It is instructive to consider again the example of an individual switching expenditure from a *specific* product in country A to a country B product. Monetary policy cannot prevent a fall in the relative price of the country A product, nor can it prevent sequential changes in incomes. What it can do is to prevent a change in the overall level of money income earned in country A, by creating offsetting adjustments to other prices, so as to leave the *average* price level unaffected.

With an independent monetary system, reduced demand for the country A product can lead (by this discretionary expansion of domestic credit) to an exchange rate depreciation. Increased domestic prices of imported goods and the greater profitability of export industries create a general tendency for prices of domestically produced goods to rise (with the one exception of that particular industry affected by the initial reduction in demand).

Yet, when the demand for one specific domestically produced good falls, relative domestic price ratios *must* change. The case for currency depreciation ignores this necessity. It is simply not the case that a proportional reduction in *all* domestic prices (that is achieved by exchange rate depreciation) is sufficient to restore an equilibrium to international payments. Relative price ratios ultimately *must* change.

Instead of allowing prices and incomes to adjust in those industries directly affected by reductions in demand, exchange rate depreciation causes an increase in a great many other prices and incomes, before relative price ratios eventually are returned to levels appropriate to the new pattern of demand. While the final outcome is unlikely to be identical to that which would have occurred had the exchange rate not been altered, the general outcome is that

> the same change in relative prices which, under fixed exchanges, would have been brought about by a reduction in prices in the industry immediately affected is now being brought about largely by a corresponding rise in all other prices. (Hayek, 1939a, p. 40)

In necessitating adjustment to the full array of prices within a process of general inflation, exchange rate flexibility corrupts the informational function of

the price mechanism and retards necessary adjustments to price relativities. Yet, whatever the extent of perverse consequences, the contraction of output and employment, in the industry that is directly affected by reduced demand, is unavoidable.

Of course, there is another side to the process of adjustment. The corollary of reduced demand for a country A product is the increased demand for a country B product. Suppose that the monetary authority in B likewise acts to stabilise the general level of prices. Exchange rate appreciation would then leave the industry in question with a smaller increase in foreign currency revenue, while other export producers would see their foreign currency revenues reduced. In addition, imports would be relatively cheaper in terms of the domestic currency, and so competing domestic industries would have to lower their own prices.

Taking the two parts together, some of the price adjustments that would have been necessary in the industry and the country from which demand has turned away, now take place in the country to which demand has switched. In practice, such symmetry is unlikely. While inflation and exchange rate depreciation is likely from the monetary authority in country A, it is hard to imagine deflation and exchange rate appreciation on the part of country B. So, while the general price level might well be stabilised in areas where demand falls most in relation to the rest of the world, prices are more likely to be allowed to rise in countries which benefit from new patterns of demand.

It becomes clear, therefore, that the likely outcome of monetary nationalism is a general world tendency to inflation. Worse, the forces giving rise to this tendency are unlikely to be confined to traded goods. So, the conclusion is that monetary nationalism unleashes insidious and pernicious forces; and it encourages the widely held view that 'no price of any single commodity should ever be allowed to fall' with the implication 'that the quantity of money in the world should be so regulated that the price of that commodity which tends to fall lowest relatively to all others should be kept stable'; and this means that all other commodity prices must 'be adjusted upwards in proportion' (Hayek, 1939a, p. 43).[2] In summary, the case for monetary nationalism under a flexible exchange rate regime depends on the answers to three questions:

1. Are short-term capital movements likely to be less volatile?
2. Could national authorities prevent (or offset the effects of) short-term capital movements, when they are thought to be undesirable?
3. What complementary measures might help to secure policy objectives?

Respectively, those answers are no, no and none! The explanations are as follows.

Whereas the authorities could stem a short-term capital outflow by raising the central bank discount rate, this would defeat the primary purpose of

monetary nationalism. With a policy objective of holding down domestic interest rates, a continuous currency depreciation would increase the momentum of capital outflow and domestic inflation. At home, rising prices would augment the yield on capital investments and increase the demand for investment funds; but upward pressure upon interest rates is quite contrary to the intentions of the authorities. With such perverse results, the policy regime is unstable. The gap between the market and the natural rate of interest would grow ever-wider with potentially catastrophic results. The view, that capital markets would be less volatile in a world divided strictly into national territories, is untenable. Unable to meet urgent needs for credit by way of free access to the widest sources of funds, local capital markets would become more, not less, volatile.

To achieve any degree of success, monetary nationalism requires tight foreign exchange controls, but that is not all. Only the most extensive trade controls imaginable could further the cause of monetary nationalism. The reasons for this conclusion derive from the most mundane of commercial considerations. When the domestic currency is depreciating, it pays to leave export earnings overseas. In similar fashion, importers would attempt to cover future needs by bringing forward their purchases of foreign exchange. Each of these tendencies amounts to an additional outflow of capital, the control of which would require the extensive control of international trading arrangements.

Even if stringent controls were successful in preventing capital outflows, forces would still be at work to thwart the policy objective. The success in holding down domestic interest rates would affect different capitalistic processes of production in different ways. Goods used primarily for investment purposes would rise in price as the interest rate is forced down; and *vice versa*. For so long as international differences in the level of interest rates are maintained by artificial impediments to capital mobility and restrictions to free trading relationships, ever more significant distortions would be created between production methods, trading relationships and the type and prices of goods and services produced in different countries.

Hayek's criticisms of monetary nationalism rest upon the assumption that the 'system would be run as intelligently as is humanly possible' (Hayek, 1939a, p. 73). Wider issues – the dangers arising from competitive depreciations and political tensions inherent in the pursuit of mercantilist policies – are left to one side. Instead, Hayek condemns monetary nationalism for its failed promise to deliver economic advantages to nations operating within a world network of exchange. The promise is to give protection against external financial shocks, but monetary nationalism offers only the potential for international instability, the discouragement of long-term investments and a threat to the benefits arising from an international division of labour.

Independent state currencies leave too much to the discretion of national monetary authorities. So, too, do other international monetary systems, the

shortcomings of which lie not (as monetary nationalists would have it) in the fact that they are international, but rather, in that they are not international enough.

Monetary reform

The identification of the specific problems inherent in the flawed mechanisms that have been tried leads on to the question of proposals for international monetary reform. The original choice of gold as the international standard was made for politico-historic reasons. There is no economic case for gold to be used. If other tokens could render the same service as gold, it might be sensible to use them. Yet, in a world of sovereign states, there are compelling arguments for gold, because it is essential that the international standard should (be expected to) retain its value in all eventualities. In the context of the history of state token money, it may be that only gold can offer this essential characteristic.

In the United Kingdom, the objective of the 1844 Bank Charter Act had been for a mixed gold/paper system to operate as if only gold were in circulation, but the intention was thwarted by the process of bank credit creation. Thus the pre-1914 international gold standard had the inherent defect that currencies were linked to gold through relatively small national gold reserves, which also formed the basis of a domestic hierarchy of credit moneys. As illustrated at length above, this meant that the effects of new patterns of international monetary exchange had a different impact to those arising from new domestic patterns of exchange:

> it is the difference between the different kinds of money which are used in any one country, rather than the differences between the moneys used in different countries, which constitutes the real difference between different monetary systems. (Hayek, 1939a, p. 9)

In the context of this hierarchy, the crucial dilemma is that the only effective means by which a central bank can control bank credit expansion is by a strict policy of refusing to offer 'lender of last resort' facilities to institutions embarrassed by inadequate reserves.

Hayek draws a distinction between the organisation of domestic commercial banking upon the basis of a 'national reserve' and the requirement for some 'lender of last resort' facility, which he sees as a necessary feature of modern deposit banking. The rational choice for banking arrangements is between (i) unconstrained banking across national frontiers, with all commercial banks having a right to issue notes, supported by their own private reserves and (ii) a monolithic international central bank. The compromise choice of national central banks, with no direct power over the domestic circulation, but holding the ultimate international reserve of a small quantity

of gold, is 'one of the most unstable arrangements imaginable' (Hayek, 1939a, p. 77).

The arrangements are unstable because the central bank accepts responsibility without having control. Its responsibility is to provide cash whenever it is required by a commercial bank to meet its depositors' demands for encashment. Yet, until that need arises, the central bank has no powers to control the expansion of bank credit money that is the cause of the shortfall in cash reserves. There is an obligation to provide liquid assets both for domestic requirements (cash, or state token money) and for international transactions (gold). These requirements are not independent, because the two moneys are interlinked in a genuinely open economy.

While the hierarchy of moneys may be extensive, three categories are important, namely bank credit money, state token money and the international standard. The 'most pernicious feature' (Hayek, 1939a, p. 82) of this hierarchy is that changes in the relative demands for different kinds of money can lead to cumulative changes in the total volume of money. Within a credit hierarchy, the general rule is that an increase in the demand for a more liquid type of money leads to a decrease in the supply of a less liquid kind, and *vice versa*.[3] For illustration, if a commercial bank is required to convert deposits (less liquid) into cash (more liquid), it must reduce total deposits (less liquid) by a multiple amount, unless it is able to obtain more cash from the central bank. If the central bank provides new cash (state token money) to meet the requirements of commercial banks, it must choose between a depreciation of the domestic currency or a rise in the discount rate, in order to maintain its reserves of the international standard.

So the case for banking reform may be much stronger than the case for currency reform, for it is in the nature of the credit structure that changes in the preference for different kinds of money have the potential to be the greater source of monetary disturbance than changes in the preference for holding money in general. While little consideration is given to the former, the latter has attracted the close attention of economists across the centuries.

In recent times, the abolition of reserve banking was central to the Chicago one hundred per cent reserve ratio plan, whose proponents saw advantages in the application of the principles of the 1844 Bank Charter Act to modern banking practice. While the proposal is attractive, Hayek casts doubt upon its likely success, for the intention of the 1844 Act – to control state token money, which was then the only important substitute for gold – was thwarted by the innovation of bank credit money. Hayek argues that similar restrictions upon modern reserve banking might again provide a stimulus for financial innovation.

The aims of banking reform should be (i) to increase the certainty that one form of money is readily exchangeable against any other form at a known rate and (ii) that changes in preferences for different moneys do not affect the total quantity of money in circulation. In an international context, this

calls for irrevocably fixed parities. For domestic banking, it calls for national reserves to be raised to levels sufficient to obviate the need for a domestic multiple contraction of bank credit money whenever there is a net outflow of reserves.

The new era might begin with each nation holding the highest possible percentage of reserves but, if that level is below 100 per cent, it would always be possible for a situation to develop far enough to require multiple bank credit contraction. This could be avoided only if the central bank were required to shape its credit policy in a highly specific relationship with the state of the national reserves. Instead of adjusting outstanding liabilities by some fixed multiple of reserves, the central bank would be set a more difficult task. At the apex of a banking system and providing a guaranteed access to its 'lender of last resort facility', the central bank would exercise effective control only by acting persistently against the trend of commercial bank credit creation. In so doing, the superstructure of credit would be made to conform to changes in the national reserves in such a way that the total volume of money in circulation would change by the *exact* amount as the change in the national reserves. In this manner, the system would replicate the operation of an international gold currency. As to the likely implementation of such a reform:

> [t]he difficulty of the task, the impossibility of prescribing any fixed rule, and the extent to which the action of the central banks will always be exposed to the pressure of public opinion and political influence justify grave doubts. (Hayek, 1939a, p. 91)

In his 1937 lectures, Hayek passes over the question of whether a constant stock of money is preferable to one which increased *pro rata* with productivity changes.[4] Whichever rule might apply, it should relate to the world money supply and not to a single national currency. If these reforms were unlikely to be adopted, *any* mechanical principle would secure some conformity to the precepts of a truly international system, and this would be preferable to the *ad hoc* national monetary autonomy within a sham international banking system. Hayek's proposals for monetary reform are discussed in the next chapter.

11
Market Standards for Money

> All history contradicts the belief that governments have given us a safer money than we would have had without their claiming an exclusive right to issue it.
>
> (Hayek, 1978b, p. 224)

Monetary discipline

Attempts to delineate and to control any particular subset of the many different liquid assets available (both actually and potentially) in a modern economy are fraught with difficulties of both a theoretical and of a practical kind. Although Hayek endorses the monetarist objective that monetary policy should not become the cause of disturbances to real economic activity, he is critical of Friedman's case that policy might be made effective through control of the annual growth of a statistical money aggregate. Hayek rejects both the concept of the money supply and the single objective of a stable price level. In the context of the discussion presented in Chapter 7, the desire is for money to be neutral in the sense that hypothetical barter transactions are unaffected by the presence of money. In theoretical terms, this is achieved by the requirement

> that the quantity of money (or rather the aggregate of all the most liquid assets) be kept such that people will not reduce or increase their outlay for the purpose of adapting their balances to their altered liquidity preferences. (Hayek, 1978a, p. 77)

This is a delicate balance and one that can be determined only by market forces, for '[n]o authority can beforehand ascertain, and only the market can discover, the optimal quantity of money' (Hayek, 1978a, p. 77).

The abuse of monopoly power, the pernicious effects upon the structure of investment (which can be caused by bank credit creation extended upon the

basis of reserves of state token money) and the persistence of the mercantilist notion (that the primary responsibility of the state is to protect its hoard of gold and foreign currency reserves), illustrate the need for a set of principles to guide the conduct of monetary policy. Money is too important to be left to the control of the state.

In his 1937 lectures, Hayek laments the loss of that monetary discipline which the international gold standard had imposed, but he fears for the consequences of an untimely restoration; that is, 'before people had become willing to work it' (Hayek, 1939a, p. xiii). The general theme of Hayek's lectures is the damage that can be inflicted upon the real economy by the kind of monetary nationalism that is the crux of Keynes's *General Theory*. The highly theoretical bent of Hayek's lectures follows a desire to influence the development of professional opinion[1] and a belief 'that in the long run human affairs are guided by intellectual forces' (Hayek, 1939a, p. 94). There is more than a trace of constructivist rationalism in the plea that

> so long as an effective international monetary authority remains an utopian dream, any mechanical principle (such as the gold standard) which at least secures some conformity of monetary changes in the national area to what would happen under a truly international monetary system is far preferable to numerous independent and independently regulated national currencies. (Hayek, 1939a, p. 93)

The practical problem of discovering the most benign form of monetary authority is one to which Hayek repeatedly returns (Hayek 1960, 1976b, 1978a, 1986), though always without reference to his earlier seminal contribution. The explanation for this omission may lie with the respective audiences addressed. The 1937 lectures were delivered to an academic audience, whereas more recent expositions have appeared in publications aimed at a wider (even lay) readership. The new argument – for which Hayek concedes 'intellectual priority' to others (Hayek, 1978a, p. 23, fn; 1991a, p. 221, fn 1) – is that governments should surrender their monopoly of the note issue. This is a proposal that is made in direct opposition to the central feature of Keynes's system of aggregate demand management; that is, to the idea that the operation of an autonomous domestic monetary policy should be freed from the constraint of wider international considerations.

State monopoly in the provision of currency was never likely to produce characteristics that best suit the users of money; but, for so long as the state was constrained by gold convertibility and the requirement to bridge international net transfers with gold, an orderly money regime was sustained (see Chapter 10). Although, under Keynes's influence, that order has been threatened, the possibility of a return to the gold standard ceased to be a sustainable position for the reason that its operation rested upon international compliance and 'the general opinion that to be driven off the gold standard

was a major calamity and a national disgrace' (Hayek, 1960, p. 335). Hayek had submitted his own proposals for a commodity reserve standard (Hayek, 1943a) to the international Bretton Woods Conference of 1944, but they proved unacceptable. Instead, the US dollar replaced gold as the international reserve asset, within a regime of fixed exchange rates.

Currencies were convertible into the dollar, and the dollar was convertible into gold, and central banks were allowed to extend credit upon their reserves of other (than their own) convertible currencies. So, any nation having a trade surplus with the United States could accept interest-bearing dollar securities (rather than gold). Like transfers of gold, these dollar securities increased the reserve assets base for domestic credit expansion. Unlike transfers of gold, there would be no diminution of reserve assets in the United States, so that the basis for US domestic bank credit expansion would remain unchanged: '[t]he international monetary system thus came to resemble a group of children playing marbles who agree that after each game the losers would get back the marbles they have put up' (Rueff, 1964, p. 117). These arrangements brought insufficient discipline. There was ready access to credit from the newly created International Monetary Fund; and intermittent exchange rate readjustment meant that monetary expansion went largely unchecked. Not only did the new regimen produce inferior money, it also made a major contribution to the growth of state power.

Money and macroeconomic management

Where the power of the state is kept to the minimum necessary to administer justice, law enforcement and national defence, slowly evolving traditions and cultural practices give protection to the rights of the individual (see Chapter 3); but, with increased state intervention in economic and business affairs, the concern to protect individual rights is greatly diminished. In the twentieth century, those developments found their place within the wider context of a rational approach towards formulating plans intended to meet certain collective objectives. The euphemism 'socio-economic' was adopted and, before long, the approach was blessed with academic respectability; this new Keynesian era was to last for some fifty years.

What mattered was economic *development* as part of a *social* process. The money order was no longer viewed as vital to individual market processes, by which the coordination of diverse activities – intricate far beyond human comprehension – is achieved. Money acquired a new role. In the context of attempts to model the national economy, money was placed alongside a number of statistical aggregates – levels of saving, investment, exports, imports and so on – to produce a simple-to-assemble compendium: a model of 'national income determination' that purports to depict the essentials of the structure of the national economy. Money was thrust into a theoretical

model of collective human action in aggregate form. Average values of expenditures upon consumer goods and capital goods were held to exhibit robust time-series relationships (as exemplified by savings ratios, income multipliers, accelerator coefficients and so on) such that parameter estimates to gauge the reaction of consumers and investors to changes elsewhere were accepted with only marginally less seriousness than empirical calculations of the speed of light.

Against perceived inter-relationships between statistical aggregates, the choices that are made and acted upon by individuals were of minor consequence. In particular, the entrepreneurial role was belittled. Entrepreneurs know no better than laymen the actions that must be undertaken to meet diverse needs. Experts could supervise the development process, and there is no reason for the money standard to keep to *individuals'* requirements in the context of exchange and risk bearing. As these ideas took hold, government expenditure came to constitute an ever-larger proportion of national income and government debt assumed an ever-greater importance in financial markets, so that monetary policy and interest rates became intricately bound up with the financial requirements of the state.

Much earlier, but especially during the industrial revolution of the eighteenth and nineteenth centuries, the application of science had brought remarkable solutions to intricate technological problems. In the twentieth century, the philosophy of 'constructivist rationalism' took a firm hold with the growing conviction that science might achieve similar advances in respect of economic problems. In 1936, Keynes's *General Theory* gave support for this development, by presenting an economic framework for the pursuit *of national* advantages that drew heavily upon mercantilism (even though that creed had been refuted by Adam Smith, 150 years or so earlier).

With the presumption that the rate of interest and the level of investment are unlikely to self-adjust to levels compatible with full employment, Keynes saw an 'element of scientific truth' in the mercantilist preoccupation with maintaining an international trading surplus. According to this new diagnosis, a nation with chronic unemployment is short both of remunerative investment opportunities at home and of the means to secure a reduction in the domestic interest rate. So a trade surplus is desirable on two counts: overseas markets give new outlets for domestic industries and higher returns to investment, and net foreign currency earnings keep domestic interest rates low. However, Keynes indicated that a more obvious route to those same ends is through the appropriate choice of monetary policy, so that each nation might pursue goals that are in both the national and the international interest. State expenditure, financed by monetary expansion, was a ready panacea for economic depression.

Keynes was an opportunist with a great intellect and a keen sense of the political mood of the day.[2] He was able to convince academics and to

manipulate politicians, but his intellectual strength was not matched by his physical constitution:

> [a]bout the last time I saw him, a few weeks before his death ... I had asked him whether he was not getting alarmed by the use of which some of his disciples were putting his theories. His reply was that these theories had been greatly needed in the 1930s; but if these theories should ever become harmful, I could be assured that he would quickly bring about a change in public opinion. (Hayek, 1978b, p. 287)

From Keynes's death in 1946, Keynesianism ran unchecked for a quarter-century. During this era, there was a steady augmentation of state power as its monopoly in the provision of money became incorporated within a pretentious modern practice whereby government seeks to enhance technical control over the monetary system, in the belief that it can be rationally harnessed to meet specific national economic goals.

The idea that it is possible to manipulate the monetary system in order to achieve economic success is an illusion. The illusion is manifest at both national and international levels. European or World Central Banks are as potentially menacing to individual liberty as are domestic monetary authorities. The very creation of such institutions sets them tightly within the orbit of political power. The corruption of the money order that invariably follows impinges upon the cultural values of a free society. This is because the impact of monetary manipulation derives only from the alteration that it makes to cost and value relationships within society and by its effect in changing expectations of future values.

Unlike commodities, the service from money is not in being used up, but in being handed on. For this reason, monetary changes are always self-reversing. For example, when an addition to the stock of money is spent first on one particular commodity, it not only creates a temporary new demand there, it also has subsequent effects upon successive expenditures throughout the whole economic system, but which will be reversed once the monetary expansion stops:

> [i]nflation and deflation both produce their peculiar effects by causing unexpected price changes, and both are bound to disappoint expectations twice. The first time is when prices prove to be higher or lower than they were expected to be and the second when, as must sooner or later happen these price changes come to be expected and cease to have the effect which their unforeseen occurrence had. (Hayek, 1960, p. 330)

Inflation is a pernicious problem, because it corrupts the information that flows from the normal adjustment of market prices to changing patterns of demand and supply. It destroys saving, encourages debt, works against

several property and facilitates the drift to ever-greater state control. In disrupting the money order in the attempt to reach collective economic goals, the cost in terms of economic efficiency and human welfare has been incalculable. The complexity of the interactions that are set in motion and the disruption that is caused by monetary mismanagement are awesome. Only by the intellectual arrogance and vanity of man is it possible to explain the persistent belief in the possibility of advancing human welfare through the use of money as a tool to manipulate economic relationships. Whenever such action is taken, it endangers liberty and inhibits economic advance on every front.

In facing these issues squarely, Hayek attempts to show that, if individuals were to be allowed to exercise choice in their use of currency, a nation state would lose the power to 'protect' its sovereign currency from the consequences of domestic monetary policy. It would then be a less drastic next step to permit competition between privately issued currencies. Many of the suggestions, that seemed radical when *Denationalisation of Money* was first published in 1976, have since gained wide acceptance: 'the abolition of any kind of exchange control', 'free trade in banking', and that 'a single international currency is not better but worse than a national currency if it is not better run'.

Private money

Hayek describes the manner whereby a joint-stock bank might initiate a private currency. It would issue non-interest-bearing certificates denominated in a new unit (registered as a trade name) and announce a readiness to open cheque accounts in terms of that unit. In order to set a minimum value for its currency unit, the bank would enter into a legal obligation to redeem its notes and deposits with 'either 5 Swiss francs or 5 D-marks or 2 dollars' per unit. However, the stated policy of the bank would be to maintain the purchasing power of the unit in terms of a basket of commodities, the composition of which would be altered periodically 'as experience and the revealed preferences of the public suggested' (Hayek, 1991a, p. 145). New currency would be issued through lending and sale against other currencies.

As the value of the private currency sustains an ever-rising premium over depreciating state currencies (assuming that age-old tendency continues), demand to hold the new currency would increase and additional competing private currencies would be expected to emerge. Competition would provide the incentive for issuers to maintain the values of their respective currencies. Moreover, the trust that individuals are required to place in private money would be no different from that upon which private banking currently rests; that is, the trust that a bank will maintain a position whereby it is able to call upon liquid reserves to meet withdrawals from current deposits.

Whatever the specific forms taken by private currencies, these need not be to the exclusion of state monetary authorities. Private currency would displace state token money only if the latter were, in some sense, inferior. However, the introduction of competition into the provision of currency would necessarily create a circulation of diverse moneys. If this were otherwise – if competitors produced identical money units – an absurd situation would be created, whereby an increased supply of currency by one bank would cause a reduction in the value of the currency supplied by all banks. With no inhibitions to that expansion of currency, it would become worthless inside a very short period. By contrast, with each competitor exercising control over the unique characteristics of its own money, individual choice, free competition and flexible rates of exchange between currencies would provide a natural check to currency depreciation.

Without competition, a monopoly supplier of currency lacks any incentive to guard the value of its currency. On the contrary, in making first use of every additional currency note placed into circulation, a monopolist enjoys enhanced profits from continuous currency depreciation. Clearly the incentives are quite different for private moneys supplied in open competition. Alternative moneys would be distinct and each competitor would attempt to regulate the supply of its own particular brand of money, so as to make it the most acceptable among those in circulation. Moneys commanding the greatest confidence would be those giving the most secure expectation of constant purchasing power. Others would be driven into disuse. In a reversion of Gresham's Law[3] (which applies only where there is a fixed rate of exchange between coins of different quality) good money would be seen to drive out bad.

Indexation

Spot and forward prices would be quoted for competing currencies as they now are for commodities, and these would give respective rates of exchange. Holders and potential holders of the different currencies would be free to decide their own yardstick by which to assess the quality of any given currency. This might take the familiar form of a hypothetical commodity basket as the basis for a statistical price index. There is no limit to the potential number of different indices that might be used and competition (in the provision of index numbers) would again serve consumer needs effectively.

The idea of an objective value-yardstick for money is not new. Interest grew with the wider use of paper currency. Although it brought many conveniences, paper currency allowed a greater potential for the corruption of money values. Irving Fisher (1911) proposed that the gold weight of the US state currency unit should be increased by one percentage point for every percentage point fall in its purchasing power. While changing the gold content of a dollar coin would prove troublesome, changing the gold price of a paper

dollar certificate (thereby making it redeemable for a given quantum of gold) posed no such problems and its effect would be the same. Appropriate adjustments to the official dollar price of gold would be calculated upon the basis of linking its value to a composite package of staple commodities. Fisher cited a US Bureau of Labour index that was linked to the wholesale prices of 257 commodities.

Keynes (1923) favoured a similar scheme in his *Tract on Monetary Reform*, where he argued that a commitment to a stable currency value ought to be the primary objective of government policy. Control over the money supply combined with a legal minimum commercial bank reserve ratio would be necessary to counter changes both in the use of money by the general public and in the banks' own dealings. It would be necessary also to regulate the supply of foreign exchange to accommodate the effects of seasonal variations in international trading patterns. In working towards these objectives, Keynes proposed that a standard composite commodity might be used as a benchmark:

> it would promote confidence and furnish an objective standard of value, if, an official index number having been compiled of such a character as to register the price of a standard composite commodity, the authorities were to adopt this composite commodity as their standard of value in the sense that they would employ all their resources to prevent a movement of its price. (Keynes, 1923, p. 187)

Keynes believed that it would be possible for policy to be guided by reference to an index of prices, 'without judgement or discretion'.

Indexation is attractive, but difficulties arise from the fact that relative price adjustments occur continuously both under inflation and non-inflation. The problem comes in telling when a price increase is a necessary adjustment to changed demand/supply conditions. In other words, there is no blueprint from which to construct an index of inflation that would be unaffected by price increases of a non-monetary origin. So, for an index to provide a benchmark for currency stability, it should be constructed from 'international rather than local prices' and it should extend beyond final goods' prices, which give an inflationary bias through their tendency to fall with technological advance' (Hayek, 1960, p. 337). Yet, these difficulties exist only for the case of a single currency, where inflation and currency depreciation are synonymous. With competing currencies the term inflation becomes redundant, for competition would preclude a *general* depreciation of currencies:

> [n]othing would be more feared by bankers than to see the quotation of their currency in heavy type to indicate that the real value had fallen below the standard of tolerance set by the paper publishing the table. (Hayek, 1978a, p. 50)

In the context of competing currencies, Hayek's illustration of a 'currency stabilisation scheme' conjures up a situation in which commodity prices and currency exchange rates are used to determine the aggregate value (in terms of any private currency) of a given basket of commodities. As the index rises above (falls below) its par value, the issuing bank becomes more (less) parsimonious in its lending policy. If such reactions were consistently maintained, only the smallest fluctuations in currency values would occur. Currency speculation would add to the effectiveness of the measures taken by each and every bank to keep its own currency valuations at par.

Competition between state currencies

Given an inherent political conservatism and the reluctance of the state to relinquish monetary control, a feasible first step towards competitive currencies might be for the monetary authorities of other nations to be allowed to compete against the domestic provision of currency. Individuals could choose which currency to use. Consumer sovereignty would determine the supplies of moneys in the same manner as it determines the quality and composition of all other goods supplied under free competition. To this end, Hayek proposes that the nations of the world might 'mutually bind themselves by formal treaty not to place any obstacles in the way of free dealing throughout their territories in one another's currencies, or of similar free exercise of banking business' (Hayek, 1978a, p. 19).[4] With this arrangement, it would be impossible for a national authority to issue money in any way inferior to that of another nation. Deviation from the path of providing 'sound' money would result in the displacement of the offending currency from general use.

The standard

In representing once again the case for private money, Hayek (1986) recognises that most governments would be unlikely to countenance the circulation of private currencies. Instead of a circulating variety of notes and coins, the modern instruments of exchange – standing orders, direct debits, cheque cards, credit cards, debit cards and the like – provide an alternative route to sound money. Hayek imagines an enterprise – Standard Accounts Limited (SAL) – which accepts deposits (in currency notes of any type) in the manner of an ordinary commercial bank, but with the difference that deposits are valued in a standard unit of account: that is, against a weighted index of traded commodities. Deposits would be redeemable on demand (in currency notes of any type) to the value of the appropriate number of units of account.[5] The crucial problem for SAL would be to decide how best to invest multi-currency deposits so as to ensure repayment in the appropriate index-linked volume, while retaining sufficient liquidity in terms of currency to meet calls for the redemption of deposits.

The problem of liquidity would diminish with the growth of trust in SAL – for transactions would increasingly take the form of bookkeeping transfers between accounts – but this same development might tempt SAL to seek larger returns from higher risk investments and/or from a reduction in currency reserves to less prudent levels. The regular professional monitoring of published accounts, by independent financial journalists and other analysts, would be the market remedy to deter such developments, as would the offer by SAL of higher yields to encourage time deposits. Market forces might also generate a number of competing SAL-type enterprises, so that competition and the opportunity to hold a diverse portfolio of deposits would afford additional security. While distinctive currencies need play no part in the competition for deposits, separate and independent SAL-type enterprises would deliver the same ends as competition between private issuers of currency.

Hayek sees advantages in such competition, but for the standard to emerge as a universal unit of account it would be necessary for competitors to reach agreement 'on a common composition of the standard index number' (Hayek, 1991a, p. 29). Hayek is not explicit, but if there were such agreement, it would undoubtedly reflect a convergence of depositors' requirements for characteristics generally seen to be desirable in such an index. He also acknowledges the presence of a great force of inertia in the public's use of traditional currency, which might prove difficult to overcome. This inertia had been discussed many years earlier, when Keynes had shown the nature of that resistance, by way of an illustration:

> [if] the rate of inflation is such that the value of money falls by half every year, and … that the cash used by the public … is turned over 100 times a year … this is equivalent to a turnover tax of ½ per cent on each transaction. The public would gladly pay such a tax rather than suffer the trouble and inconvenience of barter. (Keynes, 1923, p. 49)

Hayek's speculation is that the introduction of the standard would be no more momentous than the launch of any other financial security, whose value is linked to a prices index or to some other independent benchmark. Thereafter, SAL deposits might be expected to find their place within a managed portfolio of securities, rather than for the standard to achieve universal status as a unit of account. Even more simply, perhaps, individuals should seek to protect their freedom, in all circumstances, to speculate against an anticipated depreciation of state currency. In so doing, money would be made subject to the discipline of market forces. While this would not remove all of the endogenous sources of market disturbances, it would eliminate the single greatest source, that of government manipulation. Thereby the stability of the real market economy would be enhanced through processes by which its monetary instruments are made part of the market process itself.

Postscript

Driven by competition, deregulation and new information technologies, the ever-increasing integration of world financial systems goes hand-in-hand with radical innovation. The diminished relevance of exchange and capital controls increases the element of consumer choice in shaping the characteristics of currencies. Even where the situation remains that relatively few currencies take the concern of international traders, consumers benefit more from oligopolistic competition than state monopolies. It might be anticipated that electronic currencies have a potential to add to those benefits (see, for example, Cohen, 2001). Developments further into the future, might embrace registers of wide-ranging asset portfolios (comprising not only financial assets of every kind, but also real assets) allowing individuals the facility to make market transactions and transfers across the complete liquidity spectrum. Such portfolios might be inter-linked with others that incorporate contracts to secure goods and services to meet future demands. Advances in communications, information technology and financial services could even raise the advantages and reduce the hazards of a money economy to the point where – in effect – arrangements would exist to allow the *barter* of assets and commodities alike.

12
Hayek's Legacy

> A doctrine that tells us more of the limitations on our ability to manage social affairs than of the possibilities of controlling the course of social and economic development is not likely to be popular in an age of scientism.
>
> (Barry, 1979, p. 202)

Words and meanings

Hayek considered that some of the distinctions he had chosen to make were of such importance as to warrant a special vocabulary. Since this vocabulary has not entered into common usage, a reiteration of the salient features of Hayek's legacy is an opportunity to present a brief glossary of his preferred terminology. *Praxeology* is the science of human action, in which the *a priori* approach is adopted: the surest axioms are those discovered through introspection. This use of introspection is an important advantage the social sciences have over the physical sciences, and it contrasts with *scientism* which is the slavish and misguided imitation of the method and language of the physical sciences. The use of statistical aggregates to estimate parameters pertaining to market forces at work is bogus.

The *catallaxy* is the science of exchanges: the market order wherein there is no common purpose. Its focus is upon free exchange *per se* rather than upon the implications of choice:

> [t]he term 'catallactics' was derived from the Greek *katallattein* (or *katallassein*) which meant, significantly, not only 'to exchange' but also 'to admit into the community' and 'to change from enemy into friend'. From it the adjective 'catallactic' has been derived to serve in the place of 'economic' to describe the kind of phenomena with which the science of catallactics deals. (Hayek, 1976a, p. 108)

The market process of exchange is the means by which dispersed knowledge is generated and coordinated; the means by which a multitude of diverse plans and objectives can be brought into a harmonious relationship. The *economy* is quite different: it is an organisation within which decisions are taken (e.g., by an individual, a household or a firm) and in which the 'pure logic of choice' between known and competing ends can be applied. This is the territory that is appropriate to constrained optimisation, where the principles of marginal analysis may be applied to achieve an optimum economic outcome. The *catallaxy* and the *economy* are not mutually exclusive categories; and both are part of the universal science of human choice: *praxeology*.

The *cosmos* is the spontaneous social order, any part of which is open to challenge but the whole of which cannot be subjected to any rational reappraisal. While the consequences of its complete abandonment are too dire to imagine, any individual feature of the *cosmos* may be criticised either for its incompatibility or for its inconsistency with any of the other features of society. Criticism must be applied with caution. Contrasting with the *cosmos* is the *taxis*, which is an organisation (an individual, a household or a firm) in which actions are focussed upon clearly defined objectives. Within a given institutional structure, it may be possible to draw advantages simultaneously from both types of order.

Nomos is the type of law (private, natural or common law) that is associated with the *cosmos*. It is based upon liberal as opposed to conservative philosophy, because it seeks to protect those universal and abstract principles that support a harmonious coexistence. It offers no protection to a practice simply because that practice is established. Rather, its objective is to enhance the liberty and autonomy of the individual; and it reaches that end through the opportunities for choice that are created by the existence of known legal sanctions. By contrast, *thesis* is the type of law (public law or legislation) that is associated with the *taxis* and which is designed to achieve clearly defined organisational objectives. When necessary, individual autonomy is repressed to meet the requirements of conscious design.

Morality, liberty and intellect

The insuperable limitation of human knowledge is the one 'big thing' that Hayek claims to know. Every detail of his considerable legacy is consistent with this fundamental premise. Most directly derived from this is the argument that civilisation rests upon custom and tradition (*praxis*); and that with wisdom comes knowledge of how little can be articulated of our cultural inheritance. Traditional practices are respected, not because they have intellectual appeal, but because they permit the growth of human relationships beyond any intellectual vision. Successful practices survive through imitative learning and, at their highest level, they become enshrined in the law.

Natural or common law (*nomos*) is the means whereby individuals, corporate bodies and, most importantly, governments are restrained by impartial rules that have emerged spontaneously and that apply uniformly to all.

Human dignity rests upon individual responsibility, but the potential for chaos demands restraint. Within a small group (*taxis*) this is achieved by tribal affiliation; and morality is determined through a consensus on end-goals. In this context, social (or distributional) justice is meaningful, because the consequences of any action may be anticipated in large degree. Within a small group, it is practical for actions to be assessed upon the basis of their anticipated results. This is not the case within the extended order of a modern economy (*cosmos*) where every action has diverse and unintended consequences that extend far beyond the comprehension of any individual or agency. Here, the insuperable limitation of human knowledge means that justice must relate to the action rather than to its consequences, for the latter may be neither anticipated nor fully discovered. Within the extended social order, freedom under the law relies upon the natural justice of civilised *behaviour*. Here, the insuperable limitation of human knowledge is the basis for Hayek's hostility to socialism and for the caution he advises in dealing with intellectuals: 'intelligent people tend to be socialists' but only for the reason that 'intelligent people will tend to overvalue intelligence' (Hayek, 1988, p. 53). Socialists are driven by a desire for distributional justice, which is not only futile but also damaging to civilised values.

Fascism and socialism are indistinguishable by their threat to liberty, which is the instrument of social progress. Liberty is valued because it allows an individual to discover what he can do; and through these discoveries he can enjoy 'the gift of his intelligence' (Hayek, 1960, p. 41). The market process is essential to preserve personal liberty; but personal incomes cannot then be expected to reflect merit. In a free society there is no correspondence between an individual's income and the measure of esteem in which he is held. Property rights and the distribution of income and wealth emerge as unintended consequences of self-interested acts. Without the mutual recognition of a legal entitlement to property, there can be no voluntary exchange (*catallaxy*) and no basis for social cohesion to emerge from independent human action. For socialism to achieve distributional justice it would be necessary to replace this spontaneous order and to extend the order of the organisation into every aspect of human life. Distributional justice is incompatible with the primacy of property, with personal liberty and with material progress. Justice has meaning only in terms of just behaviour; that is, action that is legitimate in terms of impartial rules. An action is judged to be just (or unjust) *irrespective* of its outcome, which is essentially unknowable, at least at the moment of action. Liberty is the absence of coercion; but the absence of coercion gives no guarantee of happiness. Many released prisoners find it difficult to cope with their new freedoms. Liberty brings no

promise of achieving one's own best interests; and justice has no bearing upon market rewards.

Man and society

Both with psychology and social science, Hayek seeks to gain knowledge about knowledge. How does an individual know (in both the conscious and sub-conscious sense) how to act? How does an individual know how to anticipate and to react to the actions of others? Psychology and social science are constrained by what is knowable about human understanding. In the study of the acquisition, application and adaptation of knowledge, each of these disciplines deals with structures and processes that are analogous both in broad terms and in regard to many elemental details.

Beyond inherited genetic predispositions, knowledge is derived from any method that informs: in the nurture and guidance that are given to infants; in the lay interpretation of casual observations; and in the systematic analysis that is guided by the precepts of formal scientific procedures. The parallel, mutually re-enforcing aspects of psychology and social science are central to Hayek's vision of the evolutionary adaptation of the individual and society that exists as a spontaneous and complex social order. Hayek's work is focused upon human understanding in its psychological and social dimensions; and it rests upon the ontological presumption of a material world and of life forms that evolve from – and are an integral part of – the material world. The mind gives direction to and protection of an individual; and the social framework gives direction to and protection of individuals. The respective direction and protection given are very different. The mind decides for an individual, whereas the social framework provides the context within which individuals bring effect, coherence and coordination to their inter-dependent decision-making. The social framework inhibits decisions that individual minds might otherwise be willing to take; and it shapes (and informs of) the consequences that are likely to follow upon those decisions.

The mind and the social framework are self-organising, spontaneously evolving, open adaptations that are defined, not in terms of their physical composition, but in terms of their abstract functions. With the capacity to process only a small proportion of the sensory stimuli that are signalled as touch, taste, sight, smell and sound, the mind has evolved to know what it needs to know. In like achievement, social institutions that guide individuals' actions are a surrogate for that vast array of information that individuals would otherwise need to know. With neither is there (nor could there be) any store of comprehensive knowledge. Instead, neurological processing achieves a simultaneous and selectively purposeful engagement with a multitude of sensory data; and social exchange allows effective use of that knowledge of 'the particular circumstances of time and place' (Hayek, 1945, p. 83) which is dispersed across a multitude of individuals' minds.

Economics: uncertainty and predictability

Hayek's technical economics is focused upon business fluctuations and the relevance of money and prices. He rejects the popular view that price stability is the key to economic stability. The general price level has little relevance. Rather the impact of money upon economic activity is microeconomic, working through induced changes in relative prices.[1] Hayek was also the first to show the relevance of Austrian capital theory to business fluctuations, but the initial keen professional interest that this provoked was overshadowed by Keynes's promise of a route to full employment. However, neither the 'socialisation of investment' (Keynes, 1936, p. 378) as a permanent feature to counter chronic unemployment, nor demand management to maintain a sustainable economic growth path, fulfilled expectations. The amplitudes of successive cyclical fluctuations always present a unique historical series, in relation to which there is little evidence of beneficial intervention by government. More clearly apparent is the impact that government measures (in the form of taxation, subsidies and welfare benefits) have had upon self-reliance and the exercise of private initiatives to meet ever-changing patterns of demand. Hayek consistently dismisses the whole macroeconomic approach as simplistic, pseudo-scientific and damaging to incentives and to the network of linkages within the extended economic order.

Hayek emphasises the division of knowledge, the problems of coordination and the role of human action and market transactions in producing a coherent social structure. His economics is structured upon uncertainty, upon the costs of acquiring information and upon the implications of human response to changing circumstances. Every action involves a choice, and the combination of individuals' choices produces highly complex institutional structures. Our knowledge of these structures can be neither complete nor certain. In the attempt to gain some limited insight into their complexity, the use of statistical aggregates by economists is unsound. The kind of knowledge upon which economic success depends is hardly ever quantifiable; and statistics are crude amalgams that leave important differences unrecorded. Yet, the modern macroeconomic approach to policy issues is set in terms of broad categories of national income data, where heavy reliance is placed upon budgetary policy; that is, upon the balance between the government's expenditures and the means by which those expenditures are financed. Hayek's greatest intellectual regret is that he did not write a full-scale critique of Keynes's *General Theory*.

Keynes's economics attributes causal powers to the statistical artefacts of national income aggregates; but there is a serious and unresolved debate over the degree to which Keynes should be held responsible for the economic methods adopted in his name. Whatever the conclusion, it is incontrovertible that Keynesian aggregate income-expenditure models were adopted as the basis for macroeconomic forecasting and that economists willingly accepted their new function, so that ever more sophisticated statistical

techniques[2] are now applied to identify the structure of macroeconomic relationships as a basis for 'scientific' monetary and fiscal management.

Human action is meaningful only where that action is expected to change future events. In order to predict the future, it would be necessary to assume that human actions follow a path charted by some earlier circumstance. There may be occasions where that assumption is plausible; but, in the general case, where economic development involves technological and institutional change, these are likely to prove rare. Hayek believes that predictions might be possible in terms of general patterns of events; but this requires the 'counter-factual' model of a theoretical equilibrium. Since life continuously generates new discoveries (or surprises), actual experience is never an equilibrium experience. So, it is inevitable that, with the practical necessity to review a broad sweep of events in the attempt to use empirical relationships of the past as a basis for predictions of the future, economists are bound to neglect many important details. This, together with an obvious inability to anticipate future surprises, must place all (with the exception of the occasional fluke[3]) *detailed* economic forecasts in the realm of fantasy.

Statistical aggregations of economic data offer no solution to these general difficulties. Statistical methods may be relevant to the analysis of categories of data obtained under exactly similar circumstances, but this rarely applies within economics. Yet, the insuperable limitation of human knowledge is generally ignored, so that enormous weight is given to statistical correlations between economic aggregations, even though every datum may be uniquely relevant to the course of events. Even if it were possible to obtain exact and comprehensive knowledge of current economic interdependencies, effective policy formation would require that information to be reviewed by the minute. How absurd then is the idea that management of present and future levels of demand might be achieved by state bureaucracies, whether Keynesian or otherwise. It is not simply that there is no certain future, but rather that there is no comprehensive knowledge of the present.

Developments in electronic computation, new statistical methodologies and more systematic data collection have advanced together with economists' conceit; but the sophisticated application of econometrics in providing parameter estimates of relationships between statistical aggregates masks *essential* differences; and, even where the correlations impress, the relationships are never robust. Yet, economists continue to commit time and resources to the calculation of these kinds of nonsense. Although there are mainstream economists who are aware of the intellectual fallacies – 'I could verify the existence of witches if you give me the chance every other year to tack on some variables in the regression' (Solow, cited from Klamer, 1984, p. 136) – many others 'have been misled about what their discipline can and cannot do' (Caldwell, 2004, p. 403). More generally, though, it is not so much that economists have too long imbibed Keynesian macroeconomics, but rather that the profession has attracted those with a leaning towards this particular brand of socialist intervention.

Effective planning

Hayek presents the market process as a mechanism to compensate for the insuperable limitation of human knowledge. It is the means by which the effects of continuous changes are communicated. Price signals communicate the information that is vital to local plans. Profits are earned because change occurs, reaction takes time, and because each entrepreneur is unique in his assessment of new situations. Whereas constant experimentation creates improvements, emulation gives the tendency to equilibrium which drives the economy ever forward to new horizons of achievement.

The principle of effective planning is to gain access to widely dispersed knowledge. Moreover, the kind of knowledge upon which economic success depends is rarely quantifiable. Experts have no access to the body of unorganised knowledge of rules governing circumstances at different times and in diverse locations. The *minutiae* of interactive changes are beyond the compass of a single mind; and the advantage of decentralised individual decision-making is in selecting from that awesome complexity. Here are more of the reasons for Hayek's opposition to socialism. The failure of the centrally planned economies had been anticipated by Hayek in the 1930s and 1940s, when the intellectual drive towards planned economies was strongest; and it is a matter for regret that, at the close of his life, he was unable to comprehend the extent of the collapse of the Soviet empire. Yet, it is fitting that, in November 1991 (shortly before his death), Hayek received the American Medal of Freedom in recognition of the influence of his life's work for the liberal cause.

In the modern era, the governments of Ronald Reagan and Margaret Thatcher came closest to the ideal, which says that intervention by government must be limited to fostering those conditions that encourage initiative and entrepreneurship. Hayek rejoiced in the attack launched by the Thatcher government upon state monopolies and upon the privileges of labour unions.[4] He was 'aware that she agrees with my basic concepts'[5] and he looked forward to many more years of substantial reforms. Not least this would have been for the resistance to the most recent manifestations of constructivist rationalism from European visionaries, with their designs for close political union, a single currency, a monolithic central bank, a social charter, regional transfers and standardised products. With respect to each of these issues, there is a multitude of tasks for tinkering economists. So, it is to be expected that those economists who have invested their time in the intricacies of national income models and new forecasting techniques, and who earn a comfortable living in selling predictions of an essentially unknowable future, should give a cool reception to the economics of Friedrich Hayek:

> [t]here is nothing that produced jobs for economists like government controls and government intervention. And all economists are therefore schizophrenic: their discipline … leads them to favour the market; their

> self-interest leads them to favour intervention. (Friedman, cited from Rubner, 1979, p. 141)

If economists are to regain respect, they must work from the sound legacy of Hayek's teaching: they must drop all claim to prescience; they must recognise the difference between spontaneous order and the organisation; and they must understand that their roles are distinctly different in respect of the (*economy* of the) latter, with its specific objectives, and in respect of the (*catallaxy* of the) market, which is independent of purpose.

Notes

1 Introduction

1. From a new introduction to the American paperback edition of *The Road to Serfdom*, 1956.
2. There can be little doubt that Hayek is alluding to Keynes and his comment upon *The Road to Serfdom*: 'Moderate planning will be safe if those carrying it out are rightly orientated in their own hearts and minds to the moral issue' (Keynes, 1980, p. 387).
3. Nine days before share prices tumbled in October 1929, Irving Fisher boldly stated that he expected 'to see the stock market a good deal higher than it is to-day within a few months' (Galbraith, 1961, p. 116).
4. 'I am a great admirer of Professor Hayek. Some of his books … would well be read by some honourable members' (Margaret Thatcher, 5th February 1981, cited from McCormick, 1992, p. 235). There was a mutual esteem: Hayek's best wish for the British economy in 1985 was another twenty years of Mrs. Thatcher's Conservative government (see *The Times*, Thursday, 9 May 1985, p. 11).
5. See Colonna, 1994a for an examination of some contemporary criticisms.
6. See Caldwell, 1998 for an investigation into Hayek's failure to review Keynes's book.
7. Also note: 'Hayek's approach to the explanation and comprehension of complex phenomena provides a conceptual focus that underlies virtually everything he has written' (Weimer, 1982, p. 241); and, 'what I'd done in economics helped me to do this biological work as much as the opposite' (Hayek, 1994, p. 153).
8. Notwithstanding the importance of *The Sensory Order* to Hayek's own understanding, this neglect tells against the idea that '[h]e needed to make the case for his epistemological perspective (and its psychological foundation) in order to show where his evolving and developing perspective was derived from' (Horwitz, 2000, p. 29).
9. G.L.S. Shackle, who read many of the draft chapters, says that Hayek's decision 'to re-work from its foundations' his theory of 'capitalistic production' was a consequence of the less than adequate earlier presentations of the theory (see Shackle, 1981, p. 242).

2 *The Sensory Order*

1. 'Hayek made the quite fruitful suggestion, made contemporaneously by the psychologist Donald Hebb, that whatever kind of encounter the sensory system has with the world, a corresponding event between a particular cell in the brain and some other cell carrying the information from the outside world must result in reinforcement of the connection between those cells. These days, this is known as the Hebbian synapse, but von Hayek quite independently came upon the idea. I think the essence of his analysis still remains with us' (Edelman, 1982, p. 24). Edelman's work is admirably summarized in Sacks (1995).

2. A typescript produced some time in the late 1940s is in the Hayek collection at the Hoover Archive, Hoover Institute, Stanford. Bruce Caldwell cites a letter dated 21 July 1945 in which Hayek tells Otto Neurath that he is engrossed in an attempt to elaborate the psychological implications of his scientism articles and to restate ideas he had formed many years earlier.
3. '[Y]ou wish he would do a reasonable share of the work in connecting up his thought with that of his predecessors … one would like to be shown … his theory in the perspective of the history of scientific thought about these matters' (from a review of *The Sensory Order*, cited from Hayek, 1994, p. 27).
4. *Phylogeny*: the evolutionary development of species across successive generations. *Ontogeny*: the evolution of individual organisms through the interaction between genetic and environmental determinants.
5. These structures are almost certainly derived from Schlick's *Allgemeine Erkenntnislehre* (translated and published as *General Theory of Knowledge*), which is acknowledged as one of those works that influenced 'the original formulations of the theory here developed' (Hayek, 1952b, p. 195). From Schlick (1925/1985), there is: '(1) reality itself …; (2) the quantitative concepts of the natural sciences …; and (3) the intuitive images by means of which the magnitudes cited in (2) are represented in our consciousness. Here (3) is of course a part of (1), that is, a subdivision of the part of reality we designate as consciousness' (Schlick, 1925/1985, p. 295). In Hayek, (2) and (3) are transposed and (with 2) emphasis is placed upon subjectivism; it is through the continuous process by which knowledge is revised that primary categorisations give way to scientific knowledge.
6. This limitation is argued to have been 'first pointed out by Turing, and discussed by Ryle (1949), Popper (1951), and Mackay (1960). No information-processing system can have a complete description of itself – it's Tristram Shandy's problem of how to represent the representing of the representing of … the last little bits' (Dennett, 2003, p. 91, fn 6).
7. In respect of Karl Popper's criticism – that *The Sensory Order* was an (impossible) attempt to provide a causal theory of the mind – Hayek comments: '[y]ou could, in theory, reproduce a sort of map of how one stimulus evokes other stimuli and then further stimuli, which can, in principle, reproduce all the mental processes. I say 'in principle' because it's much too complicated ever to do it. It led me, incidentally to the distinction between an explanation of the principle and an explanation of the detail – pattern prediction, as I now know it – which I really developed in my psychological work and then applied to economics' (Hayek, 1994, p. 138).

   The distinction between 'the relatively simple phenomena with which the natural sciences deal … [and] … the more complex phenomena of life, of mind, and of society' is defined by 'the minimum number of distinct variables a formula or model must possess in order to reproduce the characteristic patterns of structures of different fields' (Hayek, 1967, p. 26). The similarity between Hayek's definition of complexity and that given in the context of Charles Darwin's theory of evolution (see Dawkins, 1986, pp. 2–13) is striking, but not surprising. Hayek (1967) cites Darwin's theory of evolution as 'the best illustration of a theory of complex phenomena which is of great value, although it merely describes a general pattern whose detail we can never fill in' (Hayek, 1967, p. 31).
8. *Gnothi seauton*: 'know thyself', a precept inscribed in gold letters over the portico of the temple at Delphi. Authorship is ascribed to Pythagoras, to several of the wise men of Greece, and to Phemonoe, a mythical Greek poetess. According to Juvenal, the precept descended from heaven.

3 Liberty, Reason and Rules

1. This is but one example of many 'misapplications of evolutionary theory' that arise from the 'erroneous interpretation of its content'. Hayek criticises '[e]ven Professor Popper' for the statement 'that the evolutionary hypothesis is not a law of nature but a particular historical statement about the ancestry of a number of terrestrial plants and animals'. For Hayek the validity of the theory extends far beyond 'the particular applications which were first made of it' (see Hayek, 1967, pp. 31–2).
2. Dr Bernard Mandeville is given credit for the original idea: 'I do not, of course, mean to suggest that Mandeville had any direct influence on Darwin (though David Hume probably had). But it seems to me that in many respects Darwin is the culmination of a development which Mandeville more than any other single man had started' (Hayek, 1991b, p. 97). 'Mandeville for the first time developed all the classical paradigmata of the spontaneous growth of orderly social structures: of law and morals, of language, the market, of money, and also of the growth of technical knowledge' (Hayek, 1991b, p. 83). The transmission of ideas is hypothesised from Mandeville through Hume to Darwin: '[t]he most direct channel seems to have been Erasmus Darwin, who was clearly influenced by Hume and whose influence on his grandson is unquestioned' (Hayek, 1963, p. 116, fn). So, Hayek is left with 'little doubt that it was from the theories of social evolution that Darwin and his contemporaries derived the suggestion for their theories' (Hayek, 1960, p. 59). In his last book he is even more emphatic: 'recent examinations of Charles Darwin's notebooks … suggest that his reading of Adam Smith in the crucial year 1838 led Darwin to his decisive breakthrough' (Hayek, 1988, p. 146). Darwin returned to England from the voyage of the *Beagle* in 1836, but his theory of organic evolution was made public only in 1858. In abstract terms, the theory is a straightforward proposition: 'that a mechanism of reduplication with transmittable variations and competitive selection of those which prove to have a better chance of survival will in the course of time produce a great variety of structures adapted to continuous adjustment to the environment and to each other' (Hayek, 1967, p. 32). Darwin's genius lay in the application of the theory. Darwin recognised that behavioural habits may lead to changes in animal structures or *vice versa* and that, in either case, natural selection works upon the genetic structure.
3. The criterion of the Pareto optimum constrains social and economic development in the interests of an initial distribution of benefits that has no special status over any other.
4. In 1945, Hayek argued that 'a centralised and highly integrated Germany will always be a danger to peace', but that 'breaking Germany into parts and prohibiting their reunion would almost certainly fail in the long run'. He recommended the staged emancipation from Allied control and the devolution of power to the individual German states that, eventually, might form political federations, those in the west with Holland, Belgium and Scandinavia, and others with Czechoslovakia, Austria and Switzerland. Ultimately, an insistence upon free trade would give Germany 'the chance of becoming prosperous again without becoming dangerous'. (See Hayek, 1992, pp. 224–7.)
5. More generally, a 'central paradox' that 'keeps re-emerging' is noted: '[h]is economic analysis demonstrated that there was only one form of economic organization which was appropriate to the modern world and would actually work, while his political analysis implied that there was no guarantee that human societies would choose the institutions which would preserve and strengthen the institutions that were the supreme achievement of Western civilization' (Gamble, 1996, p. 75).

4 Liberty and the Market

1. '[I]n humans, sharing and gift-giving are the most important bonding devices, and they themselves presuppose ownership' (Radnitzky, 1990, p. 161).
2. Quoting from Robert Frost's poem, 'Mending wall'.
3. Nevertheless, his protected domain will include a right to share in public services and a 'right to privacy and secrecy' (Hayek, 1960, pp. 141–2).
4. Hayek's observation in respect of progressive taxation is illustrative of the more general feature noted by Frédéric Bastiat in his essay on 'The State' (*Journal des Débats*, 25 September 1848): 'The state is that great fiction by which everyone tries to live at the expense of everyone else.'
5. This notion of the fundamental purpose of self is by no means unique to Hayek. For illustration, it is to be found in Marshall's *Principles*: '[t]he main concern of economics is thus with human beings who are impelled, for good and evil, to change and progress … the central idea of economics, even when its Foundations alone are under discussion, must be that of living force and movement' (Marshall, 1966, p. xiii); it is within the philosophy espoused by Popper: '[l]ife is a struggle for something; not just for self-assertion, but for the realisation of certain values in our life. I think it is essential for life that there should be obstacles to overcome' (Popper and Eccles, 1977, p. 558); and it is central to Keynes's rejection of the Benthamite conception of human nature (see Mini, 1991, p. 104 ff.).
6. However, no idyllic state is promised; for example, business fluctuations are a natural feature of *laissez-faire* market systems and competitive banking; and attempts to obtain stability would tend to curb economic progress. These points are covered in Chapters 7, 9 and 10.
7. See also Milton Friedman: '[j]ust what constitutes property and what rights the ownership of property confers are complex social creations rather than self-evident propositions' (Friedman, 1962, pp. 26, 67, 115).

5 Economic and Social Science

1. Hayek's description of the relationships between the physical order, the neural order and the mental order is discussed in Chapter 2.
2. See Caldwell, 2004: 361 ff. for an extended discussion of this point.
3. The similarity between Hayek's definition of complexity and that given by a modern champion of Charles Darwin is striking (see Dawkins, 1986, pp. 2–13).
4. Potential confusion is introduced when Hayek distinguishes between 'laws of nature' as they are generally acknowledged in any 'contemporary society' and those that 'figure in the works of natural scientists' (Hayek, 1952a: 30). He suggests that '[i]f the current "scientific" knowledge of society which we study included the belief that the soil will bear no fruit till certain rites or incantations are performed, this would be quite as important for us as any law of nature which we now believe to be correct' (Hayek, 1952a: 30–1). The illustration shows how the two categories intersect. By their survival, established 'rites and incantations' are more likely to have practical (objectively scientific) relevance rather than to be devoid of (objectively scientific) meaning. So, for example, as crop yields are raised if fish accompany the planting of seed, rival explanations are either ('subjective' belief) that deities are pleased by gifts of fish or ('objective' fact) that fish enhance soil fertility. Irrespective of the explanation, the scattering of fish is relevant to crop yields. The difficulty arises from the absence both of an impartially 'objective' position and of

a rigorous definition of scientific rigor: (1) material phenomena are accessed only indirectly *via* the instrumentation of (even the most rigorously scientifically disciplined) mind; (2) all 'objective' methods are corrigible; (3) all data (whether scientifically or casually derived) are theory laden; (4) all scientific theories are creations of the mind; and (5) science sets no sharp division between a layman's description and a scientist's explanation: '[t]he scientific way of forming concepts differs from that which we use in our daily life, not basically, but merely in the more precise definition of concepts and conclusions; more painstaking and systematic choice of experimental material; and greater logical economy' (Einstein, 1940/1953, p. 253).

5. The implication – examined at length in Plotkin (1994) – is that knowledge is domain specific. Different genes direct different evolutionary processes that produce different adaptations (knowledge) in different species. In that rat genes are different from human genes, rat intelligence different from human intelligence; see Plotkin, 1994, p. 165. Even for the most advanced species, the degree to which the world as it appears represents the world as it is, would be a meaningless inquiry.
6. Though possessing 'a high degree of *prima facie* plausibilty' the 'far-reaching consequences' of this proposition demanded 'a stricter proof'; see Hayek, 1952b, pp. 185–90.
7. Although Hayek offers no acknowledgement, he makes reference to Russell's *The Scientific Outlook* (from which the immediately preceding citation is taken) elsewhere in his scientism essay (Hayek, 1952a).
8. Stanley Jevons and Léon Walras – primary instigators of neoclassical microeconomics – trained originally as physicists.
9. Although Hayek was later to accept Popper's view that 'scientists did not really do what most of them … told us that they did', he kept to his argument 'because so many social scientists are still trying to imitate what they wrongly believe to be the methods of the natural sciences' (Hayek, 1967, p. viii).
10. The quantity theory of money (and Monetarism) are also regarded as scientistic: while there is no 'quarrel with the positive content of this theory' (Hayek, 1935b, p. 5), Hayek rejects the interpretation that money affects individual prices only through its influence upon the general level of prices. Hayek's detailed analysis of the monetary impact upon investment decisions and trading patterns is covered in Chapters 9 and 10.
11. Antecedent conditions with some correct empirical content (a) together with universal laws (b) allow the logical deduction of an event (c): '[w]e explain a given event (c) by detecting (a) and by postulating and applying (b); and we predict a future event (c) by inferring it from some given (a) and postulated (b)' (Watkins, 1953, p. 723, fn 1). This same formal structure 'applies to scientific prediction as well as to explanation' (Hempel and Oppenheim, 1948, p. 322): '[p]rediction and explanation are merely two aspects of the same process' (Hayek, 1967, p. 9).
12. Schumpeter believed that Walras had produced 'the only work by an economist that will stand comparison with the achievements of theoretical physics' (cited from Blaug, 1986, p. 264). From Hayek's position, this is the nub of its deficiency. Too much can be made of Hayek's early commitment to general equilibrium analysis and of his subsequent switch to a dynamic evolutionary framework. Hayek cites 'the general interdependence' that is 'most perfectly expressed by the Lausanne School' (Hayek, 1933a, p. 42), but his use is qualified: prices (actual and

expected) convey both information and incentives which is 'far from the traditional notion' (Dostaler, 1994, p. 155).
13. Here there is another dynamic interaction, since action based upon subjective expectations will, in general, cause the objective state of affairs to change. On this, and related issues, see Caldwell, 1988, pp. 529–30.
14. Although the Leontieff matrix offers a more realistic presentation – than that of a linear sequence of firms, passing each of their products on to the next – of the period of production theory of capital (see Chapter 8), 'it would require an inexpressibly complex and elaborate procedure to discern in the data of that scheme a Hayekian output function' (Shackle, 1981, p. 251).
15. Caution is necessary in dealing with advice from experts in such social policy areas as labour, agriculture, housing and education, because an expert unhesitatingly favours the institutions on which he is expert (see Hayek, 1960, pp. 290–1).

6 The Socialist Calculation Debate

1. The concept of a 'natural value', which is developed in *Der Natürliche Wertes* (1889) and *Theorie der Gesellschaftlichen Wirtshaft* (1914) has not survived the passage of time, unlike that of Wieser's law of costs: that the cost of a commodity is the alternative foregone in producing it. In modern jargon, this is 'opportunity cost'.
2. See O'Neil, 1998, pp. 114–21.
3. In respect of ('lower order') consumption goods, Robinson Crusoe 'must take into consideration the intersubstitutability of goods' to achieve the relatively simple organisational task of ensuring mutually consistent objectives; but for 'more complicated and more lengthy processes of production it will plainly, not answer' (Mises, 1920, p. 97).
4. This is not least for the fact that it was condensed for *The Reader's Digest* (April 1945, pp. 1–20). In excess of 100 000 copies of the book have been sold in Britain and it has been translated into seventeen languages.

7 Neutral Money and Monetary Policy

1. In *Interest and Prices*, 1898 (see Schumpeter, 1954, p. 1088).
2. Animosity between Keynes and Lionel Robbins was a harbinger to the rivalry that followed (see Caldwell, 2004, pp. 169–73).
3. In every sphere, the practical application of economics demands full cognisance of transactions costs. In respect of monetary policy, '[t]he transactions costs of changing habitual (and proven) ways of dealing with exchange partners will severely inhibit the effectiveness of monetary policy. Discussions of the inflationary phenomena which abstract from the existence of these contractual transactions are necessarily incomplete' (Breeden and Toumanoff, 1984, p. 163).
4. This is a general problem in economics that has relevance (for example) to the policy ineffectiveness debate within the context of the rational expectations hypothesis (see Klamer, 1984, p. 109).
5. Whereas Milton Friedman states that the 'Monetarist rule' – of growth *pro rata* with underlying productivity growth – should give way to one of zero growth of high-powered money, for the reason that it is harder to talk a zero rate up on political grounds (see Friedman, 1987, p. 377), Hayek asserts that '[i]t demands something similar yet significantly different, namely that the quantity of money (or rather the aggregate of all the most liquid assets) be kept such that people will

not reduce or increase their outlay for the purpose of adapting their balances to their altered liquidity preferences' (Hayek, 1978b, p. 77). However, only the market can discover the optimal quantity of money. See Chapter 11.

8 Capital

1. Where truly permanent factors contribute to production, these are not capital but *rentenguts* (Hayek, 1941, p. 329); that is, they earn a genuine economic rent.
2. Although the seeds of input–output analysis are in his earlier work, it was after his arrival at Harvard in 1932 that Leontieff began to construct empirical examples of his input–output system.
3. If two man-days are necessary to produce one unit of output, the period of production for one unit is either two days (for one man) or one day (with a division of labour between two men). If specialisation brings productivity gains, the period would be further shortened. (It is assumed that the extent of the division of labour *per se* has no implications for any requirement for capital. The possibility that capital in the form of a wage fund might be necessary to sustain the one man over the two-day period of production is an unhelpful confusion of two issues.)
4. Jevons first 'practiced before he preached' the concept of present sacrifice for future returns, when he gave up a potentially lucrative post at the Australian Royal Mint in order to return to academic studies (see Collison Black, 1981).
5. The use of the term 'net revenue' might accommodate the possibility of overlap between the two processes referred to in the previous paragraph. However, it is inappropriate to take this view in regard to the simulation that follows.
6. Although equation (8.11) might appear to show that capital intensity varies inversely with the length and volume of the stream of labour inputs, this overlooks the assumption under which the equation was derived: that is, that there is an equality between the aggregate of the compounded value of inputs and the discounted value of net revenue.
7. As equations (8.4) and (8.11) indicate, for the case where the input period (n') and the output period (n'') are equal $(m + m'') = n' = n''$.
8. Frank Knight had made these very same points in 1936, when they had been accepted by Hayek and incorporated into his subsequent work (see McCormick, 1992, p. 105 ff.).
9. It is telling that the definitive summary of the controversy (Harcourt, 1972) contains not a single reference either to Knight or to Hayek.
10. That the neoclassical concept of the marginal productivity of a factor of production is irretrievably lost once production is treated as a sequence of outputs that follows a sequence of inputs, has not been readily appreciated; see, for example, Hicks, 1967b, p. 211 and Hicks, 1983b, p. 123. According to one definition 'a factor of production is anything which can serve as an input into the productive process when that is taken as a whole' (Hicks, 1983b, p. 121), and it must be capable of making a contribution to production; but, although Hicks takes this to imply 'that the factor must have a marginal product', he is unable to define the variables that would give the partial derivative.
11. This is not strictly true, for Keynes considered the case where new investment expenditure is a total surprise, so that there are insufficient consumer goods to meet new demand. Then, increased expenditure by consumers 'will raise the prices

of consumption-goods … causing a postponement of consumption' (Keynes, 1936, p. 123). Further commentary on this is given in the next chapter.

12. For an overview of Hayek's position on Keynesian macroeconomics, see Hayek, 1972.

9 Business Cycles

1. See Moss and Vaughn, 1986, p. 545 and fn 1.

10 International or National Money?

1. In five lectures at the Institut Universitaire de Hautes Etudes Internationales, Genève, in 1936.
2. Similar thoughts cause Hayek to warn of dangers in the use of indexation in wage bargaining. Indexation strengthens the claim for money wage increases in line with inflation, of those whose real wages (because of changed market circumstances) ought to fall, so that changes to real wage relativities are obtained only by increases of all except the lowest nominal wages, which makes continuous inflation inevitable (see Hayek, 1978a, p. 79).
3. This is a well-recognised phenomenon and is a feature of one account of cyclical activity (Hawtrey, 1932): in the boom, the raised income of the working class draws currency from the reserves of the banking system, which reacts by curtailing credit.
4. This issue was given specific attention in Hayek, 1935. See Chapter 7.

11 Market Standards for Money

1. Thereafter it would filter down to the masses: 'it is via the novel and the newspaper, the cinema and political speeches, and ultimately the school and common talk, that the ordinary person acquires his conceptions of history' (Hayek, 1967, p. 204). So, there is substance to the finding of undertones of a 'certain kind of elitism' within Hayek's philosophy, such 'that political success was a function of the conversion of the majority to correct thinking' (Barry, 1992, p. 22).
2. 'Keynes was – without any intention of slurring him – an opportunist and an operator … He was also – and this helped – a brilliant theorist; but the theory was applied when it was useful in supporting a proposal which might win current political acceptance, and dropped along with the proposal when the immediate purpose had been served or had failed' (Johnson, 1975, p. 115).
3. Gresham's Law is only properly stated alongside the conditions in which it applies: 'that there must be two kinds of money which are of equivalent value for one kind of purpose and of different value for others' (Hayek, 1967, p. 318).
4. Hayek's ideas are explicitly acknowledged in regard to Britain's proposals in 1979, for currency reform within the European Monetary Union (see Lawson, 1992, pp. 939–44).
5. The use of an abstract unit of account for bank deposits gave an effective protection against French currency debasement during the early eighteenth century (see Hayek, 1991b, p. 160).

12 Hayek's Legacy

1. This was appreciated by Keynes: '[w]e must not argue … that an expansion of the currency influences relative prices in the same way as the translation of the earth through space affects the relative position of objects on its surface. The effect of moving a kaleidoscope on the coloured pieces of glass within is almost a better metaphor for the influence of monetary changes on price levels' (Keynes, 1971, p. 81).
2. For many different reasons, Keynes is unsympathetic to econometrics and he is not persuaded 'that this brand of statistical alchemy is ripe to become a branch of science' (Keynes, 1973, p. 320).
3. There are the two rules to guide economic forecasters: don't do it; if you must do it, do it often.
4. Undoubtedly the tide was right, as indicated by earlier attempts by Labour governments to introduce trade union reforms, to restrict local government spending and to introduce monetary targets.
5. *The Times*, Thursday, 9 May 1985, p. 11. See also *The Times*, Monday, 16 March 1981, p. 13: 'I have the greatest admiration for her principles and proud [*sic*] when told that they resemble mine'.

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Index