These are commendable efforts at measurement but there are some problems. The stock market data are used to arrive at a total assets figure from which tangible assets can be deducted leaving a residual that is accepted as an implied measure of intangible capital. While the value of ordinary shares may seem an acceptable and readily available measure, does it represent a valuation of the whole bundle of assets of the firm in question or of the expected flow of dividends plus any potential benefits from takeover bids, capital reconstructions and the like? We need to be told rather more about both the 'Generally Accepted Accounting Principle' that favours adjustment of accounting values of assets and the extent to which these principles are put into practice. Even if the adjustments are made and take account of 'inflation and fundamental factors' (p. 56), the figures for total assets on the one hand and tangible assets on the other are generated by different sets of decision-makers in different processes—one being a market process and the other non-market.

The final chapters explore the implications for micro- and macroeconomic modelling of the investment decision. The need for changes in official statistics to provide the data for research, e.g. measures or indicators of knowledge production, learning and adaptation, follow from Webster's work.

Turning in Chapter 9 to implications for other areas of economics, Webster draws attention to a possible need for new forms of industry ownership because conventional structures may be limiting the size and efficiency of firms. She also raises serious questions about labour market polarization—questions not unrelated to the 'information rich'/'information poor' divide.

These implications hark back to some very old issues about technological change. Historical perspective might be helpful to our thinking about them. One of the central issues raised by Webster's study is organizational change. Monopolistic and imperfect competition theory made the product a variable; now we have to accept that the organization too is a variable. If, however, it is true that organizational development was the main form of technological progress in the eighteenth century [Webster attributes this view to Groenewegen (fn. 9, p. 29)], then the importance of intangible capital is not a new phenomenon. The biggest difficulty currently may be that very few economists think of organization as technology!

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Economic Organization and Economic Knowledge: Essays in Honour of Brian J. Loasby, Volume I

Sheila C. Dow and Peter E. Earl (Eds)

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The concept of an Austrian Marshallian is not an entirely new one, with George Richardson, for one, being characterised in that way,[1] but the volume under review, the first of two honouring Brian Loasby's contributions to economics and organisation theory, makes this the central organising principle for understanding Loasby's work. The two volumes, the outcome of a conference at Stirling University, comprise what the editors see as 'an integrated whole, rather than merely a sequence of chapters' (p. xi). This should make for a pair of volumes that make a genuine contribution to knowledge.

The introduction's biographical comments focus on his intellectual development and on the people at Cambridge in the early 1950s who influenced his later work, but they point to his doctoral thesis on the economic history of Kettering, his home town, as cementing the Marshallian cast of his work, and his 'sense of potential limitations to equilibrium theorising' (p. xiv). This historical form of analysis led him to behavioural theories and to writers such as Cyert and March, Penrose, Richardson and later, Shackle. Meantime, his career had taken him into organisations, notably A. D. Little and ICI, and into contact with Herbert Simon and his colleagues. By 1976 his *Choice, Complexity and Ignorance* had nailed his colours to the mast, as a subjectivist, albeit one whose grounding had not been in Hayek, but in Marshall and Popper. Since that time, the connections between the Marshallian theory rejected by the neoclassicals and that of the neo-Austrians have become much more explicit. This is the theme explored in this first volume: economic activity is undertaken as a process governed by rational behaviour under pervasive uncertainty. How can actors and observers characterise the nature of knowledge in a world of incomplete information that emerges, with error, over time?

The first four chapters (Kirzner, Arena, Birner and Choi) explore issues of rationality and equilibrium (or lack thereof in orthodox terms). The four authors all have a strong Austrian tendency. The fascinating aspect of the four is that the substance of their chapters could have equally well come from authors in the neo-Schumpeterian or Herbert Simon schools. In Kirzner's chapter, the Austrian concept of rationality used seems essentially the same as Simon's procedural rationality. Richard Arena analyses Menger's and Marshall's views on what we might call co-evolution of market institutions and market organisation or routines in the process of uncertainty reduction as the forerunner of modern evolutionary theories. Uncertainty reduction is at the core of Simon's organisational theories, and the basis for the selectionist theory of Nelson and Winter (1982). Jack Birner, and Young Back Choi both examine the market as social institutions, but, like most Austrian writing on the subject, they are long on enthusiasm but short on scientific advancement. More can be gained from Loasby's seemingly still unpublished paper 'Understanding Markets' (1994).

The second set of chapters is less arcane. They deal with a number of issues relating to consumer demand. Here, the reference to Austrian theory is less insistent. The two chapters which deserve most attention are those of Peter Swann and Giovanni Dosi *et al.* Swann returns to Marshall for the outline of an evolutionary theory of consumption. He draws upon a similar set of concepts and theories to those of the other authors in this set, but has the distinction of providing a formal model familiar, even, to orthodox economics. Marshall's consumer was upwardly mobile, as befits Victorian England. It is this quest for improvement which provides the peg for Swann's analysis of consumer innovation and the production of consumption utility. This production analysis leads to his formal model of Marshall's 'ladder of consumption': a rising vector of {quantity; quality; variety; new wants; distinction; excellence}. Dosi *et al.* hold great significance for the development of empirical models of consumer behaviour. The authors are concerned for two things: the first is the consistency of aggregate or market demand theory with well-supported knowledge about individual decision processes (see Earl[2] for a discussion of this issue); the second is to model such theory effectively. The building blocks they suggest reject the axioms of rational choice and substitute the modelling of routines and habits within a social context. These building blocks are the complementarities between multiple goods within a lifestyle pattern, and lexicographic rather than hedonic ordering. This makes the point that orthodox demand theory is wildly counter factual. This has been known for a long time, but the possibility of modelling the alternative as a theory of market demand has not seemed attractive to economists. Dosi *et al.* provide the skeleton of a genetic algorithmic approach to account for the evolution of a lexicographic order with structure that can be identified as 'consumer lifestyle'. Interestingly, their model gives another version of Marshall's upwardly mobile consumer, with endogenous diversification of consumption as income grows and as the economy supplies new means of satisfying demands.

Information and knowledge dominate the remainder of the volume even more explicitly than the earlier chapters. Lamberton's theme is one that has remained with him for 30 years, the problem of how to characterise information as a quantity or dimension for analysis. He questions all the attempts thus far, but his suggestions remain yet more questions about the economic nature of information.

The others are, roughly speaking, investigations of the origins of some of the questions to which Brian Loasby has turned his attention. Ravix examines John Rae's *New Principles* as a forerunner in making knowledge a connecting principle; Prendergast, the classical economists' views on knowledge; Groenewegen, the division of labour in relation to increasing returns; Langlois, the use of the phrase 'economies of scale' in neoclassical (textbook) writing as against the concept used by Marshall, and its current use in professional journals; and Whittaker, on Marshall's views on scientific management expressed in *Industry and Trade.*

The final chapter in this volume is a set of speeches made in Brian Loasby's honour at the conference.

The message I have taken from this collection is that an Austrian perspective does not lend much more than the assertion that knowledge, discovery, creativity and uncertainty are endemic to human life. The real work is done by the evolutionary theory, which enables us to formalise selection, self-organisation, learning and creativity in an empirically tractable manner. Selectionist and self-organisation perspectives on evolution are no more analytically tractable than Austrian cries of awe at the wonder of the market, but they are formally modelled using numerical methods far from the general and partial equilibrium methods of neoclassical economics. Seminal thinkers such as Brian Loasby have provided links from the realistic but scientifically barren Austrian rhetoric to the more tractable and scientifically progressive theories steeped in evolutionary epistemology. That Alfred Marshall can be counted as a forerunner of these is another remarkable aspect of his bequest to social science. Loasby's contribution, seen in the chapters of this volume, was to see that both Marshallian and Austrian economic thought provide seminal ideas which, when linked to historical/evolutionary methods, constitute a coherent and progressive scientific research programme.

Notes and References

1. N. J. Foss, 'Post-Marshallians and Austrians: the bridging work of G. B. Richardson', in N. J. Foss and B. J. Loasby (eds), *Capabilities and Coordination: Essays in Honour of G. B. Richardson*, Routledge London, 1998.
2. P. E. Earl, *Lifestyle Economics: Consumer Behaviour in a Turbulent World*, Wheatsheaf Books, Brighton, Sussex, 1986.

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