of their currency regimes. This has unfortunate parallels in the aftermath of the 2008 global financial crisis, when concerns about ‘debt deflation’ due to the banking crisis coupled with the deleveraging efforts of households and firms in the USA have led to expansionary monetary and fiscal policy with some worrying consequences in the eyes of the Chinese government. Some may view a historical episode as too removed from the current dilemma. However, the Chinese perspective is well-known to be long-term. When asked what he thought of the French Revolution two centuries later, the first Premier of China Zhou Enlai said that it was too early to say. Efforts to decipher Chinese policy would be flawed if the historical context were dismissed.

Comparative perspectives such as the experiences of Taiwan and Japan in revaluing their currencies in response to US pressure to reduce its current account deficit in the 1980s are also informative of the way in which the Chinese might view the global imbalances issue. Burdekin, though, is balanced in assessing the misfortunes of Japan in the aftermath of the Plaza Agreement and its subsequent ‘lost decade’. Intriguingly, he argues that China’s revaluation of its exchange rate would not reduce the American trade deficit and also that the RMB–dollar exchange rate might not be misaligned.

Among the many interesting aspects of the book, the argument that China has completely sterilized its foreign exchange accumulation of over $1 trillion achieved in the 2000s is particularly noteworthy. Burdekin offers evidence that the People’s Bank of China had managed, through sales of central bank bills, to reduce the domestic components of the monetary base to offset the extraordinary inflows into the Chinese economy as a result of its current account surpluses and speculative ‘hot money’ only evident in the ‘errors and omissions’ part of the balance of payments ledger. It goes some way toward explaining why China has not experienced significant inflationary pressures, though money supply (M2) consistently exceeded the government target and there were indications of asset inflation in the real estate and stock markets.

In the latter sections of the book, there are useful chapters on the evolution of the banking system and capital markets, including regional integration of the financial system of China with Hong Kong and Taiwan. If there is one area where a shift in emphasis of the book might be desirable, then it would be to include more chapters on the Chinese banking and financial system that assess the voluminous work in the field, which is arguably China’s greatest weakness in its transition and goes directly to its monetary challenges, rather than the chapters on Greater China that focus on arguably more tangential issues like spillovers among the financial markets in the region. Nevertheless, this is a well-wrought and informative volume that contributes to the literature on China’s exchange rate and monetary policies.

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Herbert Gintis’ objectives in writing this book are extraordinarily ambitious. His premise is that game theory is ‘foundational to all the behavioral sciences, from biology, psychology, and economics to anthropology, sociology, and political science’ (p. xiii); it is ‘a general lexicon that applies to all life forms’ (p. 45). Those behavioural sciences that have failed to understand the foundational role of game theory (on Gintis’ account, all of those listed except for biology and economics) are ‘handicapped enterprise[s]’ that lack a ‘firm analytical base’ (pp. xiii, xv). However, received versions of game theory are not adequate for the part that they would need to play in Gintis’ grand design for the unification of the behavioural sciences. His aim in this book is to carry out the necessary reconstruction.

We are told that classical game theory is unsatisfactory because of its ‘methodological individualism’, which for Gintis’ purposes is the doctrine that all social behaviour can be reduced to the actions of rational individuals and that ‘no information other than the rationality of the agents should be relevant to analyzing how they play a game’ (p. 161). What is needed, and what Gintis undertakes to supply, is a ‘social epistemology’—a theory of the ‘reasoning processes that afford [human beings] forms of knowledge and understanding, especially the understanding and sharing
of the content of other minds, that are unavailable to merely ‘rational’ creatures’. In this way, Gintis’ revision of game theory will allow an escape from the ‘bounds of reason’ invoked by his title (p. xiv). Nevertheless, it will be a theory of rational action. Gintis argues that the workings of human reason, although a product of evolution, cannot be adequately analysed using only evolutionary game theory (p. xv).

Gintis asserts (I think rightly) that economic theory has for too long been an a priori exercise, neglecting the facts of human behaviour (p. xvi). The implication, one might have thought, is that his reconstruction of game theory would be grounded in those facts. But, despite some sections that discuss experimental evidence, the book’s main lines of argument and analysis are a priori treatments of abstract notions of rational action and rational belief. In making use of the findings of behavioural economics, Gintis is highly selective. He can countenance a wide range of hypotheses about social preferences, which he takes to be compatible with the fundamental assumptions of game theory. But evidence that threatens those assumptions, by suggesting that individuals lack coherent preferences or fail to satisfy the axioms of expected utility theory, is treated very differently. Unwelcome experimental findings are dismissed by casual arguments or by ad hoc reformulations of otherwise disconfirmed hypotheses: one gets the sense that Gintis is not engaging seriously with this literature. His reasons for not doing so are made explicit at the very beginning of his exposition of decision theory: ‘Because one cannot do behavioral game theory, by which I mean the application of game theory to the experimental study of human behavior, without assuming preference consistency, we must accept this axiom . . .’ (p. 2). Game theory seems to be a fixed point in Gintis’ scheme, whether the evidence confirms it or not. Psychologists and sociologists may find this argument for accepting the assumptions of game theory less than compelling.

Gintis presents a powerful (if not altogether novel) critique of the methodological individualism of classical game theory. The essential idea is that the classical theory lacks the resources to explain how rational players coordinate on the strategies required for equilibrium (whether Nash equilibrium or, as Gintis prefers, correlated equilibrium). If game theory is to explain real human behaviour, it needs an analysis of how this coordination problem is overcome. To use Gintis’ metaphor, game theory needs a ‘choreographer’ in much the way that Walrasian equilibrium theory needs an auctioneer. This is to be the role of social epistemology in Gintis’ theory.

The core of the book is an exposition and reformulation of epistemic game theory, in the tradition deriving from Robert Aumann’s 1987 paper on correlated equilibrium (Correlated equilibrium as an expression of Bayesian rationality, Econometrica, 55, 1–18). Gintis has many important things to say about epistemic game theory, but his project of grounding social epistemology within this conceptual framework seems to me to be doomed from the outset. He appeals to Aumann’s theorem to support the claim that correlated equilibrium is a ‘natural equilibrium criterion’ (p. 132), but Aumann’s theoretical framework is a representation of a world whose fundamental properties (strategy spaces, information partitions, the rationality of the players and their subjective priors) are already common knowledge. As Gintis recognizes in an insightful discussion of backward induction paradoxes, common knowledge of rationality is not a ‘premise’ but an ‘event’; it is not something that a theory of rational action can simply assume (pp. 100–1). But one obvious implication of this conclusion is that Aumann’s theorem cannot provide a justification for correlated equilibrium.

For similar reasons, while epistemic game theory can represent what rational players know about one another contingent on different events within a world whose properties are already common knowledge, it cannot explain how players come to know what they know. Such an explanation requires an analysis of the modes of reasoning that are accessible to the players and of how, from their experiences of particular events, players make inferences to the propositions that we call ‘knowledge’. Within Aumann’s framework, one can represent the proposition that, contingent on particular events, players know that a certain equilibrium will be played; but questions about how they know this cannot even be asked. Calling this knowledge a ‘social norm’, as Gintis effectively does, does not take us much further towards social epistemology. For addressing such questions, David Lewis’ understanding of common knowledge offers a far better starting point than Aumann’s. Indeed, Lewis has already provided the bare bones of a social epistemology of conventions that takes us much further than Gintis can go (Lewis, D., 1969, Convention: A Philosophical Study, Cambridge, MA: Harvard University Press). Gintis sometimes claims to be formalizing Lewis’ ideas, but in doing so he overlooks fundamental differences between Aumann and Lewis.
Taken all round, this book is full of interesting and controversial ideas, and deserves to be widely read. Given the extravagance of Gintis’ objectives, it is hardly surprising that a reviewer has to conclude that they have not been fully realized.

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The Years of High Econometrics: A Short History of the Generation that Reinvented Economics.

By FRANCISCO LOUÇA. Routledge, New York. 2007. xxix + 370 pp. £90.00.

Francisco Louça tells us that The Years of High Econometrics is ‘an essay in biography’ starring Ragnar Frisch. Using unpublished archival materials, Louça carefully reconstructs how Frisch was the driving force behind the formation of the Econometrics Society. The story becomes even more interesting as Louça explains how the man who coined so many new terms ended up bitterly deriding what he helped to create as epsilontology and playometrics. In between, we are treated to private correspondence involving the greatest names in twentieth century economics, a debate over the stability of markets, and the emergence of a probabilistic world view.

The first part of the book, appropriately titled ‘Foundations’, describes how Frisch began recruiting a core of like-minded mathematical modellers, whom he dubbed econometricians, in 1926. Louça carefully documents the flurry of letters and negotiations, including such inside politics as A.C. Pigou’s refusal to join because he was not an invited Fellow. Throughout the 1930s, the nascent movement flourished through its Society’s annual conferences, its journal (Econometrica) and a permanent research facility, the Cowles Commission. For Louça, these three institutions are what enabled econometrics to dominate economics.

In the next part, composed of two chapters, Louça reviews how Frisch, as editor of Econometrica and through several seminal articles, sought to impose his vision of deterministic mechanics as the way to explain and control the economy. His favorite metaphor was the pendulum, tracing out a sinusoidal curve that resembled a business cycle. Frisch attached a series of other pendulums to form a chain to generate more realistic and complicated behaviour. This was how Frisch envisioned a market system producing cycles. He kept true to this deterministic view even as others drifted to stochastic processes as the way to model an economy, culminating in Trygve Haavelmo’s 1944 paper that ushered in the probabilistic revolution in economics.

The heart of the book is the third part. Chapter 6 reviews in detail Frisch’s correspondence with Joseph Schumpeter and concludes that they were not able to understand each other. Schumpeter rejected Frisch’s exogenous impulses combined with a dampening propagation mechanism in favour of a historical, irreversible approach to cycles. Frisch desperately tried to produce mechanical analogies to satisfy Schumpeter, but was unable to do so. Louça describes a letter from Frisch on 5 July 1931 as a ‘rhetorical monument’. The exchange did help Frisch to produce the paper which won him the Nobel Prize, ‘Propagation problems and impulse problems’, first presented in 1933, using the famous rocking horse metaphor. The three-equation model exhibits complex dynamics and Louça cites recent scholarship (from Stefano Zambelli) that, in fact, the model would not produce cycles.

The next chapter tackles another important episode, the clash between J. M. Keynes and the econometricians. Having read Louça’s history of Frisch’s work, rereading the General Theory (pp. 297–8) was eye-opening:

The object of our analysis is, not to provide a machine, or method of blind manipulation, which will furnish an infallible answer . . . It is a great fault of symbolic pseudo-mathematical methods of formalising a system . . . that they expressly assume strict independence between the factors involved and lose all their cogency and authority if this hypothesis is disallowed; . . . we cannot keep complicated partial differentials ‘at the back’ of several pages of algebra which assume that they all vanish. Too large a proportion of recent ‘mathematical’ economics are mere concoctions, as imprecise as the initial assumptions they rest on, which allow the author to