Introduction

Roger E.A. Farmer

I first met Axel in the winter of 1987. I was a young Assistant Professor at the University of Pennsylvania and was visiting the campus of the University of California, Los Angeles (UCLA) to present a seminar at the Economics Department. The 1980s were a tumultuous time for macroeconomics. The rational expectations revolution had begun to sweep the profession but its impact was not yet fully appreciated. Macroeconomics at UCLA had not yet fallen to the new classical onslaught and was still dominated by the Keynesian ideas of Robert Clower and Axel Leijonhufvud.

I had studied Axel’s (1968) book on Keynes as an undergraduate in Manchester in the late 1970s and at that time it appeared as if the reconstruction of Keynesian economics in the work of Robert Barro and Herschel Grossman (1976) in the United States and Jean Pascal Benassy (1976), Jacques Drèze (1975) and Edmond Malinvaud (1977) in Europe, would be the new paradigm for macroeconomics. When Barro repudiated his earlier ideas and embraced new classical economics, the writing was on the wall. Barro was captivated by the writing of Robert E. Lucas Jr. who promoted an alternative in his (1972) article that would replace Keynesian economics with a version of general equilibrium theory based on Chapter 7 of Gerard Debreu’s (1959) monograph, *Theory of Value*. Lucas proved persuasive and for the past 25 years the history of macroeconomics has been that of dynamic stochastic general equilibrium theory. To put Axel’s contribution into historical perspective we were lucky enough to persuade David Laidler to write the opening chapter of this Festschrift, ‘Axel Leijonhufvud and the quest for micro-foundations: some reflections’.

The adoption of rational expectations brought many benefits. Macroeconomists were provided with a consistent theory, and generations of graduate students were schooled in mathematics and statistics that allowed the current generation of macroeconomists to develop theories that have a much more solid technical foundation than those that preceded them. But in my view, something was lost in this process. The introduction of more sophisticated mathematics was accompanied by a shift back to less sophisticated economics as it became prudent to understand the simplest version of dynamic models before progressing to their more elaborate
variants. The real business cycle model of Kydland and Prescott (1982) is
driven by a single shock to technology, but the nineteenth-century business
cycle theorists who preceded Keynes constructed verbal theories that were
much richer than this. Pigou, in his (1929) book *Industrial Fluctuations*,
included ‘errors of optimism and pessimism, harvest variations and
autonomous monetary movements’ as additional sources of business
cycles, and it is only now that we are beginning to reinvestigate these pre-
Keynesian ideas with the tools of dynamic stochastic general equilibrium
theory.

Perhaps the biggest casualty of the rational expectations revolution was
Keynesian economics itself which was swept away as an irrelevant detour
in the history of thought. This is unfortunate since there are ideas in
Keynes’s (1936) *General Theory* that pose fundamental challenges to new
classical economics and that have not been refuted by confrontation with
the facts. The interpretation of Keynes that appeared in Leijonhufvud’s
(1968) book was one in which agents trade at disequilibrium prices. The
development of this idea by contemporary writers led to characterizations
of Keynes’s *General Theory* as the economics of nominal rigidities. Axel
himself was never comfortable with this characterization and my own con-
tribution to this volume, ‘Old-Keynesian economics’, is an attempt to
provide a microfoundation to the *General Theory* that does not rely on
nominal price stickiness. In the subsequent chapter, Edmund Phelps takes
up a related theme. A key idea in the *General Theory*, and one that has been
largely ignored by new-Keynesian economics, is that the future is unfore-
castable; a situation that Frank Knight referred to as risk as opposed to
uncertainty. In his chapter, ‘Interest rate setting in the presence of invest-
ment prospects and Knightian uncertainty’, Phelps argues that interest rate
rules of the kind that have been favored by the new-Keynesians should
contain an escape clause to allow them to adapt to events that cannot be
foreseen, even probabilistically.

Throughout his career Axel has been occupied with the idea that econo-
mists should learn from dramatic events. The Great Depression and the
Argentinean hyperinflations of the 1980s are examples of this. His focus on
Keynesian economics was motivated by the fact that we do not have good
explanations for the Great Depression, and his work on Argentinean hyper-
inflation, with his student Daniel Heymann, was motivated by the same
basic idea. When confronted with the apparent fact that the post-war
economy has remained remarkably stable, Axel developed the idea that
during normal times the economy sits within a band of fluctuations he
dubbed the ‘corridor’. In this region classical economics does a good job of
explaining market economies. Sometimes however there are large distur-
bances that move the economy outside of the corridor and at times like this
the rules of the game break down and classical economics no longer works well. The chapter by Daniel Heymann, ‘Macroeconomics of broken promises’, is a description of the kinds of effects that can occur in an economy, in this case Argentina, when normal institutions are eroded.

How should one understand the kinds of events described by Daniel Heymann with economic theory? In their chapter, ‘Bankruptcy and collateral in debt constrained markets’, Timothy J. Kehoe and David K. Levine provide a microeconomic model of agents who interact in a world where collateral matters. Their model provides a possible microfoundation for Axel's concept of the corridor, since in their words: ‘the institution of bankruptcy and collateral that may be well suited for “ordinary” shocks may break down when subject to unusual shocks’.

Axel's work is not characterized by its technical nature, but his ideas have displayed a depth that often appears to be beyond our current capabilities to describe by formal models. To paraphrase a conversation that I recall with Axel: ‘Living in Hollywood has made me realize that the developments in modern macroeconomics are much like those in the movies – modern plots are sadly lacking but the special effects are truly spectacular’. It is a testament to Axel as a true master of a good plot that three of the profession's best economists, both as creative economists and as creators of new techniques, agreed to contribute to this volume. In his chapter, ‘Growth patterns of two types of macro-models’, Masanao Aoki introduces a new class of stochastic process that has not previously been considered in economics as a model of growth. In their chapter ‘Time inconsistency of robust control?’, Lars Hansen and Tom Sargent respond to parallel criticisms made by Zenghin Chen and Larry Epstein and by Martin Schneider, each of whom had claimed that the previous work of Hansen and Sargent on robust control may not be consistent with the assumption that agents’ actions are time consistent.

Axel has long had a deep interest in economic history and he is largely responsible for developing the history group at UCLA which for many years was led by Kenneth L. Sokoloff who sadly passed away in May 2007. In his chapter with B. Zorina Khan, ‘A tale of two countries: innovation and incentives among great inventors in Britain and the United States, 1750–1930’, Sokoloff and Khan compare the patent systems of the US and Great Britain and argue that US patent law was responsible in large part for different patterns of growth.

In his more recent work, Axel has worked on an alternative microfoundation to the General Theory based on the microeconomics of Alfred Marshall as opposed to the general equilibrium foundations rooted in Walras. Axel's recent interest in non-Walrasian foundations is represented in this volume by the work of Peter Howitt who describes in the closing
chapter, ‘Macroeconomics with intelligent autonomous agents’, how eco-
nomic institutions can develop spontaneously in a world where agents 
follow simple behavioral rules.

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