Richard H. Day and Gunnar Eliasson (eds.), *The Dynamics of Market Economies*, North-Holland: Amsterdam, New York, Oxford 1986, US $ 65.00/Dfl. 200.00, 550 pages

Reflecting upon the state of the art of macroeconomics in the nineteen seventies, Robert Gordon (1981) compared it to an election between two unattractive candidates: the New Classical Macroeconomics versus the Non-Market-Clearing Paradigm. This book shows that the nineteen eighties offer more than two (perhaps less unattractive) canditates to choose from. It comprises the papers, comments, and related discussions of a conference on the dynamics of decentralized market economies held in 1983. According to the editors' introductory paper (Chapter 1), a reason for organizing this conference was to bring together various strands of research related to the understanding of economic dynamics. Hence the book contains a diversity of methods, models, and ideas. However, it is doubtful whether all of them fit into the framework Richard Day and Gunnar Eliasson describe in Chapter 1; especially with respect to their claim that "economic activity is conducted by boundedly rational agents"[1] (p. 11). The rest of the book is divided into three parts reflecting the papers' major points of emphasis. Part I deals with "Theory and Models of Dynamic Economic Systems", Part II focuses upon "Technology and Innovation", and the papers of Part III are concerned with "Institutions and Markets". In the following I shall not deal with all of the eighteen papers and notes, rather I shall focus upon some of them and mention the subjects of a couple of others. Of course, this only reflects my own taste for different strategies of modelling economic dynamics.

Part I opens with Herbert Simon's paper "On the Behavioral and Rational Foundations of Economic Dynamics". He argues that both the New Classical and the Non-Market-Clearing Models explain the stylized facts of the business cycle by imposing arbitrary bounds upon the rationality of agents. These bounds, however, have no sound empirical base. Thus, Simon pleads for grounding economic models on decision rules verified in empirical research of the decision processes of individuals and

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[1]Roughly described, bounded rationality means that agents act according to rules of thumb and not according to the maximization framework.

firms. He recommends cognitive psychology as a theoretical framework for guiding this research.

In his paper "Disequilibrium Economic Dynamics: A Post Schumpeterian Contribution" Richard Day questions Schumpeter's hypothesis that pioneering entrepreneurs prevent an economy from settling down in a stationary equilibrium. He argues that optimum seeking behavior of boundedly rational agents, nonlinearities, and regime switching due to constraints from exhaustible resources render economic dynamics locally unstable. On the assumption that economic processes are even globally unstable, he reverses the role of Schumpeter's entrepreneur: now his task is to devise structural changes necessary for preventing economic systems from collapse.

Day's guess about the stability properties of economic systems contrasts sharply with the paper by Robert Clower and Daniel Friedman. They establish local stability for a general equilibrium type monetary exchange economy where trade specialists, holding inventories to accommodate transactions at non-market-clearing prices, change prices in response to observed inventory imbalances and excess demand. It may be noteworthy in this respect that there is another recent stability result. Franklin Fisher (1983) proved convergence for a general equilibrium model with price setting agents under an assumption precluding the sudden appearance of previously unrecognized profitable opportunities. Essentially, this assumption banishes Schumpeterian entrepreneurs from the stage.

On the other hand, Day shows in his note "On Endogeneous Preferences and Adaptive Economizing" that a stable price adjustment process of the Clower-Friedman type might give rise to cyclical or even erratic dynamics when merged with a (by itself also stable, i.e., habit forming) process of preference formation.

Gunnar Eliasson's paper "Micro Heterogenity of Firms and the Stability of Industrial Growth" reports on simulation experiments performed with the micro-macro model developed at the Industrial Institute of Economic and Social Research in Stockholm. The core of this model is a population of firms, each of them acting according to decision rules confirmed by observation of real Swedish firms. The firms' investment decisions transform the exogenously growing technological potential into actual productivity growth. These decisions are governed by the difference between a firm's nominal rate of return on capital and the market interest rate. An exogenously given market regime

determines how fast interfirm differences in the return on capi-
tal are competed away. The results show that fast adjustment in
capital, labour, and product markets decreases these differences
and moves actual production closer to the transformation curve.
During the first half of the run the fast market regime exhibits
the greatest growth in aggregate output; then the steady growth
suddenly breaks down. Hence, there seems to be an inherent con-
flict between stable macroeconomic growth and short term ef-
ficiency. However, since the paper does not elaborate the model-
ling of the adjustment processes it remains obscure how this con-
flict is endogenously created. Of course, this shortcoming is due
to the fact that a model being the result of many years of work
cannot be treated extensively within a short paper. The problem
with this kind of work is that unless the reader is not willing to
read a considerable number of papers dealing with the model he
is left rather with impressions than with insights.

An IS-LM-type aggregate demand function, market clearing
prices on the aggregate product market, a Phillips curve like
wage adjustment, and adaptive expectations as to future demand
are the basic ingredients of Jean-Pascal Benassy's "Non-Walras-
ian Model of the Business Cycle". Assuming a strong reaction of
investment demand on expected sales, he is able to prove the
existence of a limit cycle.

Another method of modelling economic dynamics is pre-
sented in Part II by Sidney Winter. He extends the model of
Nelson and Winter (1982) by allowing for firm entry. Choosing
appropriate sets of parameter values, his simulations give rise to
two different stories of industry evolution. The 'entrepreneurial'
regime assigns higher probabilities of making successful innova-
tions to potential market entrants, whereas the 'routinized'
regime shifts innovative luck towards established firms. Con-
sequently, industry evolution within the entrepreneurial regime
exhibits more dynamics in terms of firm exit and entry than
does evolution within the routinized regime, featuring a small
number of long living firms. For those readers who are not
familiar with the Nelson-Winter-model I should like to add that
this model is a Markov model of industry evolution in which
prespecified rules govern firms investment and R&D policies.
Each period's market price is (anonymously) determined so as to
equate demand and supply.

Using a profit-maximizing framework, Thomas von Ungern-
Sternberg explores the impact of patent duration upon the allo-

cation of (a given amount of) expenditures between innovative and imitative R&D. In a concluding note to Part II Ove Granstrand describes the characteristics of new, innovation based firms in the Swedish industry after World War II and discusses aspects of the modelling of firm entry in models like the ones of Eliasson and Winter.

The papers of Part III are not concerned with different strategies of modelling economic dynamics but focus upon theoretical or empirical issues related to the interplay between institutional and economic change. For instance, Carl Christian von Weizsäcker's paper deals with the role property rights and 'relations' (such as customer loyalty) play in economic development; Tad Rybczynski describes the way external finance is provided to firms in the U.S., Europe, and Japan; Dean Spinanger's paper advocates the hypothesis that welfare policies and labor unions have interfered with the efficient functioning of labor markets.

At a first glance this book might convey the impression of a sharp contrast in explanatory power and richness of structure between the highly abstract general equilibrium models and the models of economic evolution based upon the actions of boundedly rational agents. Hence one remark may be permitted. Thinking in terms of (biological) evolutionary theory we must distinguish the process of adaption to a given environment from the process that changes this very environment. Since optimization requires a set of prespecified constraints, i.e., a given environment, it is an adequate framework for studying adaptation processes. By the very nature of this framework, however, the optimizing agent cannot change the constraints his actions depend upon. Yet, I doubt whether the boundedly rational agent can change them. Hence, it always requires a Schumpeterian entrepreneur or a similar device to push an economic system from one evolutionary state to the other. Since in such models the environment rapidly changes, it may be appropriate (at least for reasons of analytic tractability) to model agents' behavior by prespecified rules slowly adapting to the changing environment. Therefor we should think rather in terms of different questions requiring different methods than in terms of mutually exclusive paradigms.

In any case, the book stimulates discussion with respect to the adaquate modelling of economic dynamics, and it brings to the foreground a variety of institutional issues related to the development of market economies. Hence, everyone dealing with eco-

nomic dynamics and economic development should have a look at it.

*References*

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