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Cooley, T. F. (Ed.): *Frontiers of Business Cycle Research*. XVII, 419 pp. Princeton University Press, Princeton, NJ, 1995. Hardcover US \$ 49.50.

One of the developments in macroeconomics during the last 15 years that has attracted the most attention has been the emergence of the Real Business Cycle (RBC) approach. The distinctive feature of that approach is the use of stochastic dynamic general equilibrium models with rational, forward-looking agents as a tool for analyzing business cycles. The present book provides a clear and comprehensive picture of the current state of this research program. The volume concentrates exclusively on RBC research (other contemporary approaches in macroeconomics are not discussed).

The book consists of twelve papers (previously unpublished) by leading business-cycle specialists. The papers contain excellent surveys of existing results and methods, as well as new material. The papers cover all major topics addressed in the RBC literature. Thus, the volume can be recommended unreservedly. It should prove particularly useful for graduate courses on macroeconomics (the book has a clear pedagogical goal: as stated by the editor, it was motivated by the "lack of a well-organized and careful exposition of the ideas and methods of dynamic general equilibrium modeling" (p. xv)). Several contributions provide detailed discussions of the numerical techniques used to solve and simulate RBC models. Thus, the book should also be useful for researchers who wish to apply the tools of RBC analysis.

In chap. 1, Cooley and Prescott present a benchmark RBC model. That model assumes a closed economy without money. A large number of identical, infinitely-lived households are assumed and firms that operate a constant returns to scale technology; asset markets as well as goods and factor markets are frictionless and competitive; the firms' technology depends on an exogenous random productivity parameter. In the model, business cycles are triggered by changes in this parameter. It appears that the model captures well the cyclical behavior of several important macro aggregates (output, consumption, investment), as observed in US data.

The other papers present extensions of the benchmark model. In particular, RBC models with heterogeneous agents, with market frictions, and with additional types of exogenous shocks (fiscal and monetary policy shocks) are considered as well as open economy models.

Three of the contributions are mainly devoted to methodological issues. A paper by Hansen and Prescott describes widely used methods for computing equilibria of RBC models that are based on dynamic programming techniques. Methods that are particularly suitable for economies with distortions are the focus of a paper by Danthine and Donaldson. The third methodological paper

(by Rios-Rull) shows how to solve dynamic stochastic business-cycle models in which individual financial risks are uninsurable because of financial market imperfections.

Labor market issues are at the heart of two papers by Kydland and by Danthine and Donaldson. Kydland discusses, *inter alia*, business-cycle models that allow for heterogeneity of workers in terms of skills. Danthine and Donaldson, in a second contribution to the volume, modify the baseline RBC framework by considering situations in which labor market transactions take place at wages that are not market-clearing. Specifically, a model with a binding minimum wage, as well as a model with efficiency wages are considered. These "non-Walrasian" features make possible a discussion of unemployment issues in an RBC framework.

Departures from perfect competition are also analyzed in a contribution by Rotemberg and Woodford who discuss RBC models with increasing returns and monopolistic competition in goods markets. It appears that these features can have a significant effect on the business cycle. They also affect the way in which the economy responds to fiscal policy changes, and may give rise to sunspot equilibria.

Monetary issues and fiscal policy questions are discussed in contributions by Cooley and Hansen and by Chari, Christiano, and Kehoe. Cooley and Hansen add money to the basic RBC framework. The key result from their analysis is that variations in the money supply only have a noticeable impact on aggregate economic activity when there are nominal rigidities (e.g., when the nominal wage for a given period is set *before* the money supply of that period is determined). Chari et al. study normative and positive questions regarding fiscal and monetary policy and address computational issues associated with policy analysis in an RBC framework.

Existing RBC research has devoted little attention to the behavior of asset prices, which seems astonishing as, in RBC models, asset prices are key determinants of the agents' consumption and investment decisions. A paper by Rouwenhorst fills this gap. The paper studies implications of the basic RBC model for asset returns (stocks, bonds of different maturities). Most of these predictions are incompatible with the data. Improving model performance on this dimension is thus one of the key challenges that future RBC research will have to address.

Providing a better account of international business cycles is another key challenge for the RBC research program. This conclusion can be drawn from a paper by Backus, Kehoe, and Kydland who discuss extensions of the basic RBC model to a two-country setting. The models analyzed by Backus et al. fail to capture important empirical regularities about international aspects of business cycles (such as the fact that output is highly positively correlated across industrialized countries and the observation that real exchange rates tend to be highly volatile).

Finally, we note an interesting contribution by Greenwood, Rogerson, and Wright who discuss RBC models that allow for nonmarket activity (home production).

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