

10-1-1993

Review of *Business Cycles: Theory, History, Indicators, and Forecasting* by Victor Zarnowitz

Abdur Chowdhury

Marquette University, abdur.chowdhury@marquette.edu

The succeeding essay presented in Chapter 8 pertains to "Promoting University Spin-offs through Equity Participation" by Meg Wilson and Stephen Szygenda and concludes that Texas may be viewed as a laboratory for technological commercialization strategies. Equity participation by universities and their own spin-off companies is viewed as a very positive step by many policymakers, administrators, investors, faculty, students, and businesses. It may be some time before the University of Texas is able to conduct a more retrospective analysis of the experiment authorized with respect to the Center for Technological Development and Transfer (CTDT) which was created by state legislation in 1985.

Chapter 9 relates to "Ramifications of Operating a Business and Industry Development Center as an Auxiliary Enterprise" which is authored by Henry C. Kowalski. The GMI Engineering and Management Institute (formerly General Motors Institute) in Flint, Michigan, initiated the Business and Industry Development Center in July 1983. The author observes that GMI's experience shows that, under the proper set of circumstances, the resources of an academic institution can promote economic development within its constituency and community on a quid-pro-quo basis. There cannot be any general conclusions drawn, however, pending on the duplication of those unique conditions in other economic institutions.

The tenth chapter is entitled "The Breeder: Forming Spin-off Corporations through University-Industry Partnerships" by Frank J. Wilem, Jr. who observed that technological development requires the ingenuity of scientists and engineers who excel in their individual areas of research focus.

The fourth part focuses on "Turning University Research into Business Opportunities" and is comprised of Chapters 11, 12, 13, and 14. The eleventh chapter on "Technology Commercialization in Illinois" by Demetria Giannisis, Raymond A. Willis, and Nicholas B. Maher contends that the status of the United States as technological innovator and producer had been called into question even before it became a pivotal issue in the 1988 presidential campaign. In fact, the 1985 Presidential Commission on Industrial Competitiveness stressed the role of technological innovation, productivity growth, and human capital as structural indicators of competitiveness. The report's analysis progressed from the immediate context of "commercializing new technologies through improved manufacturing" to the extended context of reducing the federal deficit, improvements in school curricula, and revising the tax system to encourage innovation.

While the twelfth chapter consists of an essay by Ilze Krisst on "How University Research Results Become a Business: The Case of the University of Connecticut," the following chapter focuses on "Entrepreneurship at Purdue University" by Staley T. Thompson.

The final chapter, which is entitled "Conclusion" by Alistair M. Brett, David V. Gibson, and Raymond W. Smilor, mentions that even so the chapters in this volume certainly cover a range of issues, one theme is common to all of them: the search for effective mechanisms for launching and sustaining spin-off ventures. As the authors conclude, the need may be driven by a desire to form bridging structures to business and industries as described by Cantlon and Koenig, recognizing the university's economic development responsibility. Furthermore, the motivating force might be a desire to see direct commercial benefits from university research and development.

In the final analysis, the authors ponder how spin-off companies might support a nation's international competitiveness. In fact, since such companies are small, many have high growth potential and are based on critical technologies. In addition, strategic alliances with spin-off company partners in other countries may form a viable way for such ventures to contribute to the global economy. Bon appetit!

Jack E. Adams

University of Arkansas/Little Rock

References

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Business Cycles: Theory, History, Indicators, and Forecasting.

By Victor Zarnowitz. Chicago, Illinois: The University of Chicago Press, 1992. Pp. xvii, 593. \$70.00.

Over the past two centuries, business cycles have varied greatly in length, spread, and size. At the same time, they are distinguished by their recurrence, persistence, and pervasiveness. In recent years questions

about the changing nature of business cycles have increasingly become a focus of academic interest and public concern. Victor Zarnowitz has long been considered a leading figure in the study of business cycles. The collection of papers in this book represent a carefully integrated and up-to-date study of business cycles, reexamining some of his earlier research as well as addressing recent developments in this area.

During the last few decades, the NBER has sponsored a great deal of important research on business cycle fluctuations. This book, published by the NBER, includes findings that have been reported in many published research papers and conference volumes. A nice introduction by the author summarizes and serves as a road map for readers. Thereafter the papers are organized around four general themes—theory, history, indicators, and forecasting. The book first delineates what we know and still do not know about business cycles. These facts are then assessed in light of the theoretical literature on fluctuations in economic activity. The book consists of eighteen chapters divided into four sections. Two of the chapters are joint products of work with other co-authors. Most of these chapters, whether addressing problems of theory, evidence, indicators, or prediction, are rather comprehensive in scope. This, in my view, reflects a gradual expansion of the author's research interests from particular cyclical processes, events, and hypotheses to the long history and modern evolution of business cycles.

In the first section, Zarnowitz reviews various business cycle theories including the Keynesian and monetary theories, rational expectations and real business cycle theories. In doing so, he investigates how business cycles have evolved over time in response to changes in the size of the government, nature of stabilization policies, and the degree of openness of an economy. In the next section, Zarnowitz discusses various measures of the trends and cycles in economic activity, such as, output, prices, inventories, residential and non-residential investments, and other economic variables. He examines the length and severity of U.S. business cycles since the early nineteenth century and evaluates the success of macro models in simulating the past behavior of the economy.

The chapters in the third section are purely empirical in nature. The performances of various leading, coincident, and lagging indicators are described and assessed and results on the value of their composite measures are presented. Finally, the chapters in the last section offer a general assessment of the record and improvability of macroeconomic forecasting. The degree of success of large commercial forecasting firms and of many individual economists in predicting the course of inflation, real growth, unemployment, interest rates, and other key economic variables are assessed.

It is not possible in a brief review to summarize the developments in various aspects of business cycle discussed in considerable detail in individual chapters. Suffice it to say that there is a wealth of information documenting the importance of the widely different factors influencing business cycles. However, several overall conclusions can be derived from this book. First, growth in the United States and other market-oriented economies proceeded through nonperiodic but recurrent sequences of business expansions and contractions. The cycles have moderated in recent times and now show up more regularly in growth rates than in levels of total output and employment. This can be attributed to profound structural, institutional, and policy changes.

Second, business cycles are characteristically persistent and pervasive, interact with the longer growth trends. However, they are not mere transitory deviations from an independently determined long-term growth trend. Third, although the economy is always exposed to and affected by a variety of external disturbances, its major fluctuations are to a large extent of endogenous nature. Important interactions and cyclical movements occur among all key economic variables. These relationships are dynamic, involving distributed lags and probably also some essential nonlinearities. Fourth, the cyclically sensitive time series form a system of leading, coincident, and lagging indicators, consistent with long-established timing regularities. To aid macroeconomic analysis and forecasting, the cyclical indicators and indexes are best used in combination rather than individually.

The comprehensive and evolutionary view of business cycles that Zarnowitz holds does not by any means imply that contractions are inevitable or must recur with any frequency. In periods and countries with strong growth trends, recessions are typically short and mild. In fact, they are often replaced by retardation of real growth. Thus it is possible for a market-oriented economy to achieve both higher and more stable growth.

Zarnowitz focuses on the random elements in business cycles and the effects of various stabilization policies. This can serve at least two major purposes. First, there is a need to study what shocks impinge on the economy at various periods, with what frequency, persistence, and repercussions. Second, it is important

to learn which policies can reduce and which can aggravate the cyclical instability of the economy, and when and how they do so.

This book is enjoyable to read and provides a good summary of empirical evidence and theoretical explanations for business cycles in the United States. Its approaches are totally free of the constraints of the analytical rituals that academicians often observe. Obviously, as with most complex economic phenomena, many questions about business cycles have not been answered definitively or remain unexplored. However, economic volatility in recent years have given us a good opportunity to improve our understanding of business cycles and this book, undoubtedly, makes a valuable contribution to this objective. The book is a good summary of research in the area of business cycle and it usefully incorporates interrelated pieces needed to understand the phenomenon. There are many nuggets of valuable information to be uncovered in this book, both by specialists in this area as well as novices. It should be read by all scholars interested in the use of economic data for the study of business cycle fluctuations. Zarnowitz is masterful in his analysis, and the book will set the standard in the business cycle literature for some time to come.

Abdur R. Chowdhury
Marquette University

The Joan Robinson Legacy.

Edited by Ingrid H. Rima. Armonk, N.Y.: M. E. Sharpe, Inc., 1991. Pp. 300. \$42.50.

This volume starts with a lovely portrait (the frontispiece) of Joan Robinson (circa 1970, I should guess) that perfectly captures her warmth, thoughtfulness, intelligence and beauty during the latter part of the period when I met her most frequently and knew her best. Ms. Rima has here assembled a mixed collection of essays (mostly by persons who would style themselves "Post Keynesian") on various aspects of Joan Robinson's many contributions to economic doctrine and method, Joan's own writing was so limpid that mere commentators, whatever their literary and intellectual talents, have an impossible act to follow. Joan Robinson may not always have been everyone's cup of tea, but at one time or another she was every reader's glass of champagne.

Like many Cambridge students in the 1920s, and like Alfred Marshall (cf. Keynes, *Essays in Biography*, Collected Work Vol. X, p. 146), Joan Robinson "... belonged to the tribe of sages and pastors [and so] was endowed with a double nature. ..." But—again like Marshall—"As a preacher and pastor ... [she] was not particularly superior to other similar natures." And while one could not be in Joan's presence for more than a few minutes without recognizing her incredible keenness of intellect and quick logic, neither can one read her books and collected works and imagine that anyone of Keynes's stature would say of her, as Keynes did say of Marshall, "... as a scientist [she] was, within [her] own field, the greatest in the world for a hundred years." Despite her sharp intelligence, Joan had no discernable feel for what Polya calls "shaded inference"—the essential quality of mind that separates the great empirical scientist from the great logician or mathematician. Though Joan often spoke and wrote sensibly about scientific methodology (one of the more notable instances being her remark that "in a subject where there is no agreed procedure for knocking out error, doctrine has long life.") she seemed to view economic theories either as nearly white—so Marx and Keynes were seen not as wrong but merely sometimes confused or misguided—or (especially anything she associated with Walras or classical theory) as perfectly black. Her collected works may entertain future historians of economic science, but they will not add much to what future generations will regard as "accumulated economic knowledge."

With few exceptions, the essays in this volume are "in the spirit" if not in the literary style of Joan Robinson: long on preaching, assertion, and exhortation, short on content. But the exceptions merit mention. The introductory essay by Ingrid Rima is clear, thoughtful, well crafted, and provides an excellent overview of the bulk of the remaining essays; it is well worth reading. Then there is the brilliant essay [Chap. 5] by Meyer Burstein on "History versus Equilibrium" which seems to me good enough to compensate any reader for the entire price of the book. Burstein somehow manages to punch through the mindless rhetoric that surrounds most nonconventional discussions of "historical time" and at the same time gives Joan ample credit for consistently stressing (if not always with complete lucidity) the strictly virtual character of all so-called Walrasian models (I say "so-called" because Joan never seemed to recognize that contemporary general equilibrium theory owes virtually nothing to Leon Walras and owes everything to J. R. Hicks's bowdlerized version of Walras's *Elements* as set forth in *Value and Capital*).