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Milton
Friedman
and
Anna J.
Schwartz

Monetary Trends in the United States and the United Kingdom

Their Relation to Income,
Prices, and Interest Rates,
1867-1975

Monetary Trends in
the United States and
the United Kingdom



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Research

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Chicago

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Milton Friedman and Anna J. Schwartz

This volume, the culmination of more than twenty-five years of research on money and its effects, is the final installment in a now-classic series of books that had their origin in new estimates of the quantity of money in the United States. It is the first study to provide statistical and theoretical analysis of such a long period of time—allowing the authors to purge the data of cyclical fluctuations so that long-term trends could be examined—and the first to provide a cross-country comparison.

The authors establish the theoretical framework for their empirical study with a comprehensive presentation of the quantity theory of money, including a discussion of recent literature. They then describe their statistical procedures and their data. Presentation of the broad trends and fluctuations in money, income, and prices over a century is followed by a detailed examination of some basic propositions in monetary theory: the determinants of money demand; the financial links between the United States and the United Kingdom; the transmission process from money to income, output, and prices; the relationship between money and interest rates; and the nature of long swings.

(Continued on back flap)

**Monetary Trends in
the United States
and the
United Kingdom**



**A National Bureau
of Economic Research
Monograph**

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Their Relation to Income,
Prices, and Interest Rates,
1867–1975

Milton Friedman and
Anna J. Schwartz



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MILTON FRIEDMAN, winner of the Nobel Prize in Economics, is a senior research fellow at the Hoover Institution, Stanford University, and Paul Snowden Russell Distinguished Service Professor of Economics at the University of Chicago. ANNA J. SCHWARTZ is research associate with the National Bureau of Economic Research.

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What are large collections of facts for? To make theories *from*, says Bacon: to try ready-made theories *by*, says the history of discovery: it's all the same, says the idolater: nonsense, say we!

Augustus de Morgan, *A Budget of Paradoxes*

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Preface

This preface is like the “synopsis” that appears at the head of each new chapter of a serialized novel, recounting the key events of earlier chapters so that the reader who has picked up the story for the first time can make sense out of the installment that follows. It is especially needed for this book because of the long interval that has elapsed between the earlier installments and this one—the fourth and last of a series of books that had their origin in new estimates of the quantity of money in the United States. For the benefit of new arrivals, this preface, like the standard “synopsis,” touches on the highlights of some of the earlier books, repeating for the first two what was said in the preface of the third.

A Monetary History of the United States, 1867–1960, by Milton Friedman and Anna J. Schwartz, was the first in the series. “It traces changes in the stock of money for nearly a century, from just after the Civil War to 1960, examines the factors that accounted for the changes, and analyzes the reflex influence that the stock of money exerted on the course of events.”¹

Determinants and Effects of Changes in the Money Stock, 1875–1960, by Phillip Cagan, examines intensively the sources of changes in the stock of money and gives a detailed statistical analysis of the cyclical and secular behavior of each of the proximate determinants of the quantity of money: high-powered money, the ratio of deposits at banks to their reserves, and the ratio of the public’s holdings of deposits to its holdings of currency.²

Monetary Statistics of the United States, by Friedman and Schwartz, describes in detail how the new estimates of the stock of money were

1. Princeton University Press for the National Bureau of Economic Research, 1963, p. 3.

2. National Bureau of Economic Research, 1965.

constructed and gives supplementary tables that, though by-products of the estimation process, are of interest in their own right.³ Its title, unlike those of the earlier volumes, is not qualified by dates because *Monetary Statistics* also surveys earlier attempts to estimate the United States money stock and gives a comprehensive summary of earlier numerical estimates. Hence its temporal scope is roughly coterminous with that of the Republic. Finally, *Monetary Statistics* surveys the usage of the term *money* in economic literature, examines a number of attempts to settle on a particular definition of money on the basis of theoretical considerations, and presents the criteria and evidence that led us to the particular definition we have selected for the United States for the period covered by our estimates: currency held by the public plus all deposits adjusted of commercial banks.

Monetary Statistics “is for the monetary statistician who is interested in basic data on the quantity of money. It provides raw material for analysis but little economic analysis.”⁴

The present book, like the first two in the series, attempts to provide such analysis. *A Monetary History* presented a chronological and largely qualitative analysis. *Determinants and Effects* presented both a historical and a statistical analysis of the supply of money. The special task of this book is to present a statistical and theoretical analysis of the relation between the quantity of money and other key economic magnitudes over periods longer than those dominated by cyclical fluctuations—hence the term *trends* in the title. Unlike the first three books, this one is not restricted to the United States but includes comparable data for the United Kingdom.

This book has been a long time in the making—indeed, a first draft of it was completed before any of the others in the series had been published. A second draft, more comparable to the present version in topics covered and statistical approach, was completed in 1966 and submitted tentatively to an NBER reading committee (Phillip Cagan, Solomon Fabricant, chairman, and Jack Guttentag). That draft was restricted entirely to the United States. The reading committee suggested that the book’s value would be enhanced by broadening its coverage to include the United Kingdom and perhaps other countries so as to permit international comparisons. At the time the suggestion seemed to us eminently sensible, and we thought it could be implemented with a modest expenditure of time. We were clearly wrong. Getting comparable data for the United Kingdom, making parallel analyses, and consolidating the results for the two countries turned out to be far more difficult and time-consuming than we had expected. We underestimated how much of a start the earlier

3. National Bureau of Economic Research, 1970.

4. *Ibid.*, p. 3

three volumes—all for the United States only—had given us for the United States analysis in this one, and how much of that background material we would have to duplicate for the United Kingdom. Other digressions and interruptions affecting both authors delayed us further, so that the book was not finished until a decade after the latest date at which we initially expected to complete it.

The delay enabled us to lengthen the period studied and to benefit from the flood of research on monetary matters during the past two decades. Needless to say, incorporating the new material added to the delay. Though no doubt the new material, the longer period covered, and the inclusion of the United Kingdom have all added to the value of the book, in retrospect we probably made a mistake in accepting the reading committee's suggestion. We doubt that the added contribution of the book adequately compensates for the additional effort and the long delay. We are somewhat comforted for the mistake—if mistake it was—by the fairly wide informal circulation that the original and subsequent drafts have had among scholars and the economic research that has been stimulated thereby, much of it through the Workshop in Money and Banking at the University of Chicago and through associates at the NBER. We in turn have been able to use the results of that research and have incorporated much of it herein.

In the preface to *Monetary Statistics* we wrote that we planned an additional book on monetary cycles. Much to our regret, that plan has proved another casualty to the unanticipated time it took us to complete this book. Our systematic published work on cycles will therefore be restricted to our earlier article, "Money and Business Cycles."⁵ Perhaps it is pure rationalization, but we have been surprised to find how much of the material in this book has direct relevance to the topics frequently considered under the heading "cyclical fluctuations." Whether that is true or not, we shall have to leave to other hands a fuller study of monetary cycles. Similarly, we shall have to leave to other hands the extension of our study of monetary trends to countries other than the United States and the United Kingdom.⁶

5. *Review of Economics and Statistics* 45 (1, suppl.) (February 1963): 32–64; reprinted in M. Friedman, *The Optimum Quantity of Money* (Aldine, 1969), chap. 10.

6. Such an extension has already been made for some countries and some of the topics we cover. See David Meiselman, ed., *Varieties of Monetary Experience* (University of Chicago Press, 1970), which includes six studies of monetary phenomena: for a cross-section of forty-seven countries during the post-World War II period (Morris Perlman); for Canada from 1867 to 1965 (George Macesich); for Chile, from 1879 to 1955 (John Deaver); for South Korea from 1953 to 1961 and for Brazil from 1948 to 1965 (Colin Campbell); for Argentina from 1935 to 1962 (Adolfo Cesar Diz); and for Japan after World War II (Michael Keran). Other studies include: Allan H. Meltzer, "The Behavior of the French Money Supply: 1938–54," *Journal of Political Economy* 67 (June 1959): 275–91; K. A. J. Hay, "Money and Cycles in Post Confederation Canada," *Journal of Political Economy* 75

Because this book has been such a long time in the making, we have accumulated intellectual debts to many persons. We apologize in advance to any that we fail to acknowledge because of the exponential decay of memory over time.

For a discussion of problems of measurement of the United Kingdom money stock before the 1900s, we are indebted to Shizuya Nishimura, David K. Sheppard, and Michael D. Bordo. Nishimura sent us an unpublished paper, referred to in chapter 4, that helped us to extend into the 1870s the series that Sheppard had constructed beginning 1880 and to revise some of Sheppard's estimates. Sheppard was most generous in extending his money series beyond 1966, the final year of his published estimates. Bordo's work on the nineteenth-century British monetary data was also helpful to us.

A revised and improved money stock series for the United Kingdom is likely to become available as part of a new study of United Kingdom monetary history now under way, under the direction of Brian Griffiths, at the Centre for Banking and International Finance of City University, London. Had that study been completed in time for us to use its results, our task would have been easier. Some of our findings may require revision if the new money series differs appreciably from the one we use.

Problems we encountered with estimates of the British income series before World War I led us to address a memorandum to a group of British economic statisticians concerning the data movements we found defective (see chap. 4 for the details). We acknowledge with thanks the courteous replies we received, especially those from C. H. Feinstein.

Among those who provided criticism, comments, and stimulation especially relevant to this book are the late Clark Warburton, Moses Abramovitz, Solomon Fabricant, Phillip Cagan, and participants in the Workshop on Money and Banking of the University of Chicago. Among those who assisted us in the statistical work of the earliest drafts of this book, dating back to the 1960s, are Lottie Boschan, Juanita Johnson, and Martha S. Lichtenstein; also Nadeschda Bohsack, Antonette Bugar, Marilyn McGirr, Esther D. Reichner, Selma Seligsohn, the late Hanna Stern, Mark L. Wehle, and Tom Teng-pin Yu. Successive drafts that we prepared in the 1970s benefited greatly from the devoted efforts of three

(June 1967): 262-73; Lars Jonung, "Money and Prices in Sweden, 1732-1972," in *Inflation in the World Economy*, ed. J. M. Parkin and G. Zis (Manchester: Manchester University Press, 1975); T. J. Courchene, "An Analysis of the Canadian Money Supply, 1925-34," *Journal of Political Economy* 77 (May/June 1969): 363-91. For Japan, a project at the Institute for Industrial Relations, Rikkyo University, has produced a major study, Kokishi Asakuri and Chiaki Nishiyama, eds., *A Monetary Analysis and History of the Japanese Economy, 1868-1970* (Tokyo: Sobunsha, 1974) [primarily in Japanese but with table titles and caption headings, and summary articles in English]. The extensive bibliography of this volume includes still other studies.

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We have also received helpful suggestions on the final draft from the NBER staff and directors' reading committees (Phillip Cagan, Stanley Fischer, and Robert J. Gordon; Walter F. Hoadley, Stephan F. Kaliski, and James Simler).

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All in all, it is with a sense of satisfaction and relief that we terminate our part in a scholarly venture that we started more than a quarter of a century ago.

**Monetary Trends in
the United States
and the
United Kingdom**

