This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Statistical Indicators of Cyclical Revivals and Recessions

Volume Author/Editor: Geoffrey H. Moore

Volume Publisher: NBER

Volume ISBN: 0-87014-346-8

Volume URL: http://www.nber.org/books/moor50-1

Publication Date: 1950

Chapter Title: Front matter, Statistical Indicators of Cyclical Revivals and Recessions

Chapter Author: Geoffrey H. Moore

Chapter URL: http://www.nber.org/chapters/c3227

Chapter pages in book: (p. -10 - 0)



# GEOFFREY H. MOORE

Occasional Paper 31 NATIONAL BUREAU OF ECONOMIC RESEARCH, INC. 1950

### PRICE: \$1.50

Second Printing, December 1950

COPYRIGHT, 1950, BY NATIONAL BUREAU OF ECONOMIC RESEARCH, INC. 1819 BROADWAY, NEW YORK 23, N. Y.

ALL RIGHTS RESERVED

DESIGNER: EUGENE M. ETTENBERG MANUFACTURED IN THE U. S. A. BY THE GALLERY PRESS, NEW YORK

## 2,005,616

## National Bureau of Economic Research, Inc. Moore, Geoffrey Hoyt. Statistical indicators of cyclical revivals and recessions. [New York, National Bureau of Economic Research, 1950. 95 p. Illus. 23 cm. (National Bureau of Economic Research, Occasional paper 31) 1. Business cycles. r. Title. (Series) H11.N2432 no. 31 338.54 50-3975

MATERIAL SUBMITTED BY PUBLISHER.



	2,0	05,616
National Bureau of.	Economic Research,	Inc.
		1
Moore, Geoffrey Hoyt. Statistical indicato New York <sub>1</sub> National 95 p. illus. 23 cm. Occasional paper 31)	rs of cyclical revivals a Bureau of Economic Res (INational Bureau of Eco	nd recessions, search, 1950. nomic Research



#### OFFICERS

Boris Shishkin, Chairman Harry Scherman, President C. C. Balderston, Vice-President George B. Roberts, Treasurer W. J. Carson, Executive Director Martha Anderson, Editor

#### DIRECTORS AT LARGE

D. R. Belcher, American Telephone & Telegraph Co. Oswald W. Knauth, New York City Simon Kuznets, University of Pennsylvania
H. W. Laidler, Executive Director, League for Industrial Democracy Shepard Morgan, New York City C. Reinold Noyes, Princeton, New Jersey George B. Roberts, Vice-President, National City Bank Beardsley Ruml, New York City Harry Scherman, Chairman, Book-of-the-Month Club George Soule, Bennington College N. I. Stone, Consulting Economist J. Raymond Walsh, WMCA Broadcasting Co. Leo Wolman, Columbia University
Theodore O. Yntema, Vice President-Finance, Ford Motor Company

#### DIRECTORS BY UNIVERSITY APPOINTMENT

E. Wight Bakke, Yale C. C. Balderston, Pennsylvania Arthur F. Burns, Columbia G. A. Elliott, Toronto Frank W. Fetter, Northwestern T. W. Schultz, Chicago

#### DIRECTORS APPOINTED BY OTHER ORGANIZATIONS

Percival F. Brundage, American Institute of Accountants Thomas C. Cochran, Economic History Association Frederick C. Mills, American Statistical Association S. H. Ruttenberg, Congress of Industrial Organizations Murray Shields, American Management Association Boris Shishkin, American Federation of Labor Donald H. Wallace, American Economic Association

#### RESEARCH STAFF

Arthur F. Burns, Director of Research Geoffrey H. Moore, Associate Director of Research

Moses Abramovitz	F. F. Hill
Harold Barger	Thor Hultgren
Morris A. Copeland	Simon Kuznets
Daniel Creamer	Clarence D. Long
David Durand	Ruth P. Mack
Solomon Fabricant	Frederick C. Mills
Milton Friedman	Raymond J. Saulnier
Millard Hastay	Lawrence H. Seltzer
W. Braddock Hickman	George J. Stigler

Leo Wolman

This paper is a product of the thought and labor of many individuals in the Business Cycle unit of the National Bureau, and of a number outside that group. Arthur F. Burns collaborated on the project when it began several years ago, and guided it over much of its course. The manuscript has benefited from his suggestions in innumerable ways. Much of the statistical work was directed by Millard Hastay, who also aided in developing the criteria described in Section 4. Florence Robinson, Sophie Sakowitz, and Johanna Stern were largely responsible for the compilations and calculations, and Milton Lipton assisted in constructing the methods illustrated in Appendix A. W. Braddock Hickman gave generously of his time in planning certain IBM tabulations used in Section 6, and commented upon the manuscript. I have benefited, too, from the comments of Moses Abramovitz, Martha Anderson, Elmer C. Bratt, Daniel Creamer, Thor Hultgren, Frederick C. Mills, George B. Roberts, and Leo Wolman. The charts were drawn by H. Irving Forman. It is a pleasure to record my indebtedness to all these individuals and to the late Wesley C. Mitchell, who laid the foundation for this and many future studies of business cycles.

### G. H. M.

## Contents

1	Aim of the Study and Summary of Findings	1
2	An Experiment with Indicators	3
3	Varieties of Cyclical Behavior and Their Consensus	8
4	Criteria for Selecting Indicators	20
5	Classification of Series According to Conformity and Timing	31
6	Behavior of Selected Groups of Indicators, 1885-1940	45
7	A Tentative List of Current Indicators	63
АРРІ	ENDIX	
A	A Technique for Summarizing the Current Behavior of Groups of Indicators	78
B	List of Series with Acceptable Conformity and Timing, in Three Timing Groups	92
TAB	LE	
1	Reference Dates and Durations of Business Cycles, United States, 1854-1938	6
2	Cyclical Timing of 21 Statistical Indicators	7
3	Conformity Measures, Seven Series	27
4	Timing Measures, Five Series	29
5	Classification of All Series Examined for Acceptability as Indicators	34
6	Percentage of Series with Acceptable Conformity and Timing, by Economic Groups	36
7	Percentage of Series with Acceptable Conformity and Timing: Prices, Production, Employment, and Payrolls	37
8	Distribution of Acceptable Series by Timing Classifications Based upon the Full Period Covered and on 1919-1938	40
9	Timing Observations Before and After 1919, Two Groups of Series	42
10	Timing of Percentage of Series Expanding and Contracting in Successive Business Cycles, 1879-1938, Two Groups of Series	46
11	Timing of Medians of Corresponding Specific Cycle Turns, 1885-1938, Three Groups of Series	55

TABLE

12	Record of Timing of Selected Statistical Indicators at Business Cycle Turns	64
<b>13</b>	Chronology of Postwar Peaks in Selected Statistical Indi- cators	74
A1	Measures of Timing and Smoothness of Fifteen Statistical Indicators	80
A2	Distribution of Fifteen Indicators by Duration of Run in Moving Averages	82
A3	Duration of Run in Moving Averages, Seven Leading and Eight Roughly Coincident Indicators	86
A4	Timing of Cumulated Percentage Expanding and Cumu- lated Average Duration of Run, Two Groups of Indicators, 1920-1938	87
СНА	RT	
1	Behavior of Twenty-one Statistical Indicators, 1932-1939	4
2	Reference Cycle Patterns of Seven Series, 1919-1938	10
• 3	Percentage of Series Reaching Specific Cycle Peaks and Troughs and Percentage Expanding, All Series with 'Ac- ceptable' Conformity	14
4	Number of Series Reaching Specific Cycle Peaks and Troughs, Three Groups of Series	50
5	Percentage of Series Expanding, Three Groups of Series	58
6	Behavior of Selected Statistical Indicators, 1936-1949	70
7	Percentage Expanding, All Series with 'Acceptable' Con- formity; Average Duration of Run, 15 Series	84
8	Cumulated Percentage Expanding, All Series with 'Ac- ceptable' Conformity; Cumulated Average Duration of Run, 15 Series; FRB Index of Industrial Production	85
9	Average Duration of Run, 7 Leading and 8 Roughly Coin- cident Series	88
10	Cumulated Average Duration of Run, 7 Leading and 8 Roughly Coincident Series	89