

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

Volume Title: Trends in Output and Employment

Volume Author/Editor: George J. Stigler

Volume Publisher: NBER

Volume ISBN: 0-87014-116-3

Volume URL: <http://www.nber.org/books/stig47-1>

Publication Date: 1947

Chapter Title: Front matter to "Trends in Output and Employment"

Chapter Author: George J. Stigler

Chapter URL: <http://www.nber.org/chapters/c7067>

Chapter pages in book: (p. -9 - 0)

# Trends in Output and Employment

GEORGE J. STIGLER  
*Columbia University*

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.  
New York  
1947

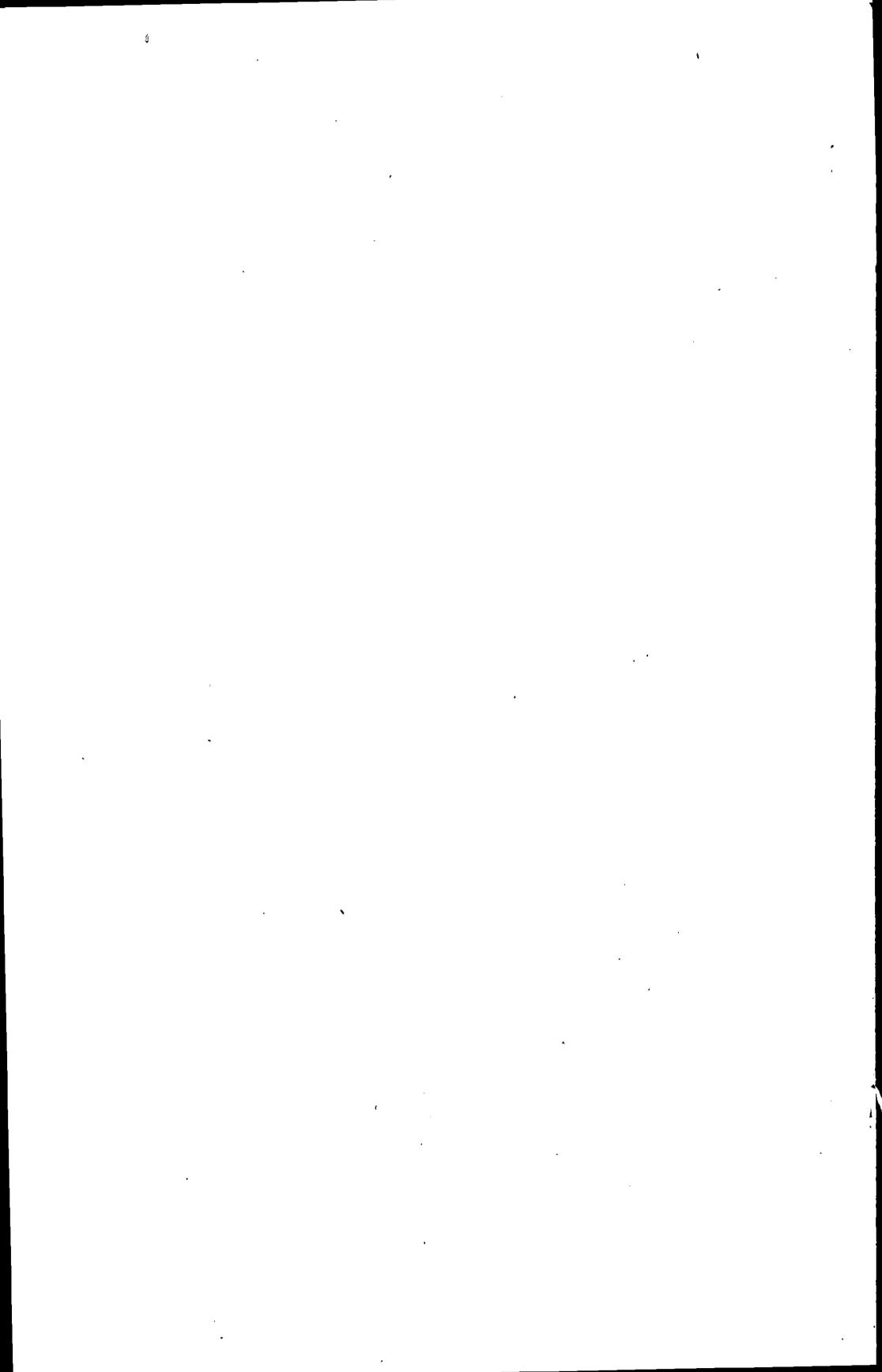
Copyright, 1947, by  
National Bureau of Economic Research, Inc.  
1819 Broadway, New York 23  
All Rights Reserved

Printed in the United States by  
Herald Square Press, Inc.  
Bound by H. Wolf, New York

TWENTY-FIFTH ANNIVERSARY SERIES

4

TRENDS IN OUTPUT AND EMPLOYMENT



## OFFICERS

Shepard Morgan, *Chairman*  
C. Reinold Noyes, *President*  
Boris Shishkin, *Vice-President*  
George B. Roberts, *Treasurer*  
W. J. Carson, *Executive Director*  
Martha Anderson, *Editor*

HC  
106  
S83

## DIRECTORS AT LARGE

Chester I. Barnard, *President, New Jersey Bell Telephone Company*  
Arthur F. Burns, *Columbia University*  
Oswald W. Knauth, *New York City*  
H. W. Laidler, *Executive Director, League for Industrial Democracy*  
Shepard Morgan, *Vice-President, Chase National Bank*  
C. Reinold Noyes, *New York City*  
George B. Roberts, *Vice-President, National City Bank*  
Beardsley Ruml, *Chairman, Board of Directors, R. H. Macy & Company*  
Harry Scherman, *President, Book-of-the-Month Club*  
George Soule, *President, Pilot Press, Inc.*  
N. I. Stone, *Consulting Economist*  
J. Raymond Walsh, *WMCA Broadcasting Company*  
Leo Wolman, *Columbia University*

## DIRECTORS BY UNIVERSITY APPOINTMENT

E. Wight Bakke, *Yale*  
C. C. Balderston, *Pennsylvania*  
W. L. Crum, *Harvard*  
Corwin D. Edwards, *Northwestern*  
G. A. Elliott, *Toronto*  
Guy Stanton Ford, *Minnesota*  
H. M. Groves, *Wisconsin*  
Clarence Heer, *North Carolina*  
Wesley C. Mitchell, *Columbia*  
Paul M. O'Leary, *Cornell*  
W. W. Riefler, *Institute for Advanced Study*  
T. O. Yntema, *Chicago*

## DIRECTORS APPOINTED BY OTHER ORGANIZATIONS

Percival F. Brundage, *American Institute of Accountants*  
Arthur H. Cole, *Economic History Association*  
Frederick C. Mills, *American Statistical Association*  
Boris Shishkin, *American Federation of Labor*  
Warren C. Waite, *American Farm Economic Association*  
Donald H. Wallace, *American Economic Association*

## RESEARCH STAFF

Arthur F. Burns, *Director of Research*  
Moses Abramovitz  
Harold Barger  
Morris A. Copeland  
Daniel Creamer  
Solomon Fabricant  
W. Braddock Hickman  
F. F. Hill  
Thor Hultgren  
Simon Kuznets  
Clarence D. Long  
Ruth P. Mack  
Frederick C. Mills  
Wesley C. Mitchell  
Geoffrey H. Moore  
Raymond J. Saulnier  
George J. Stigler  
Leo Wolman

*Relation of the Directors to the Work and Publications  
of the  
National Bureau of Economic Research*

1. The object of the National Bureau of Economic Research is to ascertain and to present to the public important economic facts and their interpretation in a scientific and impartial manner. The Board of Directors is charged with the responsibility of ensuring that the work of the Bureau is carried on in strict conformity with this object.

2. To this end the Board of Directors shall appoint one or more Directors of Research.

3. The Director or Directors of Research shall submit to the members of the Board, or to its Executive Committee, for their formal adoption, all specific proposals concerning researches to be instituted.

4. No report shall be published until the Director or Directors of Research shall have submitted to the Board a summary drawing attention to the character of the data and their utilization in the report, the nature and treatment of the problems involved, the main conclusions and such other information as in their opinion would serve to determine the suitability of the report for publication in accordance with the principles of the Bureau.

5. A copy of any manuscript proposed for publication shall also be submitted to each member of the Board. For each manuscript to be so submitted a special committee shall be appointed by the President, or at his designation by the Executive Director, consisting of three Directors selected as nearly as may be one from each general division of the Board. The names of the special manuscript committee shall be stated to each Director when the summary and report described in paragraph (4) are sent to him. It shall be the duty of each member of the committee to read the manuscript. If each member of the special committee signifies his approval within thirty days, the manuscript may be published. If each member of the special committee has not signified his approval within thirty days of the transmittal of the report and manuscript, the Director of Research shall then notify each member of the Board, requesting approval or disapproval of publication, and thirty additional days shall be granted for this purpose. The manuscript shall then not be published unless at least a majority of the entire Board and a two-thirds majority of those members of the Board who shall have voted on the proposal within the time fixed for the receipt of votes on the publication proposed shall have approved.

6. No manuscript may be published, though approved by each member of the special committee, until forty-five days have elapsed from the transmittal of the summary and report. The interval is allowed for the receipt of any memorandum of dissent or reservation, together with a brief statement of his reasons, that any member may wish to express; and such memorandum of dissent or reservation shall be published with the manuscript if he so desires. Publication does not, however, imply that each member of the Board has read the manuscript, or that either members of the Board in general, or of the special committee, have passed upon its validity in every detail.

7. A copy of this resolution shall, unless otherwise determined by the Board, be printed in each copy of every National Bureau book.

*(Resolution adopted October 25, 1926 and revised February 6, 1933 and February 24, 1941)*

## CONTENTS

Introduction	1
A Preview of the General Findings	3
<b>CHAPTER</b>	
1 Trends in Output	6
Total Output	6
Improvements in Quality of Product	10
Household vs. Market	13
The Output of Service Industries	15
Composition of Output	17
The Flow of Consumer Goods	18
Output of Six Industries	21
The Whole and the Parts	25
2 Trends in Employment	32
Employment in Six Industries	34
Employment in the Service Industries	37
The Measurement of Employment	40
3 Trends in Output per Worker	42
Changes in Output per Worker	43
Patterns of Changes in Output per Worker	47
The Measurement of Changes in Efficiency	49
Concluding Observations	53
INDEX	61
LIST OF NATIONAL BUREAU PUBLICATIONS STILL IN PRINT	63
<b>TABLE</b>	
1 Scope of National Bureau Studies of Productivity, Measured by the Average Percentage of National Income Originating in Six Industries, 1919-1938	8
2 Indexes of Output of Six Industries and of Population, 1899-1939	9
3 Some Measures of the Transfer of Activities from the Household to the Market	14
4 Output Indexes of Consumer Goods, 1899-1939	19
5 Composition of Output, Measured by Percentage of Value-Added, by Each of Six Industries, 1899-1939	21

6	Percentage Changes in the Outputs of Six Industries and in their Aggregate Output, by Decades, 1899-1939	23
7	Shift of Food Processing from the Farm, 1879-1939	24
8	Percentage Distribution of the Gainfully Occupied by Industries, 1900-1940	34
9	Employment in Six Industries, 1899-1939	35
10	Persons in Domestic Service, Education and Trade, 1900-1940	39
11	Percentage of the Labor Force Consisting of Young People 1900, 1930, and 1940	40
12	Frequency Distribution of Thirty-two Manufacturing Industries by Percentage Changes in Output per Worker per Year, 1899-1939	48
13	Annual Percentage Changes in Output per Worker and per Manhour, and Standard Deviations of these Changes, Thirteen Manufacturing Industries, 1929-1939	48
14	Percentage Changes in Output per Worker, Output per Unit of Capital, and Efficiency in the Use of All Resources in Twelve Manufacturing Industries, 1904-1937	52
15	Ratio of Capital to Labor and Percentage Change in Efficiency 1904-1937 Based on 1904 and 1937 Value-Added Data Six Manufacturing Industries	52
A	Indexes of Output in Six Industries, 1899-1940	57
B	Indexes of Employment in Six Industries, 1899-1940	58
C	Indexes of Employment per Unit of Output in Six Industries, 1899-1940	59
CHART		
1	Indexes of Output in Six Industries, 1899-1940	22
2	Indexes of Output of Leading Flour Mill Products, 1899-1939	27
3	Indexes of Output of Leading Food Industries, 1899-1939	28
4	Indexes of Output of Five Industry Groups and All Manufacturing, 1899-1939	29
5	Indexes of Employment in Six Industries, 1899-1940	36
6	Indexes of Employment per Unit of Output in Six Industries, 1899-1940	44

## ACKNOWLEDGMENTS

This report is the eleventh in a series dealing with changes in production, employment, and productivity in American industry since the beginning of the twentieth century. The studies upon which it is based were made possible by funds granted by The Maurice and Laura Falk Foundation of Pittsburgh. The Falk Foundation is not, however, the author, publisher, or proprietor of this publication, and is not to be understood as approving or disapproving by virtue of its grant any of the statements made or views expressed therein.

Helpful suggestions and criticisms were received from E. Wight Bakke and Milton Friedman; also from members of the Research Staff of the National Bureau of Economic Research, particularly Arthur F. Burns and Solomon Fabricant. Miss Martha Anderson improved the manuscript with her editorial revision, and H. Irving Forman drew the charts.

