

U. S. DEPARTMENT OF COMMERCE  
BUREAU OF THE CENSUS

BOARD OF GOVERNORS OF THE  
FEDERAL RESERVE SYSTEM

1952 OCT 9 PM 12 24

LIBRARY

**CENSUS OF MANUFACTURES: 1947**

**INDEXES OF PRODUCTION**

Manufacturing production indexes for 1947  
relative to 1939, based largely on Census  
of Manufactures data

**BUREAU OF THE CENSUS  
LIBRARY**

UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1952



**U. S. DEPARTMENT OF COMMERCE**

**Charles Sawyer, *Secretary***

**BUREAU OF THE CENSUS**

**Roy V. Peel, *Director***

A. ROSS ECKLER, Deputy Director  
HOWARD C. GRIEVES, Assistant Director  
CONRAD TAEUBER, Assistant Director  
MORRIS H. HANSEN, Assistant Director for Statistical Standards  
ROBERT Y. PHILLIPS, Executive Assistant to the Director  
CALVERT L. DEBRICK, Coordinator, International Statistics  
FRANK R. WILSON, Information Assistant to the Director

**INDUSTRY DIVISION**

**MAXWELL R. CONKLIN, *Chief***



**BOARD OF GOVERNORS  
OF THE FEDERAL RESERVE SYSTEM**

**Wm. McC. Martin, Jr., *Chairman***

**DIVISION OF RESEARCH AND STATISTICS**

**Ralph A. Young, *Director***

FRANK R. GARFIELD, Adviser on Economic Research  
KENNETH B. WILLIAMS, Assistant Director  
SUSAN S. BURR, Assistant Director

**BUSINESS CONDITIONS SECTION**

**CLAYTON GEHMAN, *Chief***

**SUGGESTED IDENTIFICATION**

*Census of Manufactures: 1947, Indexes of Production*, Joint publication of U. S. Bureau of the Census and Board of Governors of the Federal Reserve System, U. S. Government Printing Office, Washington 25, D. C., 1952.

## ACKNOWLEDGMENTS

The measures of change in manufacturing output from 1939 to 1947 presented in this study were developed in a joint project of the Bureau of the Census and the Board of Governors of the Federal Reserve System. Maxwell R. Conklin, Chief, Industry Division, Bureau of the Census, was in charge of the work, with assistance on general aspects from Frank R. Garfield, Adviser on Economic Research, of the Division of Research and Statistics, Board of Governors.

Arthur L. Broida of the Board of Governors' staff and Julius Shiskin of the Bureau of the Census shared the operating responsibility until the later stages, when this was assumed by Vivian Eberle Spencer of the Bureau. Mr. Broida prepared Chapters I, II, and III, and Appendix D of the accompanying text. Dr. Spencer prepared Chapter IV and Appendixes A, B, and C.

Owen C. Gretton, Louis J. Owen, and Cyril M. Wildes supervised the development of individual industry indexes in the commodity sections of the Industry Division, Bureau of the Census. Irvin Strauss of the Bureau supervised the calculation of the combined indexes and made various special analyses.

In addition, other staff members participated in the project, particularly in developing individual industry indexes and in reviewing preliminary results. These included, for the Bureau of the Census, Arthur Belcher, David N. Cohen, Carroll V. Danielson, Herman Fasteau, Jack J. Gottsegen, William R. Gray, Willis K. Jordan, Robert Lehman, Willie M. Marty, Carl Mueller, Clarence H. Olsen, and Irving Rottenberg; and for the Board of Governors, George C. Cleaver, Milton Moss, and Lorman C. Trueblood.

During the course of the work, preliminary results for individual industries were distributed to a representative list of persons in private research organizations, industry, labor, and Government. The suggestions received were exceedingly helpful in improving the measures.

# 1947 CENSUS OF MANUFACTURES REPORTS

## Volume I—GENERAL SUMMARY

This volume consists of a condensed summary and chapters showing statistics for industries and for geographic areas on the following subjects: Employment and pay rolls, size distribution of establishments, inventories, capital expenditures, fuel consumption, highway motor vehicles, consumption of important materials, and metalworking operations.

## Volume II—STATISTICS BY INDUSTRY

This volume consists of a condensed summary and 82 chapters for groups of related industries showing for each industry statistics on employment, pay rolls, cost of materials, value added by manufacture, inventories, capital expenditures, and the quantity and value of products shipped and important materials consumed.

## Volume III—STATISTICS BY STATES

This volume consists of a condensed summary and 49 chapters, showing for each State, its important metropolitan areas and industrial counties, summary general statistics (number of establishments, employment, pay rolls, value added by manufacture, and capital expenditures) for each industry of consequence in that State or its subdivision. Totals for all industries are shown for all counties and for urban places of more than 10,000 population.

## PRODUCT SUPPLEMENT

This volume assembles all the product statistics published in the more than 100 product tables of Volume II—Statistics by Industry. It presents in convenient reference form the 1947 and comparative 1939 statistics for approximately 6,500 products manufactured by United States industry.

## INDEXES OF PRODUCTION

This volume shows manufacturing production indexes for 1947 relative to 1939, based largely on Census of Manufactures data. Indexes for total United States manufacturing production, indexes for major groups, and for over 200 industries are shown. In addition, there is a comprehensive discussion of the methods and a presentation of the detailed statistics.

## MC203—FUELS AND ELECTRIC ENERGY CONSUMED

This report is a combination of Chapter VIII, "Fuels and Electric Energy Consumed," of Volume I—General Summary, of the 1947 Census of Manufactures, and two special tabulations by industry group within State and by county within State.

## MC204—CLASSES OF PRODUCTS, BY STATE

This report shows 1947 value of shipments figures for 890 classes of manufactured products, by Geographic Division and State.

# CONTENTS

	Page
CHAPTER I—Introduction.....	1
Reasons for the Census Indexes.....	2
Scope of the Indexes.....	2
Definition of Physical Volume.....	2
Importance of the Weight Year.....	4
CHAPTER II—Problems and Methods.....	7
Lack of Data on Materials Consumption.....	7
Quality Changes.....	7
Lack of Quantity Data for Many Commodities.....	8
The "Standard" Method Used for Industry Indexes.....	8
Special Problems in Connection With the Industry Coverage Adjustment.....	9
Shipments versus production.....	9
Duplication.....	9
Establishment "splits".....	10
Other Problems in Individual Industries.....	10
Classification changes.....	10
Combinations of industries.....	11
Alternative Methods Used for Some Industries.....	11
Calculation of Group Indexes.....	11
Adjustments for missing industries.....	11
CHAPTER III—Appraisal of Results.....	15
CHAPTER IV—Industry Group and Industry Indexes.....	17
APPENDIX A—Quantity and Value of Products Used in Constructing the Indexes.....	23
APPENDIX B—General Statistics for Industry Groups and Industries Used in Constructing the Indexes.....	65
APPENDIX C—Notes on the Construction of Indexes for Specific Industries and Industry Groups.....	77
APPENDIX D—Industry Coverage Adjustment.....	95

## CHARTS

CHART 1—Indexes of production for manufacturing industry groups, census years 1899-1947.....	VIII
CHART 2—Indexes of production for manufacturing industry groups and industries: 1947.....	5

## TEXT TABLES

TABLE 1—Indexes of physical volume of manufacturing production for all manufacturing and for industry groups, census years 1899-1947.....	1
TABLE 2—Differences in 1947 industry-group indexes resulting from use of value added and employment weights.....	4
TABLE 3—Comparison of 1947 industry-group production indexes with different weight bases.....	4
TABLE 4—Frequency distribution of industry indexes, by coverage ratio, for 1947 and 1939.....	9
TABLE 5—Number and importance of represented industries, by method of representation, for present 1939-47 indexes and for Fabricant's 1929-37 indexes.....	11
TABLE 6—Number and importance of industries not represented by specific 1947 production indexes, by industry group.....	12
TABLE 7—Comparison of 1947 industry-group production indexes based on alternative methods of representing "missing" industries (those not represented by specific indexes).....	13
TABLE 8—Coefficients of variation for 1947 indexes of output, value added per unit, and output per man, by industry group.....	13
TABLE 9—Test of alternative methods of representing "missing" industries in constructing 1947 industry-group production indexes.....	14

## APPENDIX D TABLES

TABLE D-1—Test of industry coverage adjustment—frequency distributions of "experimental" unadjusted and adjusted 1947 indexes for redefined industries, by size of error.....	97
TABLE D-2—Frequency distribution of industry indexes, by coverage adjustment factors, for present 1939-47 indexes and for Fabricant's 1929-37 indexes.....	98
TABLE D-3—Effect of industry coverage adjustment on 1947 industry-group production indexes.....	98

Chart  
I

# INDEXES OF PRODUCTION FOR MANUFACTURING INDUSTRY GROUPS: CENSUS YEARS 1899-1947

1939 = 100

