Volume Title: Measurement of Business Inventories

Volume Author/Editor: Murray F. Foss, Gary Fromm, and Irving Rottenberg

Volume Publisher: U.S. Census Bureau

Volume ISBN: 3024029227

Volume URL: http://www.nber.org/books/foss81-1

Publication Date: 1981

Chapter Title: Front matter, foreword, preface, table of contents

Chapter Author: Murray F. Foss, Gary Fromm, Irving Rottenberg

Chapter URL: http://www.nber.org/chapters/c11078

Chapter pages in book: (p. -13 - 0)

Economic Research Report 3

Measurement of Business Inventories

Prepared under contract
by
Murray F. Foss
Gary Fromm
Irving Rottenberg
of the
National Bureau of Economic Research, Inc.

U.S. Department of Commerce
Philip M. Klutznick, Secretary
Courtenay M. Slater,
Chief Economist

BUREAU OF THE CENSUS
Vincent P. Barabba,
Director

BUREAU OF THE CENSUS

Vincent P. Barabba, Director
Daniel B. Levine, Deputy Director
Shirley Kallek, Associate Director for Economic Fields

Views expressed herein are those of the authors and do not necessarily reflect those of the directors, officers, or other staff of the National Bureau of Economic Research nor those of the Bureau of the Census. The manuscript has been reviewed and approved by a committee of the Board of Directors of the National Bureau of Economic Research under its standard publication procedures.

Library of Congress Cataloging in Publication Data

Foss, Murray F.
Measurement of business inventories.

(Economic research report ; 3)
Includes index.
Supt. of Docs. no.: C 3.259:3
1. Inventories–Accounting. I. Fromm, Gary, joint author. II. Rottenberg, Irving, joint author. III. Title. IV. Series: Economic research report (Washington, D.C.) ; 3.
HF5681.S8F58 339.4 80-607163

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

FOREWORD

Measurement of inventories and their changes has always been one of the most troublesome problems in economic statistics, partly because of difficulties in valuing any stock accumulated in different periods at different prices. Some business firms take stock at the end of the year but do not maintain perpetual or periodic inventory records during the year. Very small firms may not take a physical count even at yearend.

The measurement problem is even more difficult when the inflation component of changes in book values of inventories is large. Problems of inventory measurement have been compounded by the inflation of recent years, as a growing proportion of firms has shifted methods of inventory valuation (notably to LIFO) in order to reduce taxes and to report profits that more accurately reflect replacement costs.

Errors in measurement of inventories and inventory changes for the economy as a whole have important consequences for measurement of economic activity for the nation. To that extent, such errors increase the possibility that business and government may not assess correctly the state of the economy, and that policymakers may pursue inappropriate cyclical policies.

Needs for improving inventory and related data are great. Making these improvements would better serve statistical requirements in estimation of the national income and product accounts by the Bureau of Economic Analysis, for market analyses by business firms, and for analyses and forecasts of economic behavior and performance by Government and private economists.

In recognition of these needs, the Bureau of the Census in April, 1975 began sponsorship of a study by the National Bureau of Economic Research to assist in providing a basis for more useful and accurate inventory measurement. This study was conducted initially under a joint statistical agreement between the Bureau of the Census and the National Bureau of Economic Research and completed under contract between the two organizations. The manuscript has been reviewed and approved under standard NBER procedures (see appendix M). The objectives of the study were to review concepts and procedures of collecting and compiling inventory statistics, to identify critical measurement problems, and to make recommendations for revised and new procedures that reasonably could be implemented.[1] Since raw inventory data should not be examined in isolation, measurement of inventory changes in the national accounts and measurement of prices used to deflate inventories, as well as techniques used by business firms to calculate inventory values at the plant or company level also were studied.

A large number of recommendations are made in this report for improvement of inventory statistics. Some have been made before, while others are new. There is no doubt that the emphasis given to certain issues, such as proper methods for inventory valuation, has been influenced by the high rates of inflation of recent years.

The research conducted during the study is described in this volume. Because inventory statistics are collected monthly and annually and, like other statistics, are revised on the basis of more complete information, it was necessary to set cutoff points in preparing this report. For the most part, data analyzed and discussed in the study are those available in the summer of 1977. Although preparation, review and final editing of the manuscript continued until mid-1980, it was not practical to continue updating tables or to establish a uniform cutoff date for all statistical series cited.

Shirley Kallek
Associate Director for Economic Fields
Bureau of the Census

[1] Readers may also wish to refer to two studies: Council on Wage and Price Stability, *The Wholesale Price Index: Review and Evaluation* (June 1977), and Office of Federal Statistical Policy and Standards, U.S. Department of Commerce, *Report of the Advisory Committee on Gross National Product Data Improvement* (October 1977).

PREFACE

Of the many organizations and individuals who made significant contributions of this work, special recognition goes to **Shirley Kallek**, Associate Director for Economic Fields, who was largely responsible for launching the study and offered extensive encouragement and much useful advice.

Significant contributions were made by **Milton Eisen, Tyler Sturdevant**, and **John Wikoff** of the Census Bureau and **Gerald Donahoe** and **John Hinrichs** of the Bureau of Economic Analysis. Others who contributed to this project are listed by agency. Bureau of the Census: **Chester Bowie, Dale Gordon, Arthur Horowitz, Paul Lewis, William Menth, Ronald Piencykoski, Harriet Pitts, Edward Robinson, Bruce Schock, Kathleen Swindell, Faran Stoetzel,** and **Irving True.** Bureau of Economic Analysis: **Anthony Eckman, John Gorman, Martin Marimont,** and **Allan Young.** Department of Agriculture: **Steven Guebert, Mardy Myers,** and **Gaylord Worden.** Bureau of Labor Statistics: **John Layng.** Department of Interior: **J.D. Morgan, Jr.** Cost Accounting Standards Board: **James DiGuiseppe.** Securities and Exchange Commission: **Clarence Sampson,** and **Edward Sheramy.** Also, Financial Accounting Standards Board: **J.T. Ball.** American Institute of Certified Public Accountants: **Richard Rickert.** National Association of Accountants: **Louis Bisgay** and **A. Kenneth Benson.** Arthur Andersen and Company: **Nicholas Deleoleos.** National Association of Purchasing Management: **E.F. Andrews.** The views expressed by these individuals are nonofficial and do not necessarily reflect the views of their organization.

Substantial field work and interviews with business firms were performed by Census staff and one or more authors of this study in the fall of 1975, December 1975, March and April 1976, and March 1977. The project benefited greatly from the many insights and useful information provided by the various companies, officials, and accountants involved.

Earlier versions of the manuscript were reviewed by staff members of the Bureau of Economic Analysis, and, on an informal basis, selected chapters were reviewed by members of the Cost Accounting Standards Board, Financial Accounting Standards Board, and Securities and Exchange Commission. Their comments provided valuable guidance for revisions.

Of the National Bureau of Economic Research, Inc., **Shelly Gordon** provided valuable research assistance during the study, and **Sarah J. Gaston** edited the manuscript.

M.F.
G.F.
I.R.

CONTENTS

CONTENTS—Continued

APPENDIXES

CONTENTS—Continued

LIST OF FIGURES AND TABLES

HOW THIS STUDY IS ORGANIZED

We believe that accounting problems have not received sufficient attention from producers and users of economic statistics. Unless one understands how accountants treat problems such as inventory valuation—to cite the most important problem discussed in this report—it is difficult to understand statistics rooted in accounting magnitudes. We were forced to delve into these matters because of major shifts in inventory valuation methods that occurred in 1973-74. Thus, substantial attention in this report is given to practical accounting issues that have significance for economic statistics. Chapter 2 is an introduction to major methods of inventory valuation—FIFO, LIFO, etc.—directed to the non-accountant. In chapter 6 we treat LIFO in greater detail and discuss some issues concerning use of LIFO. In chapter 7 we discuss how BEA has used LIFO statistics developed in its own and Census surveys, focussing especially on the 1973-76 period.

In chapter 8 we consider interim reporting—quarterly reporting in practice—and the problems for such reporting that arise from use of LIFO. It contains suggestions to the accounting profession for dealing with some of these issues. In chapter 10 we discuss "full cost absorption" or more generally the treatment of overhead and what kinds of costs should be included in inventories. Chapter 11 concerns treatment of inventories in long-term contracts, which are important in durable goods manufacturing and the construction industry.

The main conclusions and recommendations are summarized in chapter 1. But this is only a highlighting of the major recommendations; the study contains many others. Chapter 3 shows how the Census Bureau prepares its estimates of inventories in manufacturing and trade; the section on wholesale trade has a detailed discussion of Census estimating procedures common to several different sample surveys. In chapter 4 we describe how BEA transforms Census inventory data measured in book values into estimates of the change in business inventories for the GNP. An example from recent experience provides the basis for an evaluation of the procedure. Because of the importance of wholesale price indexes in estimation of inventory change we have devoted a chapter (5) to some of the issues affecting price indexes. In chapter 9 we describe the choice of the reporting unit—companies, divisions and plants.

In chapter 12 we discuss some special inventory problems outside of manufacturing and trade; time limitations caused us to focus on industry issues we consider important for inventory measurement problems generally. Chapter 13 contains an assortment of topics that could not be fitted easily into the other chapters—stock-sales ratios, inventories measured in physical terms and market categories. In our final chapter (14) we recommend a new benchmark for unfilled orders held by manufacturers. This additional task was undertaken during the course of the study at the request of the Census Bureau.