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VICTOR R. FUCHS

The City University of New York

Assisted by Irving F. Leveson



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*(Resolution adopted October 25, 1926 and revised February 6, 1933,
February 24, 1941, and April 20, 1968)*

To Nancy, Fred, Paula, and Kenneth

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PREFACE

The Service sector, also known as the “tertiary” or “residual” sector, has long been the stepchild of economic research. This was unfortunate but tolerable during the 19th and early 20th centuries when the shift from agriculture to industry was in full swing and services were of lesser importance. Since the end of World War II, however, the Service sector has become the largest, and, in many respects, the most dynamic element in the U.S. economy. Furthermore, most of the industrialized nations of the world appear to be following, with some lag, the pattern set by the United States. Thus, the emergence of this country as the first “service economy” has created a new set of priorities for economic research.

In recent decades, pioneering studies at the National Bureau by Friedman and Kuznets, Fabricant, Barger, Stigler, and Kendrick,¹ have done much to meet Colin Clark’s challenge that “The economics of tertiary industry remains to be written.”² Nevertheless, the paucity of data on this large and rapidly growing sector of the economy left unanswered many questions concerning service output, employment, productivity, and wages.

This book describes the growth of service employment in the United States and quantifies the major reasons for this growth. It also examines intersector and intrasector differentials in productivity change, describes and analyzes industry patterns of hourly earnings, develops measures of sector differences in cyclical behavior, and explores the implications for society and for economic analysis of the growth of a service economy.

¹ See Milton Friedman and Simon Kuznets, *Income From Independent Professional Practice*, New York, NBER, 1945; Solomon Fabricant (Assisted by Robert E. Lipsey), *The Trend of Government Activity in the United States Since 1900*, New York, NBER, 1952; Harold Barger, *Distribution’s Place in the American Economy Since 1869*, Princeton University Press for NBER, 1955; George J. Stigler, *Trends in Employment in the Service Industries*, Princeton for NBER, 1956; *Employment and Compensation in Education*, New York, NBER, 1950; *Domestic Servants in the United States 1900–1940*, New York, NBER, 1946; John W. Kendrick, *Productivity Trends in the United States*, Princeton for NBER, 1961.

² Colin Clark, *The Conditions of Economic Progress*, London, 1940.

In carrying out this project, which was begun in 1963 with the financial assistance of the Ford Foundation, important new bodies of data were utilized, including the first official series on real gross product by major industry group, the *Censuses of Business* for 1963, the 1960 *Census of Population and Housing*, and the one-in-a-thousand sample of that Census. Utilizing these and other materials, such as input-output tables and the Bureau of Labor Statistics Survey of Consumer Expenditures, we have attempted to increase our understanding of the service industries, and of the ways they are related to and differ from the rest of the economy.

Several papers and articles reporting some of the results of the project have already been published.³ A number of other studies are in preparation.⁴

In this book, the growth of service employment is examined in detail in Chapter 2, following a first chapter which presents a summary of the major findings. Trends in recent decades receive primary attention, but longer-term trends are also considered. The growth of the Service sector's share of employment in individual states and in foreign countries is discussed. Greatest emphasis is given to the distribution of employment by industry and sector, but some occupational data are also presented.

The growth of service employment is found to be related primarily to differential trends in output per man. These are explored in Chapter 3. Comparisons between the Service and Industry sectors are made for output per man, output per unit of labor input, and output per unit of total

³ Victor R. Fuchs, *Productivity Trends in the Goods and Service Sectors, 1929-61: A Preliminary Survey*, New York, NBER, Occasional Paper 89, 1964; *The Growing Importance of the Service Industries*, New York, NBER, Occasional Paper 96, 1965; *Productivity Differences Within the Service Sector* (with Jean Alexander Wilburn), New York, NBER, OP 102, 1966; *Differentials in Hourly Earnings by Region and City Size, 1959*, New York, NBER, Occasional Paper 101, 1967; "The Growth of Service Industries in the United States: A Model for Other Countries?" *Manpower Problems in the Service Sector*, Supplement 1966-2, OECD, Paris, 1966; Irving F. Leveson, "Reductions in Hours of Work as a Source of Productivity Growth," *The Journal of Political Economy*, April 1967; David Schwartzman, "The Contribution of Education to the Quality of Labor, 1929-1963," *American Economic Review*, September 1968. In addition, a Conference on Production and Productivity in the Service Industries was held in Ottawa in 1967 under the sponsorship of the Conference on Research in Income and Wealth; the conference papers will be published by the National Bureau shortly.

⁴ David Schwartzman, "The Growth of Sales Per Man-Hour in Retail Trade, 1929-1963," in *Production and Productivity in the Service Industries*, V. R. Fuchs, ed., NBER, in press; Reuben Gronau, "The Value of Time: The Demand for Air Transportation"; David Schwartzman, "Retail Trade in the United States, 1929-1963; An Analysis of the Growth of Sales Per Worker"; Irving F. Leveson, "Non-farm Self-Employment in the U.S."; Richard Auster, Irving F. Leveson, and Deborah Sarachek, "The Production of Health, An Exploratory Study," NBER manuscripts.

factor input; and some interesting differences are noted. Trends for each major industry group are also examined and intergroup differences are analyzed.

Considerable emphasis is given to intersector comparisons, but this is not to posit some bland homogeneity for all the service industries, or to deny the existence of conflicting trends within the sector. Chapters 4 and 5 are devoted to analyses of productivity in detailed service industries. Chapter 4 uses correlation and regression techniques to analyze inter-industry differences in productivity change across seventeen selected retail trades and services. Chapter 5 presents case studies of three important service industries: barber and beauty shops, retail trade, and medical care. Considerable attention is given to the conceptual and statistical difficulties encountered in measuring and interpreting trends in output and productivity in these industries.

The trends in employment and the trends in productivity are, of course, related. The relation is not a simple one, however, but involves consideration of trends in capital formation, quality of labor, prices, wages, and other variables. Sector differences in the growth of the quality of labor prove to be of particular importance, as is the related question of differential trends in earnings in the Industry and Service sectors.

The availability of the one-in-a-thousand sample of the *1960 Census of Population* permits an intensive examination of interindustry and intersector differences in hourly earnings, presented in Chapter 6. This analysis, which includes consideration of demographic characteristics, location of industries, unionization, and other variables, contributes to an understanding of changes in earnings over time as well as in cross section.

Although this book deals primarily with long-term trends, the growing importance of the service industries also has important implications for short-term movements. These implications for cyclical fluctuation in employment, output, and productivity are examined in Chapter 7. Monthly data for 1947-65 are used to calculate measures of cyclical amplitude in various industries and sectors.

The final chapter considers some other aspects of the growth of a service economy. This growth is shown to have important implications for the labor force, the role of women, unions, education, and industrial organization. In addition, Chapter 8 discusses some problems and challenges to economic analysis that are implicit in the growing importance of the service industries.

With few exceptions, this study is concerned only with the U.S. economy. The shift to services has proceeded further in this country than

anywhere else. Too, the available data, though far from adequate, are richer and more reliable than those for other countries. Fortunately, a number of investigators in other countries have carried out studies along lines similar to those laid down in two preliminary NBER reports.⁵ Thus, readers of this book will find it possible to make comparisons between some aspects of the U.S. experience and that of Western Europe, the United Kingdom, Japan, Australia, and Canada.⁶ Studies of service industry employment are also available for Israel, the U.S.S.R., and Latin America.⁷

The time span covered in this book is, with some exceptions, 1929 through 1965. The earlier year marks the beginning of many of the most important time series, and the later year was the most recent with data available in time for inclusion in the analysis. Some of the analyses are limited to more recent periods because of the lack of available data.

The level of industrial detail is largely determined by the availability and reliability of the data. For some purposes, such as measurement of trends in physical capital, only broad sector comparisons are attempted. For others, such as the analysis of interindustry differences in earnings in 1959, it is possible to include over 100 detailed industries. Because data were taken from a variety of sources, different industry classifications are used in different parts of the study. Thus, the analysis of interindustry differences in earnings in 1959 utilizes the industry detail found in the *1960 Census of Population*, whereas the analysis of industry growth, 1929-65, uses the industry detail developed by the Office of Business Economics.

This study does not, for the most part, break new ground in the measurement of employment or output. The emphasis is on the analysis

⁵ Victor R. Fuchs, *Productivity Trends* (OP 89) and *Growing Importance* (OP 96).

⁶ Maurice Lengellé, *La Revolution Tertiaire*, Editions Genin, Paris, 1966, and *The Growing Importance of the Service Sector in Member Countries*, OECD, Paris, 1966; B. M. Deakin & K. D. George, "Productivity Trends in the Service Industries, 1948-63," *Economic Bulletin*, No. 53, London and Cambridge, March 1965; "The Growing Service Industries—Their Productivity and Price Formation," Japanese Economic Research Institute, Intermediate Report, May 1967; B. D. Haig, "The Measurement of Real Expenditure and Product of Goods and Services," pp. 520-535, and J. A. Dowie, "Productivity Growth in Goods and Services: Australia, U.S.A., U.K.," pp. 536-554, both in *The Economic Record*, December 1966; David A. Worton, "The Service Industries in Canada, 1946-66," in *Production and Productivity in the Service Industries*, V. R. Fuchs, ed., NBER, in press.

⁷ Gur Ofer, *Service Industries in a Developing Economy*, New York, 1967, and "The Service Industries in the U.S.S.R.," unpublished Ph.D. dissertation, Harvard University; J. R. Ramos, "The Labor Force in Post-War Latin America," unpublished Ph.D. dissertation, Columbia University.

of existing data, on the explanation of clearly perceived trends, and on the estimation of the magnitude of observed relationships. This emphasis is the result of personal research interests and aptitudes; it does not reflect a judgment that problems of measurement are inconsequential.

It has long been known that the measurement of real output in the service industries is in an unsatisfactory state. This book does not alter that basic situation, although the discussion of the direction and likely magnitude of biases may shed some new light on the problem. Also, alternative estimates have been presented where applicable, and some effort has been made to indicate the degree of confidence that can be placed in the various findings. Many of the conclusions presented in this book are not dependent upon the particular output measures used; they would be equally relevant if some different, and presumably superior, output measures become available.

The need for more and better quality data concerning the service industries is urgent. These industries now account for well over half of all U.S. employment, and their share has been increasing every year. The trends discussed in this book suggest that a substantial change in emphasis on the part of data gathering agencies is required in order to provide the information necessary to solve the problems raised by the growth of a service economy.

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The Service Economy

