

The Structure of the U.S. Economy

The input-output tables on the next seven pages divide the economy into 81 sectors and list the transactions among them. The numbers are the constants of the technological relations among the sectors

by Wassily W. Leontief

“Gross national product,” “Total output,” “Value added by manufacture,” “Personal consumption expenditures,” “Federal Government expenditures,” “Exports”—these headings in the book of national accounts describe the familiar external features of the economic system. In recent years the students and the managers of the system have been confronted with many questions that cannot even be clearly posed in such aggregative terms. To answer them one must now look “under the hood” at the inside workings of the system. In the fiscal agencies of many governments, in universities and in large industrial organizations in this country and abroad the needed insight is being supplied by the technique of “input-output” analysis. This technique reckons with the intermediate sales and purchases—that is, the outputs and inputs—that carry goods and services from industry to industry, from manufacturer to distributor and on to their final purchaser in the market. The technique thus ties predictions about the external configuration of the system to the indirect flows of supply and demand within. Input-output analysis of the U.S. economy has recently taken a major step forward with the publication by the Office of Business Economics in the U.S. Department of Commerce of the preliminary results of a study of the interindustry relations of the system as of the year 1958. The report features an input-output “table”

that breaks down the system into 81 industries or functional economic sectors.

The Federal Government is charged by the Constitution itself with the task of taking a decennial census. Ever since the first census of 1790 Federal statistical agencies have maintained the tradition of keeping a comprehensive quantitative record of the country’s social and economic progress. As the economy has grown in complexity and size, so have the variety and volume of data collected. It was not until the end of World War I, however, that the collecting agencies undertook to organize the data in accordance with some distinct picture of the economic system. The conceptual framework for the specification of the national accounts was supplied by the aggregative models of prevailing economic theory. That framework has evolved over the years as theory has evolved and today shows the pervasive influence of the ideas of the great British economist John Maynard Keynes.

The need for finer-grained information was felt acutely by the administrators of the U.S. industrial production effort during World War II. Given President Roosevelt’s order for “50,000 airplanes,” it was easy enough to predict that the country would have to produce more aluminum. It was not immediately apparent, however, that the building of aluminum potlines

would collide with a shortage of copper—a shortage ultimately met by borrowing silver from Fort Knox to make the massive bus bars that delivered electricity to the potlines. As the locus of concern in the war-production effort shifted from the Office of Production Management to the administration of the Controlled Materials Plan in 1943 and 1944, officials were grateful to have at hand an input-output table of the U.S. economy for the year 1939. This was the first input-output table prepared under official Government sponsorship. It broke the system down into 95 sectors. (The author had constructed and published in 1936 tables of 42 sectors for the years 1919 and 1929.) The technique appeared promising enough, however, to encourage the Air Force and the Bureau of Labor Statistics in the Department of Labor to join forces after the war in Project Scoop. At a cost of \$1.5 million a 200-sector input-output table of the economy was constructed for the year 1947, based on detailed statistical studies of transactions among 450 industrial sectors [see “Input-Output Economics,” by Wassily W. Leontief; SCIENTIFIC AMERICAN, October, 1951].

After such an auspicious beginning the publication in late 1964 of a table of only 81 sectors for the year 1958, on a reported budget of less than \$1 million, would seem a step backward. But the 1958 table does constitute progress in the input-output analysis of

