CHANGES IN INDUSTRY SHARES OF NATIONAL OUTPUT

by Charles J. Haulk

The composition of national output—that is, the shares of income originating in various industries—has important implications for overall labor productivity and real economic growth. Within the last 73 years, there have been some significant changes in the make-up of U. S. output, partly secular and partly cyclical. These shifts have been dictated by alterations of the mix of goods and services demanded by consumers and by the government. The following analysis of specific changes in the composition of demand and output and their relationship to productivity and income growth should broaden our understanding of the past, present, and prospective path of U. S. economic growth.

History. The most obvious changes in national output mix that have occurred since 1904 have been the dramatic decline in agriculture's share and the rise in government's share. Other, less-pronounced shifts have been increases in the manufacturing and service shares and decreases in the shares of the group which includes transportation, communication, and utilities and the group consisting of finance, insurance, and real estate. The wholesale and retail trade share has remained almost unchanged over the years, while the combined share of mining and contract construction has fallen slightly.

The Commerce Department's official national income statistics allow us to track changes in industry shares since 1929 in greater detail. Agriculture continued its decline but not until after World War II. From 1945-49 to 1965-69, agriculture's average share fell from 9.2 percent of national income to 3.3 percent, a 60-percent drop in just 20 years. The share of income originating in mining and construction stood at 6.4 percent in 1975-77, down only slightly from 6.9 percent in 1929.

Manufacturing provided 26.1 percent of national income in the three years 1975-77, compared to 25.4 percent in 1929. However, the story of manufacturing is more interesting than the slight change would suggest. After falling sharply to average 20.8 percent in the years 1930-34, the manufacturing share began to climb, recovering its 1929 share in the late 1930s, and grew rapidly during World War II. After the War, the manufacturing share slipped for two years and then began an uptrend that continued through the mid-Fifties, bringing the sector's share to a high of 32 percent. For the next 15 years, the share of manufacturing was fairly stable, fluctuating only slightly around 30 percent. Then, in the early Seventies, the share dropped suddenly to 26.5 percent and, since 1975, has averaged 26.1 percent. The manufacturing sector, more than any other, has followed the swings in the business cycle. (Kuznets made the same observation in his study of industry shares in the period 1919-38.)[1] Largely because of inventory adjustment problems, manufacturing has had a greater sensitivity to and a greater impact on total income variations than any other sector.

The wholesale and retail trade share rose in the late 1930s and in the years just after World War II but, for the most part, accounts for a consistent 15.0 to 16.0 percent of national income. Services'[2] share has exhibited a long-run upward

[1] Simon Kuznets, **National Income: A Summary of Findings,** National Bureau of Economic Research, 1946, New York, pp. 39-49.

[2] Services include such things as health, legal, and personal services, as well as amusement, automotive repair, hotels, etc.

TABLE 1

SHARES OF NATIONAL INCOME, 1904-77*

(percent)

	Agriculture	Mining, Contract Construction	Manufacturing	Transportation, Communication, and Utilities	Trade	Services	Finance, Insurance, and Real Estate	Government
1904-13**	17.0	7.8	18.9	11.0	15.0	8.9	16.2	5.4
1914-23	15.2	6.3	22.2	11.0	14.0	8.3	15.0	7.9
1919-28	12.2	7.0	22.2	11.3	13.7	9.4	15.7	8.6
1929***	9.9	6.9	25.4	10.9	15.7	10.1	15.2	5.9
1930-34	8.5	4.8	20.8	11.9	15.8	12.0	15.0	10.8
1935-39	9.6	5.3	24.4	10.2	17.0	10.3	11.3	11.4
1940-44	8.4	5.4	31.9	9.0	15.5	7.9	8.5	13.4
1945-49	9.2	6.0	29.2	8.4	17.8	8.8	8.5	12.2
1950-54	6.7	7.2	31.9	8.5	16.1	8.8	9.6	11.2
1955-59	4.6	7.0	31.3	8.4	15.7	10.0	11.0	12.0
1960-64	4.0	6.5	29.8	8.4	15.4	11.2	11.6	13.3
1965-69	3.3	6.4	29.9	7.9	15.0	12.0	11.3	14.3
1970-74	3.5	6.6	26.5	7.8	15.3	12.8	11.5	15.9
1975-77	3.1	6.4	26.1	7.8	15.7	13.6	11.6	15.4

*1904-28 — 10-year averages.
1929-74 — 5-year averages.
Estimates by R. F. Martin, **National Income in the U.S., 1909-1938, National Industrial Conference Board, 1939.
***1929-77, U. S. Department of Commerce.

trend and seems to increase most rapidly during economic slowdowns. The finance, insurance, and real estate group declined sharply and has only partially recovered. Starting at 15.2 percent in 1929, this share held steady through most of the Thirties and then dropped abruptly to 8.5 percent in the late Thirties and early Forties. The share was fairly constant during the late Forties, rose to 11 percent in the mid-Fifties, and has retained that level since.

The share of government increased dramatically in the Thirties and early Forties due to the Depression and War, reaching 13.4 percent in the 1940-44 period. It declined through 1954 but then grew steadily to 16 percent until 1970. In 1977, it fell below 15 percent for the first time since 1968. Transfer payments[3] are not included in government's share.

Why the Changes in Industry Shares? In the short run, industry share changes can result from supply variations and special economic conditions which lead to rapid or slow growth in a particular sector. A protracted strike in the auto industry, for example, could cause the manufacturing sector's share of national income to drop temporarily. Stockpiling of coal in anticipation of higher prices or shortages could cause a temporary run-up in the mining share. Speculative commercial or residential construction can lead to a momentary increase in the share of construction and real estate.

However, over the longer run, the composition of the sources of national output is primarily dictated by the composition of final demand for the nation's output. To some degree, the quantities and kinds of resources available and technology impact the relative sizes of industry shares. International trade possibilities can, to some degree, offset national resource constraints and alter the distribution of demand.

Since domestic consumption accounts for the largest portion of total output and reflects long-run changes in tastes and incomes which, in turn, determine the composition of output, changes in these consumption patterns are the principal determinants of the shifts in the various industry shares. Changes in government expenditures indirectly

[3] Transfer payments are merely a redistribution of income through programs like aid to families with dependent children, Social Security, veterans' benefits, etc.

TABLE 2

PERCENTAGE SHARES OF CONSUMPTION EXPENDITURES

	1950	1955	1960	1965	1970	1975	1976	1977
Durable Goods	16.0	15.2	13.3	14.6	13.7	13.6	14.5	14.8
Nondurable Goods	51.1	48.4	46.5	43.8	42.8	41.7	40.5	39.7
Services	32.8	36.3	40.2	41.5	43.5	44.7	45.0	45.5
Food, includes eating out	22.7	25.4	24.2	22.5	21.6	21.1	20.2	19.9
Clothing	10.2	9.2	8.1	7.8	7.5	7.2	7.0	6.8
Housing	11.3	13.5	14.8	15.2	15.2	15.4	15.3	15.3
Household Operation	15.2	14.5	14.2	14.3	14.2	14.6	14.6	14.7
Medical Care	4.7	5.2	6.2	7.0	8.1	8.9	9.7	9.8
Personal Business	3.4	3.8	4.4	4.6	4.7	5.2	5.1	5.0
Transportation	13.2	13.6	13.0	13.5	12.6	13.0	13.7	14.3
Recreation	5.8	5.5	5.5	6.0	6.6	6.8	6.6	6.7
Private Education	0.9	1.0	1.2	1.3	1.6	1.5	1.5	1.6
Religion and Welfare	1.2	1.3	1.5	1.4	1.4	1.2	1.3	1.3
Foreign Travel and Other	0.3	0.6	0.7	0.7	0.8	0.5	0.4	0.4

Source: U. S. Department of Commerce.

reflect changes in the consumption preferences of the electorate.

Since 1929, there have been several noteworthy changes in consumer expenditure patterns. Although the proportion spent on goods was nearly the same in 1977 (54.5 percent) as in 1929 (55.5 percent), durable goods claimed a larger share; and nondurables, a smaller portion. Throughout the Depression and the years following the War, nondurables took an increasing share of consumer outlays while durables declined in importance. But then, durable consumption climbed sharply between 1945 and 1950 and then leveled off at the roughly 15-percent share they've held since, fluctuating downward in recessions (see Table 2).

Nondurables' stake in personal outlays has fallen steeply since 1950. Food and apparel, in particular, have consumed dwindling shares of consumer budgets. Increased importation of textiles and apparel has further dampened demand for domestic production of these goods, reducing their importance to national output. Surprisingly, the shares of both consumer spending and total production accounted for by petroleum and coal products were slightly lower last year than in 1950, even though consumption of petroleum products has been at historically high levels ever since the oil embargo and quadrupling of prices.

The share of consumer outlays marked for services has regained its 1929 level only in the past couple of years. The rise in the goods' share prior to 1950 came at the expense of services, whose claim dropped nearly 13 percentage points. Since then, strong increases in the portion of family budgets spent for education and health care and moderate rises in the personal business and recreation components[4] have contributed to the rebound of services' share. Outlays for housing gained share until 1965 and held virtually constant as a percentage of consumption through 1977. The phenomenon of service expenditures rising relative to spending for nondurable goods has continued unabated if not stronger than ever in the past five years, in contrast to declines in earlier periods of similarly slow real income growth.

[4] See "Service Please," **Across the Board,** The Conference Board, August 1978, pp. 42-45.

Will consumer expenditures continue to shift toward services at the expense of nondurables or perhaps even durable goods? In the case of nondurables, the answer is likely to be "yes." The demand for food grows with population rather than income—that means budget allocations for food will continue to decline in importance as population growth slows. On the other hand, depending on OPEC actions and energy legislation, fuel prices could escalate fast enough to preclude a drop in the share of consumption expenditures allotted for energy. Unless expenditures shift from nondurables into durable goods, the contributions of the manufacturing and agricultural sectors to output growth should continue to decline.

Economic Impact of Industry Share Changes. Industry share changes have important implications for future economic growth prospects. The principal impact is on labor productivity—if an industry which has strong productivity potential loses part of its share of national income to an industry with little or no productivity growth, the result will be slower overall growth in output per worker. This is in essence what has happened to the U.S. economy since 1950. Two major productivity-enhancing sectors—manufacturing and agriculture—have lost relative output shares to services and government.

For instance, from 1972 to 1977, real output per worker rose only 2.25 percent, less than 0.5 percent per year. At the same time, the manufacturing sector's average share of national output was the lowest of any five-year period since the Great Depression. The results of a statistical analysis (multiple regression) support the notion that declining manufacturing and agriculture shares, combined with rising service and government shares, have led to slower growth in both productivity and real output.

Outlook. If, as we suspect it might, the growth in demand for services continues as it has in recent years, we can expect the national income shares of nondurable manufacturing and agriculture to continue their slide. Unless durable goods sales accelerate relative to total consumer spending, the overall manufacturing component of national output will deteriorate further.

Further reductions in the shares of these goods-producing sectors will not be beneficial to the economy. Continued slow productivity increases will mean continued small real income gains. However, as income growth slows, the rate at which service expenditures replace nondurables in consumer spending might also subside and moderate the decline in the goods-producing share. ■

AN EMPIRICAL TEST OF THE LINKED OLIGOPOLY THEORY: AN ANALYSIS OF FLORIDA HOLDING COMPANIES

by David D. Whitehead

This article summarizes a staff analysis that may interest those in the economics and banking professions as well as others. It is more technical than the typical Economic Review article. The analysis and conclusions are those of the author. Studies of this kind do not necessarily reflect the views of the Federal Reserve Bank. The complete study is available as part of a series of Federal Reserve Bank of Atlanta Working Papers. Single copies of this and other studies are available upon request to the Research Department, Federal Reserve Bank of Atlanta, Atlanta, Georgia 30303.

The structure of the banking industry has changed significantly during the last ten years, largely because of the acceleration of multibank holding company formation and acquisition activity since the late 1960s. Most of the acquisitions have been

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