COMMENT

By Edward F. Denison
Brookings Institution

I have been greatly interested in the National Bureau of Economic Research study of productivity in what Mr. Fuchs calls the services sector. This is an area much in need of investigation. The results published to date are very promising, and the present paper by Mr. Fuchs is an important addition. The heart of this paper is a calculation of productivity changes in retail trade, divided into 10 branches by type of product sold, and in 8 service industries. Census data are used, and in retrospect it is surprising they have not been used in this way before.

I have little to criticize in the paper, and propose to use my time to point up certain conclusions that Fuchs' data imply, including some he does not himself draw, and to note certain characteristics of the measures that should be considered in interpreting the results. I shall not discuss the general validity of using some measure of deflated sales to measure output in retail trade, which is central to this study, beyond saying that it seems acceptable.

Fuchs offers three measures of productivity. The first is output per person employed. Fuchs finds that output per person employed rose substantially in most of the 18 trade and service industries, but in only one-third of them was the gain greater than in the economy as a whole and on the average it was less. The shortfall was greater since 1948 than since 1939. Fuchs hints that this shortfall has discouraging implications for the future growth rate if the share of the services sector in national income increases, as he expects it to do.

His other two measures of productivity, for which he provides the data for similar comparisons but does not discuss the comparisons, are more cheerful.

Fuchs' second measure is output per unit of labor input. This measure rests on the assumption that differential changes in average earnings measure differential changes in the quality of labor, including hours worked. I believe this is an acceptable assumption in the United States; in fact I wish I had thought of it myself. In this particular application Fuchs assumes, in effect, that the quality of proprietors moves like that of employees, but defects in this assumption probably are not terribly serious. The data indicate substantial deterioration in the quality of labor in the 18 service and trade industries relative to the whole economy or to goods production. This is consistent with the findings of another NBER report which investigates labor quality in the goods and services sectors by direct measurement. Fuchs' Table 7 permits comparisons of output per unit of labor input to be calculated. The comparison shows that even in the 1948–63 period output per unit of labor input rose more in retail trade, and in the 18 service and trade industries combined, than it did in the goods sector, manufacturing, or the total economy.

Fuchs' third productivity comparison refers to output per unit of total input. This is based on the movement of relative prices, a procedure with a fairly long history. Data to compare sectors are given in the appendix table. They show the

change in total factor productivity from 1948 to 1963 in the 18 industries was close to that in goods production. This measure, like output per unit of labor input, shows the productivity gain in trade to have been greater than in manufacturing or total goods production, while in the services sampled it was lower. Because of the sharp immediate postwar price rise in commodities, which the services lagged behind, I suspect there is a good chance that this measure is unduly adverse to the services in this particular period.

Since Fuchs covers all of retail trade, no question arises of the representativeness of the industries chosen. However, there is reason to suspect that his sample of service industries may be overly weighted with those having a bad productivity performance. This is reflected in the fact that auto repair and beauty parlors are the only fast-growing industries covered, while all the others had growth rates of output far below the average for the economy, and two had actual declines. Fuchs finds a tendency for slow-growing and declining industries to have the slowest productivity increase.

There are two general reasons for thinking that in the industries he does cover Fuchs may understate the increase in output per man relative to commodity production. To be more precise, perhaps I should say his results are less favorable than available alternatives.

The first is the omission of unpaid family workers from employment because of lack of adequate data. From the downward movement of the number of proprietors, we can be sure that unpaid family workers were a declining share of employment in these industries. Their inclusion would reduce the growth of employment and increase the growth of productivity. In some of the service industries the change might be substantial.

The second reason, which is a little more complex, relates to the measurement of output, especially in retail trade. The price indexes used refer to prices charged by identical establishments, so a shift in volume of sales from high-price stores to low-price stores is not a price reduction. If I now buy 12 oranges in a low-price store at the same price I used to pay for ten oranges in a high-price store, the price at each store being unchanged, or even if the high-price store has disappeared and been replaced by the low-price store, my purchases in constant prices are not considered to have increased. This is true also of the United States deflated national product estimates which, in this respect, differ from those of most European countries. If the European practice were adopted, deflated retail sales, which Fuchs uses to measure output in retail trade, would rise more than they do, and so would productivity. The same principle of measurement is adopted in the service trades.

Similar shifts in volume from high-cost to low-cost producers in commodity producing industries are generally counted as productivity increases in the commodity producing industries so that uniform treatment would improve the relative performance of retail trade and perhaps the services as well.

When we look at the results of Mr. Fuchs' measures of output per unit of labor input and output per unit of total input, and consider the possible biases in the selection of the services, his omission of unpaid family workers, and the treatment of volume shifts among firms within an industry, the evidence of the

18 industries does not seem to suggest there has been less productivity increase in the trade and service divisions of the economy than in the commodity producing industries, once measurement has been put on a comparable basis.

I have no comment on the interesting section of his paper in which Fuchs finds the same positive relationship between changes in productivity and changes in employment and output, and the same lack of relationship between changes in employment and compensation per man, that others have found in manufacturing.

My final comment concerns Fuchs' test for correlation between the size of the decline in the proportion of proprietors in total employment, and the growth rate of output per man. This is, in part, a test of the hypothesis underlying some estimates I have made for a number of countries of the effect of shifts in the composition of employment towards wage and salary status. Fuchs finds a correlation particularly among the service industries where the number of proprietors is generally greater than in trade. I believe the correlation would have been stronger if unpaid family workers were included in employment, and if output were measured in such a way as to catch fully increases in productivity due to the shift of volume from family-operated to larger units. In my own study unpaid family workers were included and output was measured in the alternate way except in the United States and, in part, in the United Kingdom.

Mr. Fuchs' method of computing growth rates by fitting a trend to 4 or 5 points, and especially the comparisons between growth rates in two periods when this technique is used, needs examination but I shall leave this to others.

For those not familiar with American estimates, it should be noted that this paper does not break new ground in deflation of the national product as a whole. The present estimates, which are deflated at the final product level rather than by industry, already incorporate all the data Mr. Fuchs uses.

I shall close by simply repeating my admiration for Mr. Fuchs' work.