

The Decline in Business Profitability: A Disaggregated Analysis

By Dale N. Allman

The rate of return earned by **U.S.** businesses has been relatively low for the past several years. The depressed profit rate partly reflects recession or near-recession conditions in the economy over much of the last decade. Some economists have argued, however, that the low profit rate of recent years also reflects a longer run downward trend related to conditions other than the business cycle.

Determining the magnitude, duration, and causes of the decline of profitability is important for at least two reasons. First, if the decline is due primarily to cyclical factors, the profit rate could be expected to rebound as the economy recovers from the **1981-82** recession. However, to the extent that declining profit rates are a continuation of longer run trends, a substantial rise in profitability in the near future is much less certain. Second, the desirability and effectiveness of policies to raise the profit rate may depend on the causes and pervasiveness of the decline.

One way to analyze the causes of the declining profit rate is to examine its components.

Examining profit rates in individual sectors and industries may provide insights into the sources of the decline in the aggregate profit rate. Identifying the sources also may provide information regarding policies that are most likely to be effective in boosting the aggregate profit rate and policies that are least likely to be effective.

This article examines profit rates for **U.S.** businesses in the post-World War II period. A significant downward trend over this period is documented and the aggregate profit rate is decomposed in several ways to examine whether the downward trend was pervasive throughout various sectors and industries or was concentrated in only a few areas of the economy. The first section of the article reviews the findings of previous studies regarding the postwar trend in the profit rate and documents a long-run downward trend using a more comprehensive measure of profits than used in these previous studies. In the second section, two **sectoral** breakdowns of the aggregate profit rate are analyzed. These **sectoral** breakdowns are used to show that the aggregate decline cannot be explained by a change in the relative size of various sectors but results instead from declining profits in each individual sector. The final section examines the contributions of eight industry groups to the aggregate decline in profitability. This analysis shows that almost

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every industry in the U.S. economy has contributed to the downward trend in the aggregate profit rate.

Aggregate profit trends

Several recent studies have examined the aggregate profit rate in the United States.¹ All these studies focus on a measure of the profit rate for nonfinancial corporations and conclude that although the aggregate profit rate varies over the business cycle, it has declined significantly since the mid-1960s. There has been no consensus, however, as to whether the profit rate has shown a significant downward trend over the postwar period. Studies by William Nordhaus and Michael Lovell suggested that there was a such a **downtrend**.² Studies by Martin Feldstein and Lawrence Summers and by Herbert Runyon found no **convincing** evidence of significantly declining profit rate's **over** the postwar **period**.³ **Instead**, they concluded that the fall in the profit rate **after the** mid-1960s was temporary, noting a slight improvement **in profits** in the early 1970s.

The divergent results of these studies result in part from differences in the measure of the **profit** rate used by the various authors. **Nord-**

haus used the ratio of after-tax profits plus net interest to the value of physical capital. After-tax profits were adjusted for increases in the value of inventories due to inflation and for differences between economic depreciation and depreciation allowed for tax purposes. Net interest payments by businesses were added to after-tax profits in recognition that part of the income earned from capital is used to make interest payments on loans for buying that capital. Including net interest payments on loans as a component of capital income recognizes that conventional measures of profits do not adequately reflect business payments on debt in inflationary periods. However, the studies by Feldstein and Summers and by Runyon used before-tax profits rather than after-tax profits.⁴ Lovell examined 14 alternative estimates of the profit rate including measures of the return on equity and the share of profits in total output as well as the return to physical capital used by other analysts.

Despite their dissimilarities, all of the previous studies have focused exclusively on the profits of nonfinancial corporations. A more comprehensive measure is used in this article that includes profits of all businesses. The **prof-**

¹ See Martha S. Scanlon, "Postwar Trends in Corporate Rates of Return," *Public Policy and Capital Formation*, Board of Governors of the Federal Reserve System, 1981, pp. 75-87, for a review of the literature.

² William D. Nordhaus, "The Falling Share of Profits," *Brookings Papers On Economic Activity* (1974:1), pp. 169-216; Michael C. Lovell, "The Profit Picture: Trends and Cycles," *Brookings Papers on Economic Activity* (1978:3), pp. 769-88. Nordhaus did not explicitly test for a trend in the profit rate but based his conclusion in part on analysis of the data. Lovell tested for a postwar downtrend in several measures of the profit rate and found statistical significance for most of them.

³ Martin Feldstein and Lawrence Summers, "Is the Rate of Profit Falling?," *Brookings Papers on Economic Activity* (1977:1), pp. 211-27; Herbert Runyon, "Profits: A Declining Share to Capital?," *Business Economics*, Vol. 14, September 1979, pp. 85-94. Feldstein and Summers tested

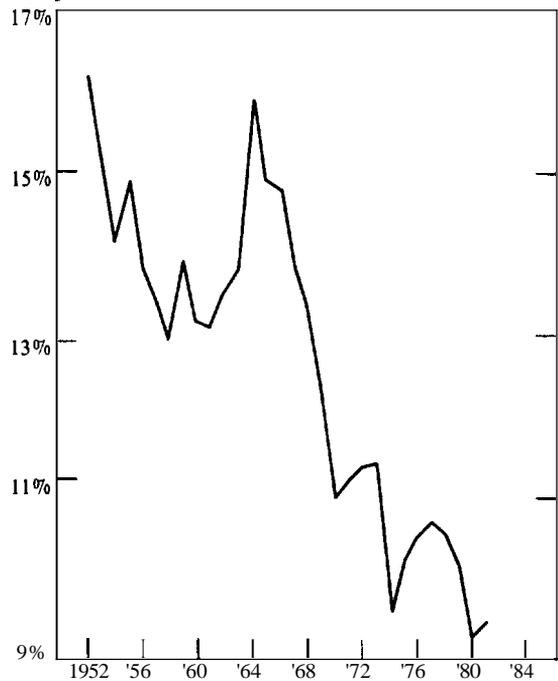
for a downtrend in regressions of the annual profit rate on a time variable, with and without a cyclical variable. In all cases, the t-statistic on the negative coefficient of the time variable was less than 2. Runyon compared the Nordhaus and Feldstein works by focusing on the before-tax profit rate, **excluding** land from the capital base. Runyon eliminated the 1948-51 period from the analysis after demonstrating that movements in the profit rate in those early years were not representative of the postwar period as a whole. His conclusion then rested on his visual inspection of the data.

⁴ In the Appendix to their article, Feldstein and Summers demonstrate that the before-tax profit rate equals the return society earns on additional investment in physical capital: They note that this national profit rate is tied **to the** nation's rate of capital accumulation. Nordhaus and Scanlon point out that the after-tax profit rate is important to individual investors.

it rates of financial corporations and **unincorporated** businesses are combined with the profit rate of nonfinancial corporations to derive a measure of the profit rate for all of the nation's business firms. Except for its more comprehensive coverage, the profit rate used here is similar to those used in previous studies.⁵ Because data are not available for noncorporate business profits on an after-tax basis, before-tax profits are used throughout for consistency.

The comprehensive measure of the profit rate exhibits a significant downward trend in the postwar period, even after allowing for cyclical variations. As shown in Chart 1, the profit rate declined from 16.2 percent in 1952 to 9.5 percent in 1981. The reduction in profits associated with the low level of business activity resulting from the recession that began in 1981 accounts for part of this decline. Empirical evidence developed for this article, using the Feldstein and Summers econometric work as a guide, confirms a significant downtrend and significant cyclical variation in the profit **rate**.⁶ A cyclically adjusted profit rate would have

Chart 1
BEFORE-TAX PROFITS AS A RETURN TO CAPITAL IN ALL U.S. BUSINESS



⁵ Profits plus net interest payments is used to estimate the profit rate for corporate businesses, while proprietors' income plus net interest payments is used for noncorporate businesses. The total profit rate then is estimated by dividing corporate profits, proprietors' income, the inventory and depreciation adjustments plus total net interest payments by the total value of physical capital.

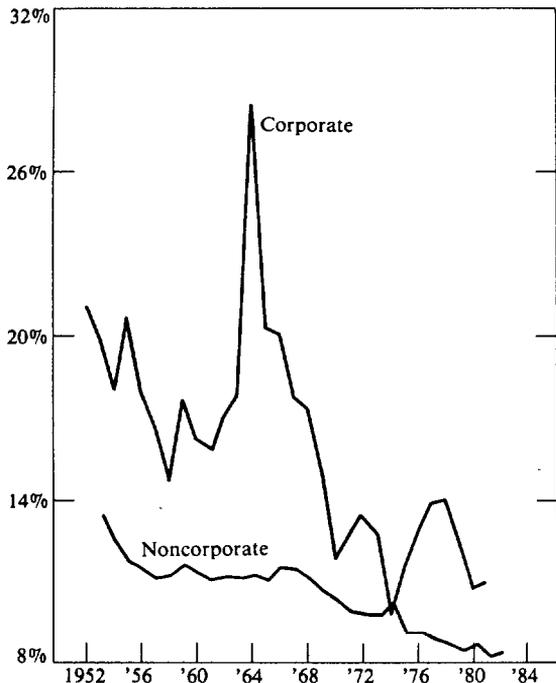
⁶ As mentioned in footnote 3, Feldstein and Summers regress the nonfinancial corporate profit rate on a constant, a time variable, and a cyclical variable. They use the percentage difference between actual and potential output as the cyclical variable. When the comprehensive annual profit rate was regressed on a constant, the time variable, and the output gap for the 1952-1981 period, the constant was positive and statistically significant, the time variable had a negative coefficient with a t-statistic greater than 5, suggesting the profit rate declined over the 1952-81 period as a whole, and the cyclical variable had a positive coefficient with a t-statistic greater than 3. Those estimated regression coefficients were used to calculate the cyclically adjusted comprehensive profit rate by holding the output gap at its 1952-81 average value.

declined only 6.0 percentage points between 1952 and 1981 compared to the unadjusted actual decline of 6.7 percentage points. Having documented a downward trend in the profit rate, it remains to explain the sources of the decline.

Sectoral components of declining profits

This section examines trends in the profit rates in the corporate and noncorporate sectors and in the goods-producing and **services-producing** sectors of the economy. Such a **sectoral** decomposition, it is hoped, will be useful in determining whether the decline in the aggregate profit rate has resulted from declining rates in particular sectors or from increases in the importance of sectors with low profit rates.

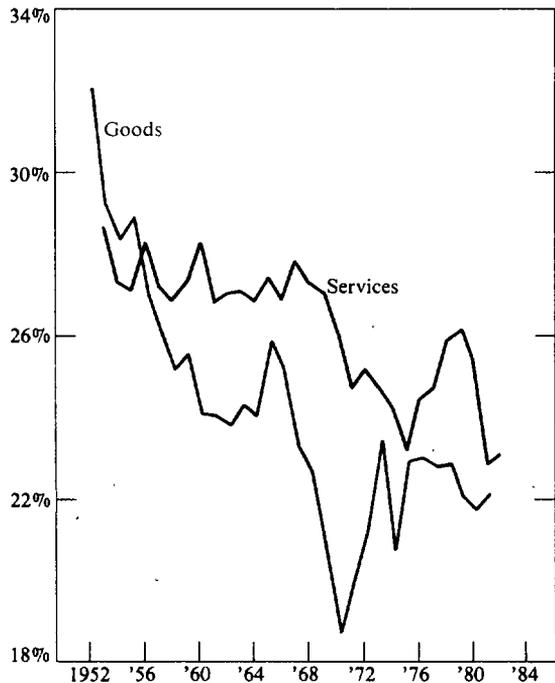
Chart 2
BEFORE-TAX PROFITS AS A RETURN TO
CAPITAL IN CORPORATE AND
NONCORPORATE SECTORS



The aggregate profit rate is a weighted average of the profit rates in individual sectors. The weight assigned each sector's profit rate in determining its contribution to the aggregate profit rate is that sector's share of the nation's total capital. Viewed this way, each sector could contribute to the decline in the aggregate profit rate in either of two ways. First, a decline in a sector's profit rate directly lowers the aggregate profit rate. Second, an increase in a low-profit sector's relative size indirectly lowers the aggregate profit rate by increasing that sector's relative weight in the average aggregate profit rate.

An example may clarify how changes in the relative size of sectors indirectly affect the aggregate profit rate. Assume that there are two

Chart 3
THE BEFORE-TAX PROFIT RATE IN
THE GOODS SECTOR AND THE
SERVICES SECTOR



sectors in the economy, sector A and sector B, and that the profit rate in sector A is **12** percent while the profit rate in sector B is **18** percent. If sectors A and B were the **same** size initially, then the aggregate profit rate would be **15** percent, or $(1/2)(12\%) + (1/2)(18\%)$. However, if the relative size of sector A increased over time, the aggregate profit rate **would decline** below **15** percent even if the profit rates in the two sectors were unchanged. For example, assume that rapid growth in sector A resulted in its being twice as large as sector B. In this case, the relative weight given to the profit rate in sector A would increase to two-thirds and the relative weight given to the profit rate in sector B would decline to one-third. As a result, the aggregate profit rate would decline to **14** percent, or

$(2/3)(12\%) + (1/3)(18\%)$. Thus, the aggregate profit rate can decline strictly as a consequence of higher growth rates in low-profit sectors even if there is no decline in the profit rate of any sector. For this reason, it is necessary to take account of the relative size of sectors as well as the profit rates in those sectors in explaining changes in the aggregate profit rate.

One way to analyze the aggregate profit rate is to break down the profit rate into the corporate sector and the noncorporate sector. As shown in Chart 2, the profit rates in both sectors have declined substantially in the postwar period. The profit rate in the corporate sector declined from 21.3 percent in 1952 to 11.2 percent in 1981, and the profit rate in the noncorporate sector declined from 13.6 percent to 8.5 percent. Although the decline was somewhat greater in the corporate than in the noncorporate sector, the profit rates in both sectors showed significant downward trends even after allowing for cyclical factors.⁷ Thus, declining profitability in both sectors contributed significantly to the decline in the aggregate profit rate.

Changes in the relative sizes of the corporate and noncorporate sectors alleviated the decline in the aggregate profit rate somewhat. The relative size of the corporate sector—as measured by its share of the total capital stock—increased more than 10 percent from 1952 to 1981. Since the corporate sector had consistently higher profit rates throughout the

period, its increased size would tend to indirectly raise the aggregate profit rate. However, this indirect effect was more than offset by the direct effects of declines in the profit rates of each sector, thereby yielding a net decline in the aggregate profit rate.

A second useful breakdown for analyzing the aggregate profit rate is to divide the economy into a goods-producing sector and a services-producing sector.⁸ The measure of the profit rate must be adjusted for this breakdown. As data on the value of physical capital are not available separately for the goods sector and the services sector, it is not possible to calculate the return to capital as a measure of the profit rates in these sectors. However, the ratio of profits to output can be used as a measure of the profit rate for each sector and for the aggregate. For this purpose, value added is used as the measure of output, and the same measure of profits used previously is retained. This revised measure of the profit rate is then used to analyze the contributions of the goods sector and the services sector to the aggregate decline in the profit rate.⁹

Declines in the profit rates in both the goods sector and the services sector have contributed to the falling aggregate profit rate. As shown in Chart 3, the profit rate in the services sector fell from 28.7 percent in 1952 to 23.2 percent in 1981, and the profit rate in the goods sector fell from 32.2 percent to 22.1 percent over the same

⁷ When regressions like those described in footnote 6 were performed for the corporate and noncorporate profit rates, the time variable had a negative coefficient with a t-statistic greater than 3, while the cyclical variable had a positive coefficient with a t-statistic greater than 2 in both cases. Based on calculations using those estimated regression coefficients and the postwar average output gap, the cyclically adjusted corporate profit rate declined 8.9 percentage points between 1952 and 1981 while the adjusted noncorporate rate fell 4.8 percentage points.

⁸ The goods sector includes agriculture, mining, construction and manufacturing businesses. Along the lines used to divide personal consumption expenditures into sectors, the services sector is defined here to include transportation and utilities, wholesale and retail trade, finance, insurance, and real estate, as well as personal and business services industries.

⁹ Using output rather than physical capital as the base, the aggregate profit rate fell from 30.5 percent in 1952 to 22.8 percent in 1981. In addition, the decline in that revised measure of the aggregate rate was statistically significant in a Feldstein and Summers type regression.

period. Although the decline was somewhat more pronounced in the goods than in the services sector, the profit rates in both sectors showed significant downward trends, even after allowance for cyclical factors, thereby contributing to the decline in aggregate profitability."

Changes in **the relative sizes** of the **goods** and **services** sectors offset part of the effect of declining profit rates in both sectors. Measured by the share of value added, the goods sector was slightly larger than the services sector in **1952**. However, by **1981**, the services sector was nearly twice as large as the goods sector. Since the profit rate has been higher in the services sector over most of the period, the increased relative size of the services sector would tend to raise the aggregate profit rate. As in the case of the corporate-noncorporate breakdown, however, the indirect effect of changes in the weights of the two sectors is insufficient to overcome the direct effects of declining profit rates in the two sectors. Consequently, the net effect of changes in the weights **for the** goods and services sectors and of changes in the **sectoral** profit rates was a decline in the aggregate profit rate.

In **summary**, neither of the breakdowns analyzed in this section implies that the aggregate decline in profitability was limited to a specific sector of the economy. Whether the economy is divided into corporate **and** noncorporate sectors or into goods and services sectors, declining profit rates appear to have been pervasive. Moreover, the declining profit rates cannot be attributed to cyclical factors or to more rapid growth in low-profit sectors.

¹⁰ Regressions confirm a statistically significant downtrend in both sectors. Adjusted for cyclical variation, the goods sector profit rate declined 8.7 percentage points between 1952 and 1981. The adjusted services sector rate declined 4.6 percentage points.

Industry components of declining profits

Decomposition of the aggregate profit rate into **sectoral** components, although illuminating in some respects, may still hide information that could be obtained from further disaggregation. Therefore, this section analyzes the decline in the aggregate profit rate by further subdividing the goods sector and the services sector into eight industry components. As for the **sectoral** breakdowns, the aggregate profit rate is a weighted average of the profit rates in the eight component industries. As such, the contribution of each industry to the overall decline in profitability includes both the direct effect of changes in the profit rate in that industry and the indirect effect of changes in the relative size of the industry.

Column 1 of Table 1 shows the percentage change of the profit rates from **1952** to **1981** for the four industries comprising the goods sector and the four industries comprising the services sector. Column 2 shows the ranking of each industry, where the rank of each industry is inversely related to the change in its profit rate. Thus, the industry with the largest decline in profits is ranked one, the industry with the second largest decline is ranked two, and so on.

The data in Table 1 show that seven of the eight industries in the economy experienced declines in their profit rates in the postwar period." The decline was largest in agriculture, followed by wholesale and retail trade, personal and business services, and manufacturing. There were smaller though still appreciable declines in construction, transportation and utilities, and mining. Only finance, insurance,

¹¹ The percentage changes are computed for profit rates not adjusted for cyclical variation. Such an adjustment primarily reduces the magnitude of the decline in the profit rate of the manufacturing and construction industries. Removing cyclical variation does not, however, affect the industry **rankings** in Table 1 or any of the conclusions of the analysis.

Table 1
INDUSTRIAL ELEMENTS OF DECLINING AGGREGATE PROFITS

	(1) Change in Profit Rate <u>1952-1981</u>	(2) <u>Rank</u>	(3) Total Contri- bution to Aggre- gate Decline	(4) <u>Rank</u>
<u>Goods-Producing Industries</u>				
Agriculture	- 14.0	1	- 2.9	2
Manufacturing	- 10.9	4	- 4.7	1
Construction	- 7.0	5	- 0.5	5
Mining	- 1.5	7	- 0.1	6
<u>Services-Producing Industries</u>				
Wholesale and Retail Trade	- 13.9	2	- 2.6	3
Personal and Business Services	- 13.0	3	- 1.0	4
Transportation and Utilities	- 1.8	6	+ 0.8	7
Finance, Insurance, and Real Estate	+ 12.6	8	+ 3.8	8

and real estate showed an increased profit rate.¹² Thus, the downward trend in aggregate business profits has been pervasive not only among sectors but also among almost all industries in the economy.

To compute the contribution of each industry to the decline in the aggregate profit rate, it is necessary to consider the size as well as the change in profitability for the eight industries. The data in column 3 of Table 1 show the total contribution of each industry to the 7.2 percentage point decline in the aggregate

profit rate. The corresponding ranking of the eight industries is shown in column 4 of the table.

Comparison of the **rankings** in columns 2 and 4 demonstrates the importance of incorporating all the relevant factors in identifying the industries that have been primarily responsible for the decline in the aggregate profit rate. Although the largest percentage decline in profit rates was in agriculture, manufacturing contributed most to the aggregate decline in profitability. Because manufacturing accounts for

¹² Part of the increasing profit rate in the finance, insurance, and real estate industry is due to including Federal Reserve Bank profits according to the national income and product accounts industry definition. But even with Federal Reserve profits excluded, the industry's profit rate still increased 11.1 percentage points. However, there are other serious problems associated with the measurement of profit rates in the financial sector. Because of the difficulty in estimating the profit rate in financial businesses, and the

fact that net interest payments can be negative, Commerce Department estimates of financial business earnings are based on the imputed costs of the services they provide. Thus, the accuracy of the estimates are subject to considerable uncertainty and should perhaps be discounted, especially since the estimates indicate a sharp divergence from all other industries. Omitting financial businesses, though, would reinforce the case for a significant downtrend in aggregate profits.

such a large proportion of total output, smaller declines in its profit rate had a magnified impact on the aggregate profit rate.

Despite considering all the ways in which individual industries affect the aggregate profit rate for assessing the quantitative contribution of each industry, the qualitative conclusions are unaffected by doing so. Six of the eight industries contributed to the aggregate decline in profitability. Only transportation and utilities and the finance, insurance, and real estate industries had a favorable overall impact on the aggregate profit rate. As concluded in the previous analysis, therefore, the decline in aggregate profitability cannot be attributed solely to any single sector or industry.

Conclusion

The downward trend in aggregate profitability documented in this article shows that cyclical factors accounted for only a small part of the postwar decline. The pervasiveness of that secular decline in profit rates belies any simple explanation for the downward trend in aggregate profitability in the postwar period. Some analysts, for example, have suggested that the chief reason for declining aggregate

profitability might be slowing productivity growth in the mining and construction industries as well as in the services sector as a whole. Others have argued that declining profit rates in manufacturing associated with the imposition of strict environmental quality standards may have been primarily responsible. Although these may have been contributing factors, they do not fully explain the pervasiveness of the decline in profitability among sectors and industries. Instead, it seems likely that the significant downward trend in profit rates over the past three decades has resulted from the adverse consequences of other factors. If so, policy prescriptions to arrest and ultimately reverse the downward trend must take into account the inherent complexity of the problem if the policies are to be effective. To the extent that the causes of the decline have been multifaceted, so too must the policy remedies to deal with the problem be diverse. Without such policy remedies, the analysis presented here suggests that while the profit rate is likely to rise as the economy recovers from the 1981-82 recession, over the longer run, U.S. businesses' profitability will continue to decline relative to the early years after World War II.