



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Aggregate Profitability In U.S. Food Manufacturing

by

Anthony E. Gallo
Agricultural Economist
U.S. Department of Agriculture

Introduction

Profitability is an important indicator of economic performance because of its impact on price and allocation of resources. The relationship of profitability to concentration, productivity, economies of scale, competitiveness, new product introductions, market entry and exit, and other size, structure conduct and performance indicators is especially important in food processing in the 1990s. While the food manufacturing industries command a smaller and smaller portion of the nation's resources, massive restructuring is taking place. In the 1980s, mergers, divestitures, and leveraged buyouts rose spectacularly in both volume and amounts. The food and tobacco industries essentially became amalgamated in the process.¹ Debt and interest expense rose sharply. Between 1982 and 1990, the share of sales controlled by the 50 largest food and tobacco processors rose from an estimated 43 percent to 50 percent. New product introductions, capital expenditure, advertising and promotion, and the performance of common stock rose to record levels, and productivity per man hour rose for most food processing industries. Employment has remained constant while output more than doubled over the past generation. Amidst these changes, the basic question arises as to what is the aggregate profitability of

the food processing industries? To be sure, aggregate profitability for the sector does not measure the variation in profitability among the 49 industries, ranging from sausages to breweries, nor the sharp variation among firms within each of these industries. Moreover, diversified conglomerates dominate the food processing sector, so that a meaningful breakdown by specific standard industrial classification codes is virtually impossible since breakdowns by product category are rarely disseminated. In addition, aggregate data is on an enterprise basis which would also include nonfood products. Within those limitations, this research examines profits and profitability rates between food processing and other industries between 1987 and 1989. Total income is broken down by use and source. Rates of return on sales, assets, and stockholders equity are compared to rates of other industries.

Industry Earnings Profile

The food and tobacco industries make up the largest manufacturing sector in the American economy, accounting for nearly 14 percent of industry shipments. In 1990, domestic industry shipments amounted to an estimated \$410 billion, while shipments of overseas subsidiaries amounted to an estimated \$85 billion. The

industry is one of relatively slow growth. Sales of the industry rose at about 3.5 percent during the past decade, compared to 5 percent for all manufacturing. On the cost side, food manufacturing is highly leveraged, global, and purchases of agricultural products and labor make up about \$190 billion of costs. Thus, profits are very much affected by changes in four economic variables: farm prices, labor costs, interest rates, and the value of the exchange rate. Through most of the 1987-90 period, real wages actually declined and farm prices remained relatively stable. Interest rates vacillated about 2.5 percent in both the short term and long term markets, but were well below the rates of the 1980-86 period. The value of the U.S. dollar was also well below that of the earlier 1980s.

Source and Use of Earnings

In 1990, the food and tobacco industries total earnings from foreign and domestic operations amounted to nearly \$45 billion (Figure 1). Of that amount, about \$34 billion came from domestic operations (excluding interest). Remittances of income from overseas subsidiaries contributed another \$4 billion to earnings. Nonoperating income from rents, dividends, royalties, and proceeds from sale of assets, accounted for another \$7 billion. Thus approximately 75 percent of total earnings are derived from domestic operations, while nonoperating income accounts for about 15 percent, and foreign earnings about a tenth.

The \$45 billion in earnings was translated into \$16 billion in after tax earnings and \$25 in before tax earnings. Taxes were \$9 billion for the year. Interest amounted to about \$20 billion for the year. Thus about 45 percent of total earnings were allocated to interest, while 20 percent went towards tax payments. The remainder, or 35 percent, went to after tax earnings. About \$6.5 billion was paid out in dividends.

The impact of increased leverage, or debt, on after tax earnings is shown by the sharp increase in interest expense between 1987 and 1990 (Table 1). The \$19 billion² in interest paid in 1990 was nearly 120 percent of after tax

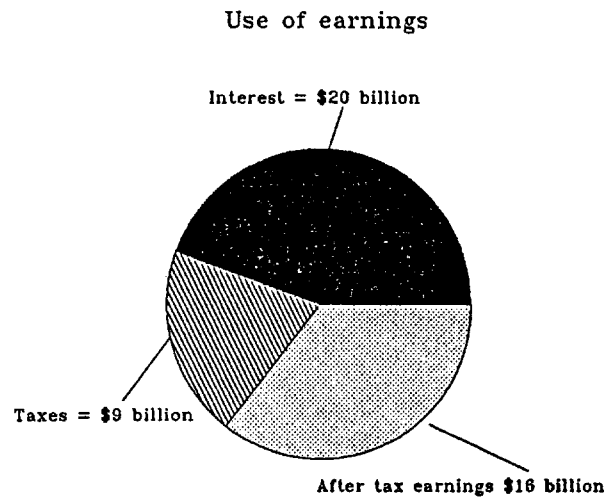
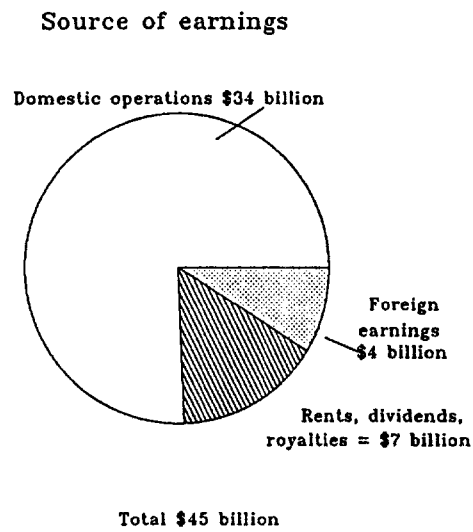
income. By contrast, the \$10.6 billion in interest paid in 1988 amounted to only about 50 percent of after tax income. The increase in interest expense reflects the sharp rise in debt, from \$140 in 1988 to \$212 billion in fourth quarter 1990. The use of lower grade, higher interest bonds to finance large leveraged buyouts also contributed to the increase in interest expense. However, debt levels also increased for many higher equity firms during the late 1980s.

A Comparison of Different Profit Measures

Between 1987 and 1990, earnings from domestic operations in food manufacturing rose from \$25 billion to nearly \$34 billion, resulting in an average yearly growth rate of 11 percent (Table 1). However, after tax earnings, in both 1989 and 1990 were only slightly above the \$15.5 billion of 1987, due to a higher interest expense. Profitability in dollar terms, however, is not as meaningful as a comparison of profit ratios in determining relative profitability. To measure food profitability requires a standard, which in this analysis will be the rate of return for food to other nondurable and all manufacturing industries. Three commonly used performance ratios are rates of return on sales, stockholders' equity and assets. Profits after taxes and income from operations are the two profit levels we will be using. In total, the six inter-industry comparisons look at after-tax profits as a share of sales, stockholders equity, and assets, as well as profits from operations as a share of sales and assets. Because of year to year fluctuations, the inter-industry comparison is based on a 4 year average, from 1987 to 1990.

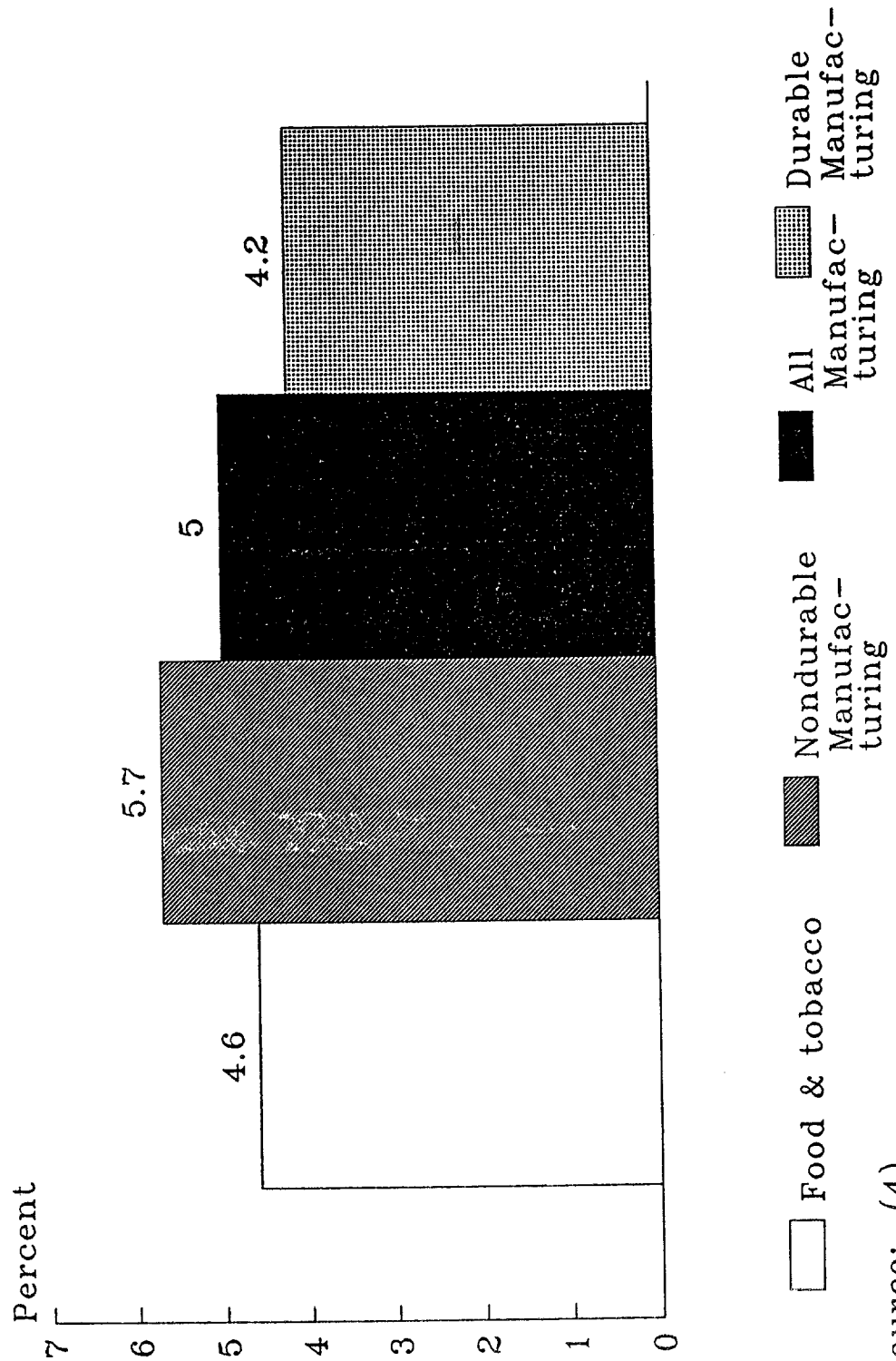
- After Tax Profits as a share of Sales: During the 1987-90 period, food and tobacco's after-tax profits as a share of stockholders equity averaged 4.6 percent, well below the 5.7 percent for nondurable manufacturing, but above the return for durable manufacturing and all manufacturers (Figure 2). Higher leverage and higher sales turnover rate accounts for food's relatively lower return. Increased interest expense significantly lowered after tax earnings. Food's return on sales, however, has historically been lower than other manufacturing industries.

Figure 1
U.S. Food & tobacco processing: Source and
use of total earnings from operations, 1990



Source: (4).

Figure 2
Average after tax profits as a share of
sales, 1987-90



Source: (4).

Table 1

Profits of Food and Tobacco Processing Firms

Year and quarter	Before-tax income from domestic operations	After-tax income	Interest expenses	Interest expense as share of after-tax income ^{1/}
	-----Million dollars-----			---Percent---
1987	24,773	15,579	9,458	60.7
1988	28,686	20,625	10,555	51.1
1989	31,057	16,545	16,660	100.7
1990	33,883	16,035	19,144	119.4

^{1/} Excludes interest paid by firms with assets less than \$25 million.

Source: (4).

• After Tax Profits as a share of stockholders' equity: Returns to the owners (stockholders) is one of the highest in all manufacturing. During 1987-90, foods after tax profits as a share of stockholders equity averaged 17.9 percent, compared to 15.4 percent for nondurable manufacturers (Figure 3). All manufacturing had a ratio of 13.4 percent, while nondurable manufacturing's ratio was 11.3 percent. Food has historically had a high return on stockholders equity. However, the large leveraged buyouts of the late 1980s significantly reduced equity, and thus raised returns to existing holders.

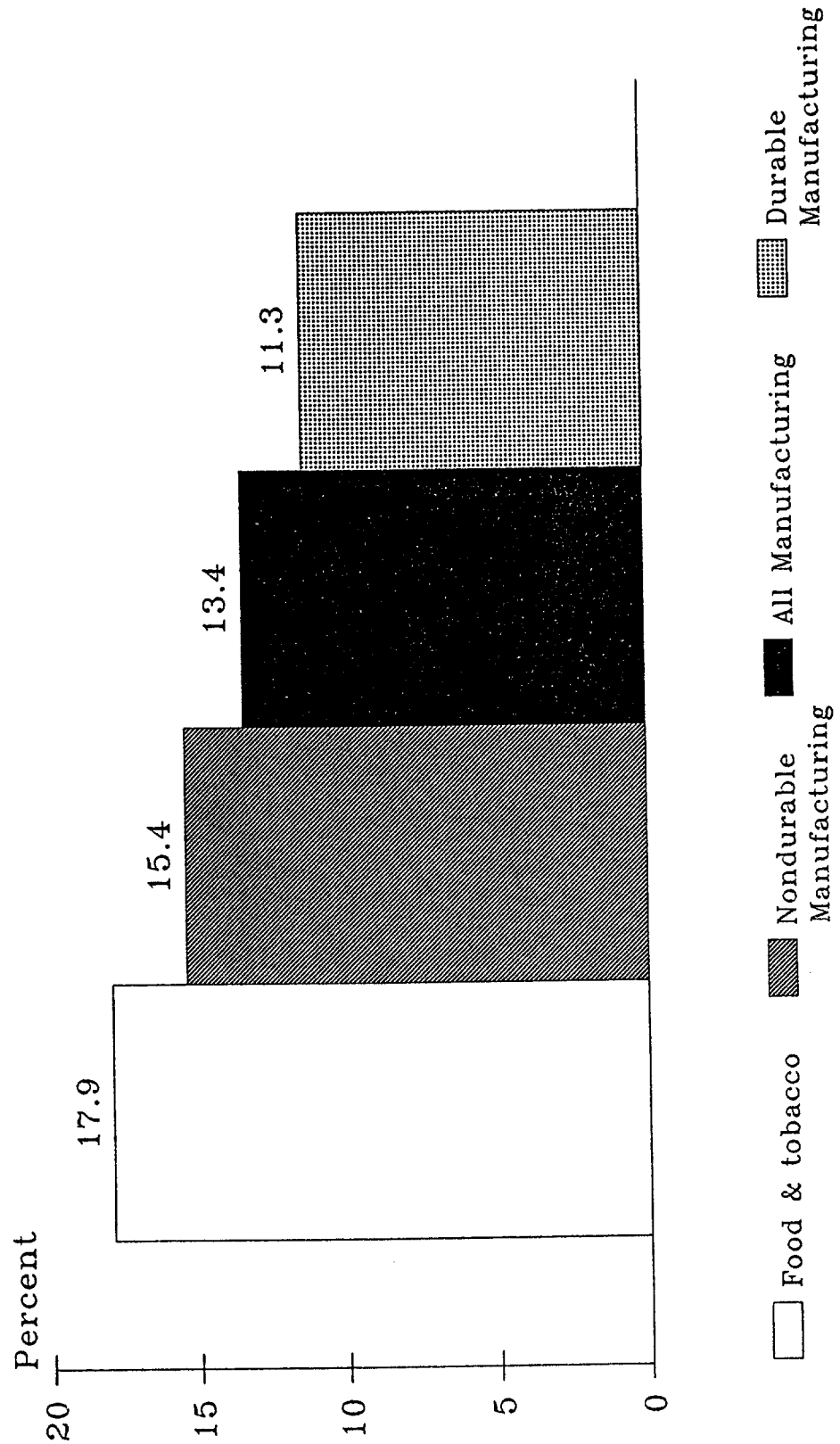
• Annual rate of after tax profits as a percent of assets. Foods ratio, at 6.3 percent averaged about the same as all nondurables (Figure 4), but was higher than all manufacturing and nondurable manufacturing. This ratio, is an indicator of how well assets are being managed. However, the large increase in debt significantly lowered after tax earnings after 1988 for food manufacturers. In both 1987 and 1988, the ratio was significantly higher than most other industries. Therefore, excluding debt, food performs well as measured by return on assets.

• Income from domestic operation as a share of assets and sales. Measuring profitability performance by income from domestic operations as a share of either assets or sales essentially eliminates the leverage, nonoperating income, and foreign performance factors. Thus, the measure is useful in examining the profitability of central store operations—domestic food and tobacco operations. Food's operating income as a share of assets, 10.3 percent, was one of the highest in American manufacturing (Figure 5). The ratio for nondurable manufacturing was 8.6 percent, while all manufacturing was 7.3 percent. When measuring income from operations as a share of sales, food had a ratio of 7.8 percent, slightly below all nondurables, but higher than all manufacturing at 6.7 percent (Figure 6).

Conclusions

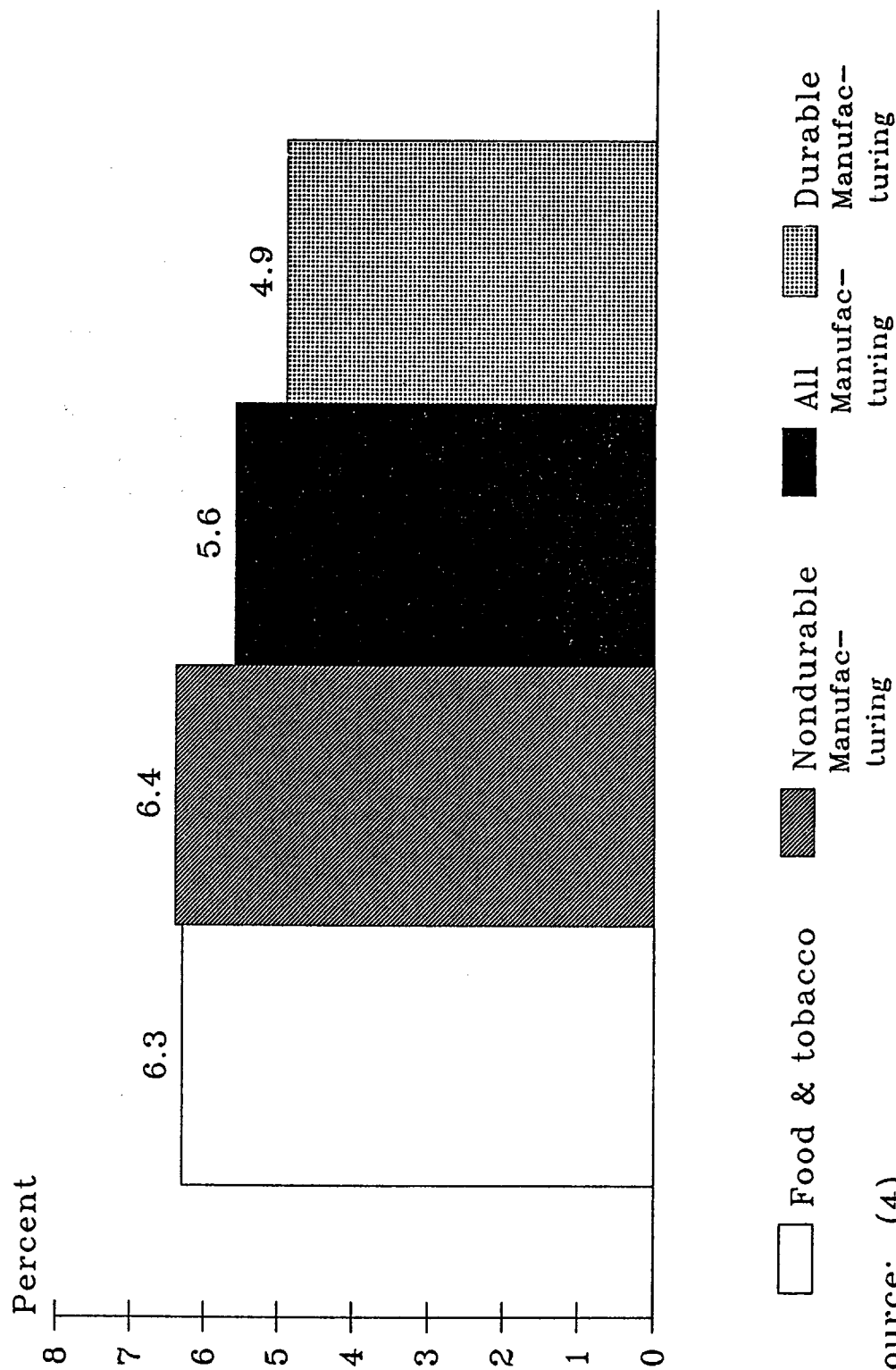
- Food manufacturing's aggregate profitability, when measured as a return on assets and stockholders equity, is one the highest in all manufacturing.

Figure 3
Average after tax profits as a share of
stockholders equity, 1987-90



Source: (4).

Figure 4
Average annual rate of after tax profits
as a percent of total assets, 1987-90



Source: (4).

Figure 5
Income from domestic operations as a
share of assets (average 1987-90)

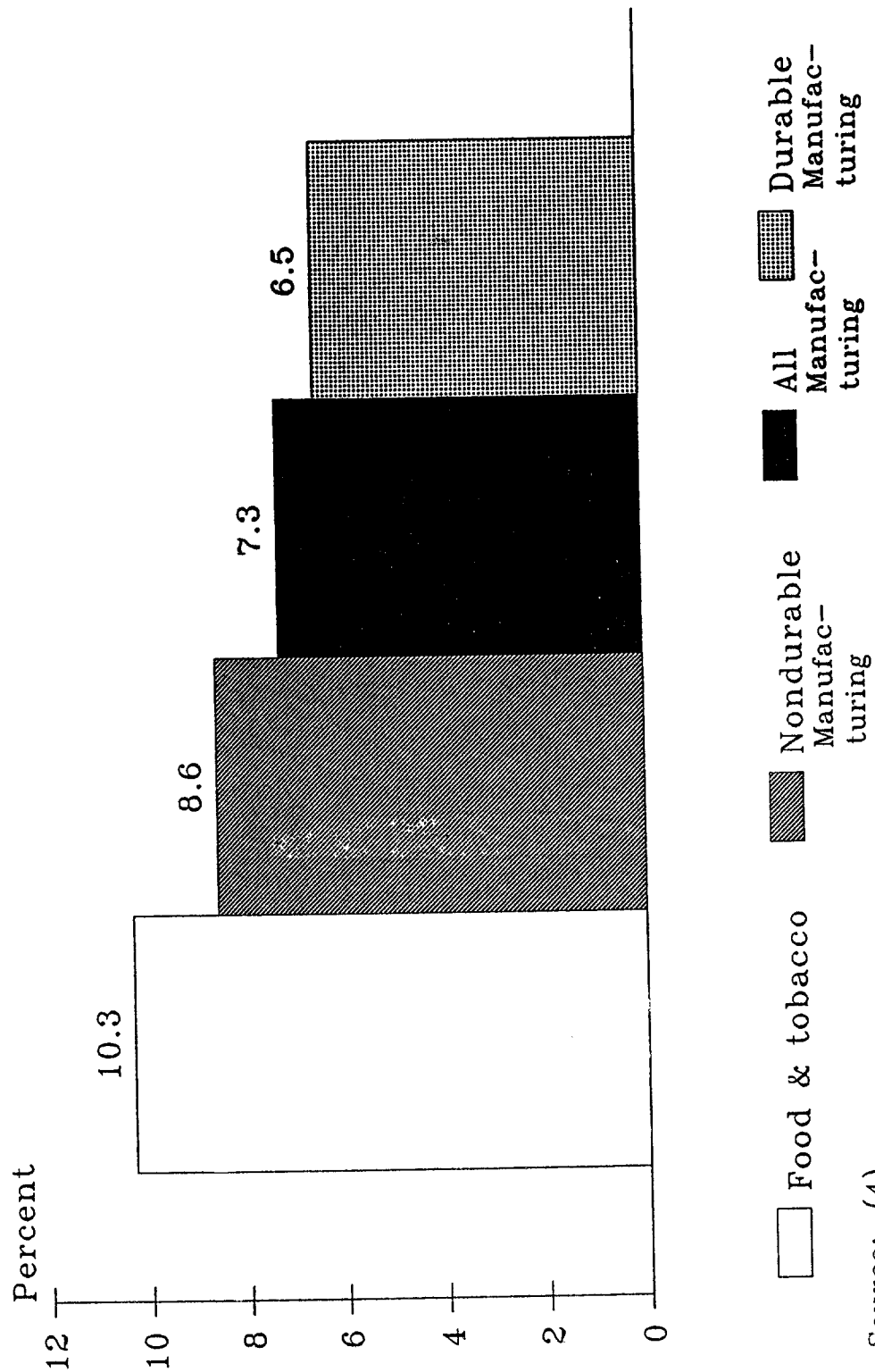
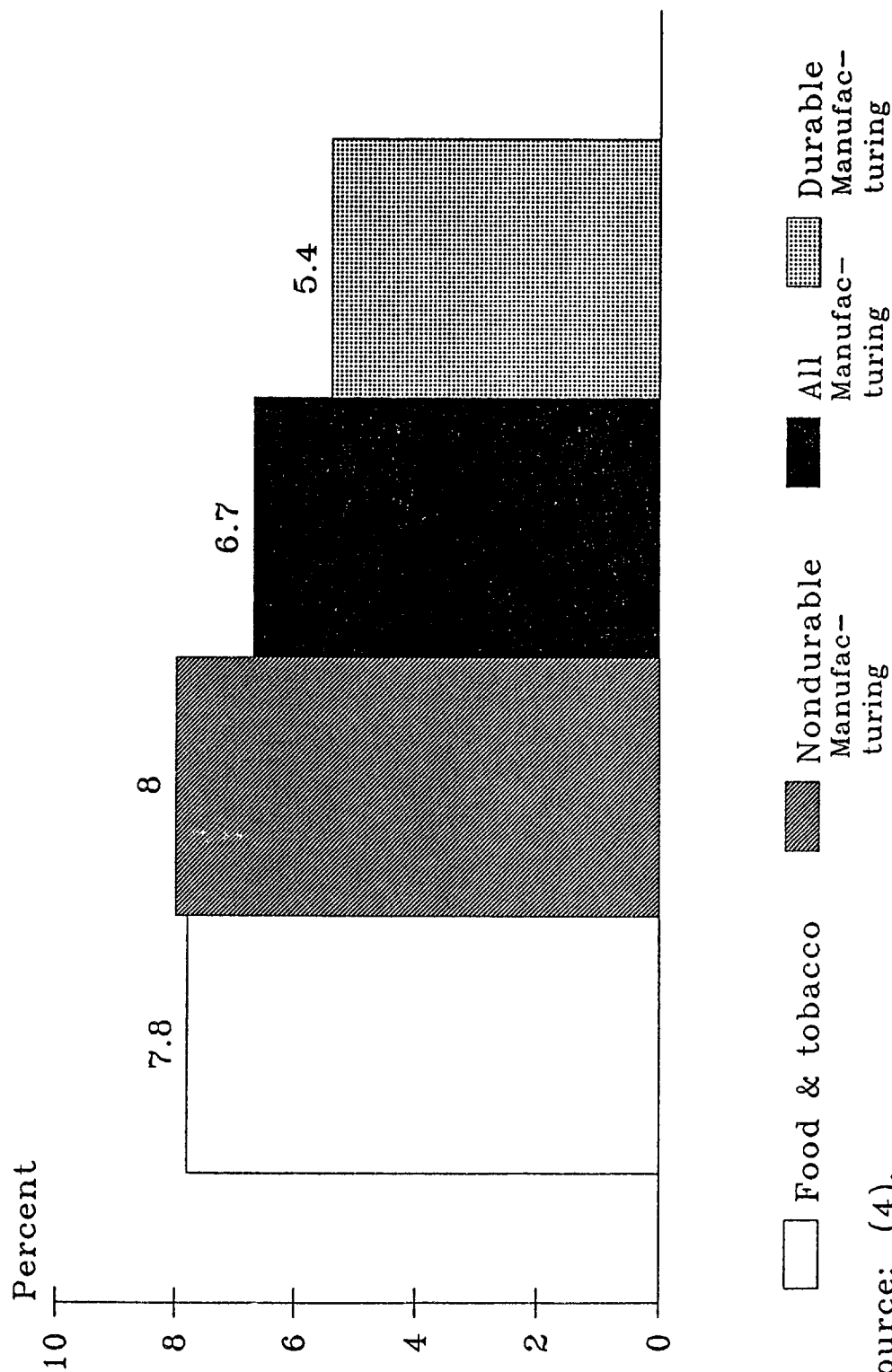


Figure 6
Income from domestic operations as a
share of sales (average 1987-90)



Source: (4).

- Aggregate profitability on sales for food manufacturing is below the average for nondurable manufacturing because of a high sales turnover rate.
- Higher debt has significantly lowered food's after tax profits in recent years.
- The basic cost determinants of profitability-farm prices, labor costs, interest rates and exchange rates-have all been favorable to the food industry in recent years. On the revenue side, food continues to experience below average sales growth.

Endnotes

¹As a result, food processing will include tobacco in this analysis.

²Excludes interest paid by firms with assets less than \$25 million.

References

1. Connor, John M. et al. *The Food Manufacturing Industries*. Lexington, MA: Lexington Books, 1985.
2. Ghez, Nomi E., Goldman-Sachs, Internal Working Papers, 1991.
3. Gallo, Anthony E., *Food Marketing Review*, USDA, ERS. Selected issues.
4. U.S. Department of Commerce, Bureau of the Census, *Quarterly Financial Report*. Selected issues.