

Capital Goods Sales: Weak Recovery Despite the Spending Boom

Since the trough of the business cycle in 1982 domestic spending on capital goods has surged more than 30 percent in real terms, much more than in any previous postwar expansion and more than twice the pace in an average expansion. Normally such strong growth in capital spending would engender a similar boom in capital goods production. In fact, sales by domestic producers and, consequently output, have grown much slower than spending, well below the pace in an average expansion.

This article examines, at both the aggregated and disaggregated levels, the weakness in domestic sales relative to domestic spending on capital goods and looks at the major factors explaining this divergence. Our analysis indicates that the weakness in sales extends to virtually all capital goods industries. The most important factor behind the significantly slower sales growth is the strong dollar and the associated foreign competition. In the absence of dollar appreciation, our calculations show that domestic capital goods sales would likely have been as much as 15 percent higher in 1984.

A comparison of growth in spending and sales for the current expansion shows that domestic producers have benefited little from the surge in demand. Since the 1982 business cycle trough, sales have increased at less than half the pace of spending (Chart 1). However, even this slow recovery understates the weakness in sales because it followed an unusually sharp decline during the last recession. Sales are still 4½ percent below the 1980 business cycle peak, while capital spending has grown about 19 percent over the same period. Thus, despite the healthy spending picture, capital goods producers have yet to recover the sales lost during 1980-82.

Paralleling this divergence between domestic spending and sales has been the deterioration of the capital goods trade balance—the difference between exports and imports of capital goods.¹ Historically, the United States has been a large net exporter of capital goods. In fact, in every quarter from 1967 to 1979 capital goods exports were at least twice as high as imports, facilitating rapid growth in the U.S. capital goods industry.

In the 1980s, however, this historical pattern began to unravel, with capital exports stagnant and imports rapidly rising, U.S. producers were squeezed from both

¹Exports are part of sales, but not spending, while imports are part of spending, but not sales

Table 1

Comparative Growth in Spending and Sales For Four Components of Capital Spending

Percent change in nominal values, 1980-I to 1985-I

| Industry (weight)* | Spending | | Ratio of sales to spending |
|-------------------------------|----------|-------|----------------------------|
| | ing | Sales | |
| Total (0.26) | 43.7 | 29.8 | 0.68 |
| Fabricated metals (0.21) | 49.9 | 35.2 | 0.71 |
| Machinery (0.36) | 28.3 | 17.7 | 0.63 |
| Electrical machinery (0.34) | 56.2 | 42.0 | 0.75 |
| Scientific instruments (0.09) | 37.6 | 28.2 | 0.75 |

*"Weight" is the ratio of industry sales to total capital goods sales in 1985-I. The weight for "Total" is the share in total manufacturing

"Total" is calculated using the sum of nominal values for the four components. The table excludes the transportation industry which is dominated by purchases by consumers (motor vehicles) and government (missiles, ships, airplanes, etc.)

Table 2

Growth in Spending and Sales for High Tech versus Other Capital Goods

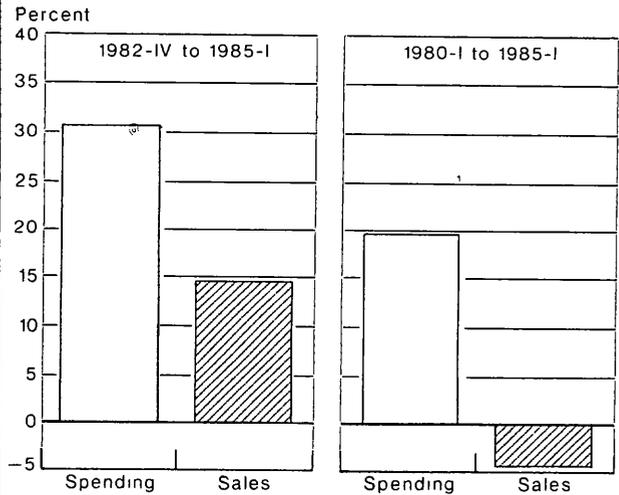
Percent change in nominal values, 1980-I to 1985-I

| Industry (weight)* | Spending | | Ratio of sales to spending |
|---------------------------------------|----------|-------|----------------------------|
| | ing | Sales | |
| High Tech (0.28) | | | |
| Computers and office machinery (0.09) | 121.8 | 93.0 | 0.76 |
| Communications equipment (0.10) | 65.5 | 73.5 | 1.12 |
| Scientific instruments (0.09) | 37.6 | 28.2 | 0.75 |
| Other (0.72) | | | |
| Fabricated metals (0.27) | 49.9 | 35.2 | 0.71 |
| Machinery (0.25) | 4.5 | 3.4 | 0.76 |
| Electric machinery (0.20) | 41.7 | 30.3 | 0.73 |

*"Weight" is the proportion of capital goods sales accounted for by each sub-component in 1985-I

Chart 1

Growth in Capital Goods Spending and Sales*

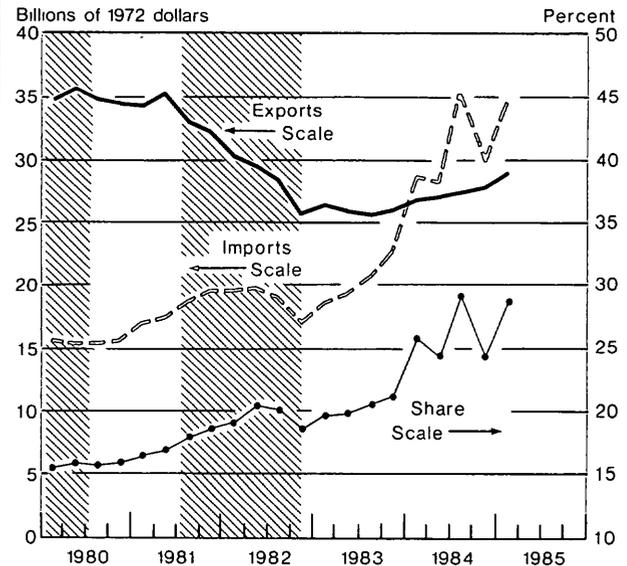


* Constant dollar data, excluding motor vehicles. Sales are estimated using the following (rough) identity: Sales equals Spending plus Exports minus Imports

Source: National Income and Product Accounts

Chart 2

Capital Goods Exports and Imports, and the Share of Imports in Spending



Source: National Income and Product Accounts

sides From 1980-I to 1985-I imports expanded 121 percent, leading to an 86 percent increase in the import share of the U S market (Chart 2) Over the same period exports declined almost 17 percent Reflecting these developments, the capital goods trade balance moved into a substantial deficit in 1984, following a deterioration of about \$26 billion (in 1972 prices) over the preceding three years

This deterioration of the capital goods trade balance has significantly reduced sales for virtually all industries For four major categories of capital goods, sales have grown only two-thirds to three-fourths the pace of spending (Table 1) Even for most of the so-called high tech industries, sales have lagged behind spending In fact, with the exception of the communications industry, the divergence between sales and spending has been about the same for high tech capital goods as for all others (Table 2)

Explaining the divergence

The two major reasons for the "sales-spending gap" are strong growth in real GNP and sharp appreciation of the dollar From 1980 to 1984 U S real GNP grew about three percentage points more than average real GNP for the six largest foreign industrial countries—Germany, France, Italy, the United Kingdom, Japan, and Canada The weak foreign growth slowed U S exports, while the fast cyclical expansion of the U S economy led to strong growth of spending and imports²

A more important factor behind the sales-spending gap appears to have been the sharp appreciation of the dollar From 1980-I to 1984-IV the dollar appreciated 52 percent, driving a wedge between the price of U S and foreign capital goods³ In judging the impact of dollar appreciation on the sales-spending gap, two factors are particularly important (1) the degree to which changes in the exchange rate affect purchasers' prices, and (2) the elasticity or responsiveness of imports and exports to price changes Using plausible estimates of these parameters,⁴ we have simulated what would have

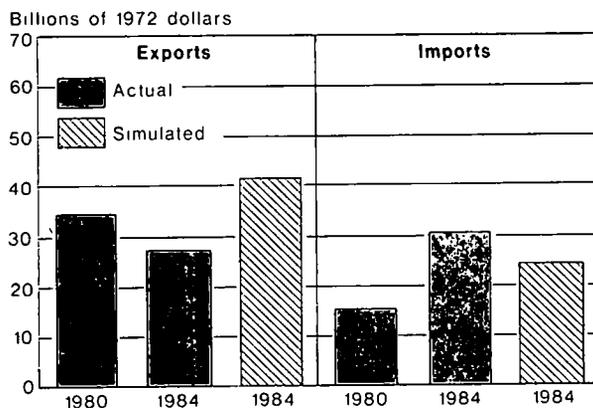
²The effect of relatively slow foreign GNP growth on the sales-spending gap has probably not been large For example, assuming an income elasticity of 2.0, if foreign GNP had kept pace with U S GNP, exports in 1972 dollars would have been only about \$2 billion (6 percent) higher in 1984

³The exchange rate used is a GNP weighted average of the value of the dollar for our six largest trading partners

⁴There are no recently published estimates of the price elasticities of capital goods exports and imports The assumptions we use here are broadly consistent with recent estimates of exchange rate and price effects on aggregate trade Specifically, our export and import simulations are based on a "pass through" of 75 percent and a price elasticity of -1.5 In addition, in the export simulation a response lag of two years is assumed For a recent survey of elasticity estimates see Morris Goldstein and Mohsin S. Khan, "Income and Price Effects in Foreign Trade", in P. B. Kenen and R. W. Jones, eds., *Handbook of International Economics* (1983)

Chart 3

Capital Goods Exports and Imports With and Without Dollar Appreciation



Source: National Income and Product Accounts

happened to capital goods imports, exports, and sales from 1980 to 1984 had the exchange rate remained constant

The results are dramatic, especially for exports Had the dollar remained flat through 1984, exports would have been about \$15 billion higher, and imports would have been about \$6 billion lower (Chart 3) Higher exports alone would have pushed sales growth to nearly 9 percent from 1980 to 1984, rather than the actual 3.6 percent decline, closing more than half of the sales-spending gap Slower imports growth would have narrowed the sales-spending gap further Firms purchasing fewer imports might have shifted at least part of their spending to domestically-produced goods In the extreme case, if all of the reduction of imports spending had been switched over to domestic goods, sales would have grown an additional four and one-half percentage points Of course, these estimates would be higher or lower, using different assumptions or allowing for various indirect effects For a range of reasonable assumptions, however, the impact of the dollar on sales would be substantial

In conclusion, the divergence between spending on capital goods and domestic sales of those goods extends to all major industries, and reflects a dramatic deterioration of the capital goods trade balance Sharp appreciation of the dollar, together with stronger GNP growth in the United States than in other industrial

economies, accounts for virtually all of the weakness in domestic sales of capital goods relative to spending. Without dollar appreciation, the rapid recovery in capital spending would have fueled a commensurate boom in the domestic capital goods industry.

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