

# Capital spending—the sluggish boom

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Business outlays on new capital goods—structures and equipment—will probably exceed \$220 billion in 1978. That will be about 16 percent more than the record high set last year. Perhaps half the rise will represent price inflation.

As a proportion of GNP, capital outlays will increase to about 10.6 percent this year. In a statistical record that begins in 1929, this ratio has been surpassed only twice, in 1966 and 1974, and then only slightly. Equipment order backlogs and the recent high volume of nonresidential construction contracts suggest the uptrend will continue into 1979.

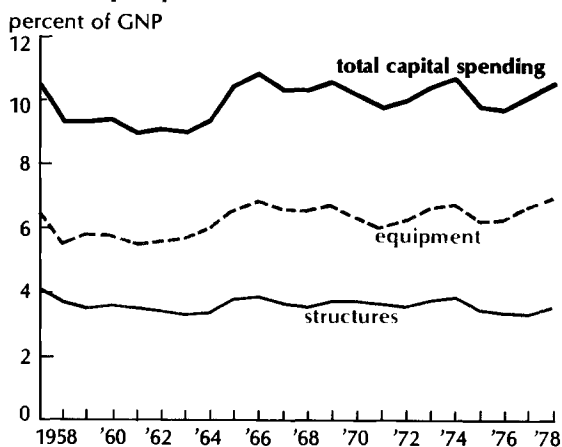
Capital spending has been frequently characterized as sluggish. This seems paradoxical in view of the high current and prospective levels of spending. The judgment takes on more weight, however, when relative rates of inflation and the growing amount of capital spending going for nonproductive purposes that do not add capacity or improve efficiency are taken into account.

These nonproductive capital outlays include spending to comply with government regulations relating to environment, health and safety, and other social objectives. They also include energy-related spending to develop increasingly scarce resources, to improve fuel efficiency, and to convert operations to coal and other fuels. They include substantial outlays on projects that have been delayed or abandoned because of lawsuits, often costly in themselves, pressed by both public bodies and private parties. In some industries—motor vehicles, for example—management contends that nonproductive outlays account for the bulk of current and prospective capital spending programs.

Capital spending data usually appear as gross figures, rather than as net figures that allow for erosion of the existing capital stock. The same factors that force nonproductive outlays have also stepped up obsolescence and retirements of existing assets.

These nonproductive outlays cannot be quantified with precision. It seems probable, however, that current capital spending does not fully offset the erosion of existing stock. If so, net investment is actually negative. Aside from adding to capacity, a high level of capital spending is essential to the fight against inflation. New and better capital goods provide the surest means of increasing productivity (output per worker hour) and holding down costs of production. One thing is certain. Capital spending will have to increase substantially relative to GNP if living standards are to rise, or even be maintained.

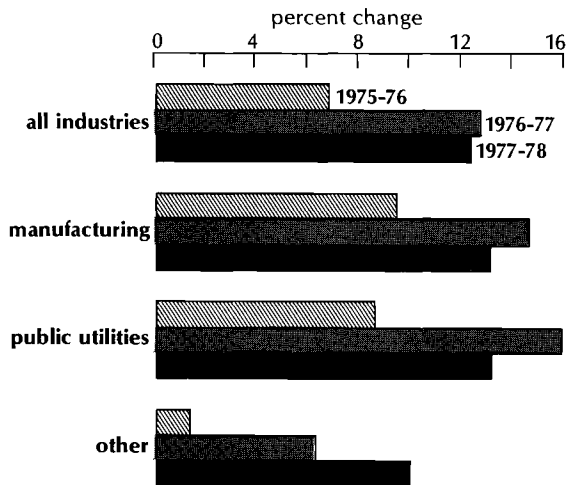
## Business capital spending approaches record proportion of GNP



## Strength widespread

The Department of Commerce does not publish an industry breakdown of the GNP component “nonresidential fixed invest-

## Industry boosts capital spending for third straight year



ment." Such breakdowns are available, however, in another less comprehensive series, "Expenditures for New Plant and Equipment," based on quarterly surveys of business plans.

Like Commerce's nonresidential fixed investment, the data on plant and equipment exclude expenditures overseas. They also exclude outlays by agricultural and nonprofit organizations, and any outlays that are written off as they occur, as opposed to fixed assets that are depreciated over time. Current write-offs of spending on oil and gas exploration and development, for example, are large.

Spending on plant and equipment reported in this series is now expected to reach \$152.5 billion in 1978, up slightly from estimates earlier this year. That will be 12.3 percent more than in 1977, when P&E outlays increased 12.7 percent.

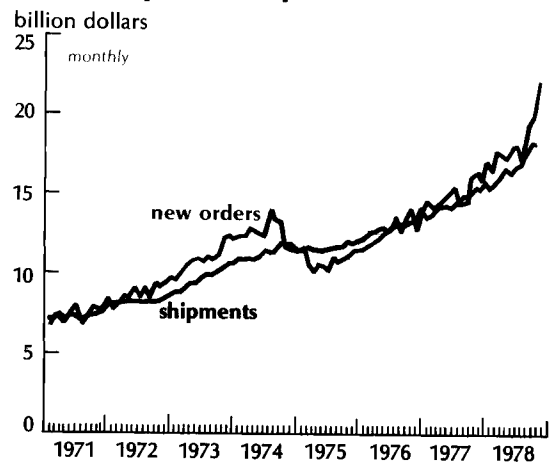
Almost all industries plan to increase their capital spending this year, the notable exception being ocean shipping lines. The biggest outlays in 1978, as in most years, will be made by electric utilities, which expect to spend \$24.5 billion on plant and equipment, 14 percent more than in 1977. The communication industries, mostly telephone companies, expect to increase their spending 15 percent.

Larger-than-average increases in manufacturing are reported for the electrical machinery, building material, food processing, and textile industries. After reducing its outlays in 1976 and 1977, the steel industry expects to increase its outlays this year, but only 2 percent. Transportation companies, hard pressed to meet demands, plan large increases in spending. Airlines, railroads, and trucking companies are buying equipment at such a rate that suppliers are operating at full capacity with backlogs stretching months, in some cases years, into the future.

Output of equipment and components is especially important to the Seventh Federal Reserve District states. With 15 percent of the country's population, the five states of the district—Illinois, Indiana, Iowa, Michigan, and Wisconsin—produce almost a third of the producer equipment. Demand this year has been especially strong for equipment produced in the district for construction, earth-moving, transportation (heavy trucks, trailers, freight cars, and locomotives), agriculture, material handling, machine tools, and electrical and mechanical controls.

Strength in orders for cutting-type machine tools, also important in the district, is particularly significant. These are the machines that make machines. Through September, new orders were running 52 per-

## New orders for capital goods have outpaced shipments



cent higher than a year earlier. Shipments were up 40 percent. The order backlog on October 1, at \$2.6 billion, was 55 percent higher than a year before. Earlier this year, orders for cutting-type machine tools were dominated by the motor vehicle industry. More recently, however, strength has been widespread, covering most industries that produce equipment and components for both producers and consumers.

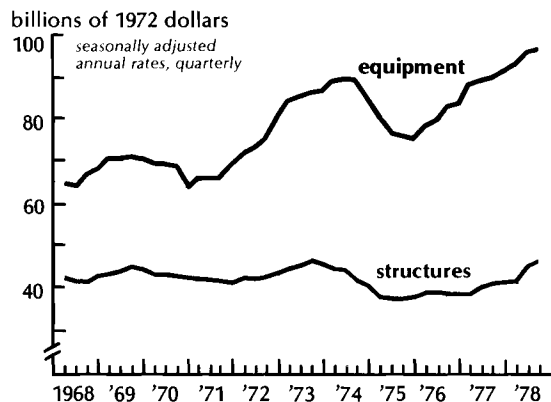
### Equipment and structures

Equipment accounted for 66 percent of business capital spending last year. The rest went for structures. Early in the decade, the ratio was 62:38. Twenty years ago, it was about 60:40.

Adjusted for inflation, the trend toward equipment is even more pronounced. In constant dollars (1972 prices equal to 100), the ratio last year was 69:31. It was 61:39 in the early seventies. Twenty years ago, it was 55:45.

Several factors are reflected in the growing emphasis on equipment over buildings. One is that modernization projects are usually made up mostly of equipment. The same is true for environmental projects. Construction outlays are usually aimed more at basic expansion. But the sluggishness of spending on new structures also reflects overbuilding of office and retail facilities during the heyday of the REITs in the late sixties and early seventies.

### Business equipment outlays surge while structures lag



Adjusted for inflation, outlays on equipment declined 17 percent during the recession, dropping from a peak rate in the second and third quarters of 1974 to the trough in the fourth quarter of 1975. By the third quarter of 1978, they were up 28 percent from the trough and 7 percent from the 1974 peak.

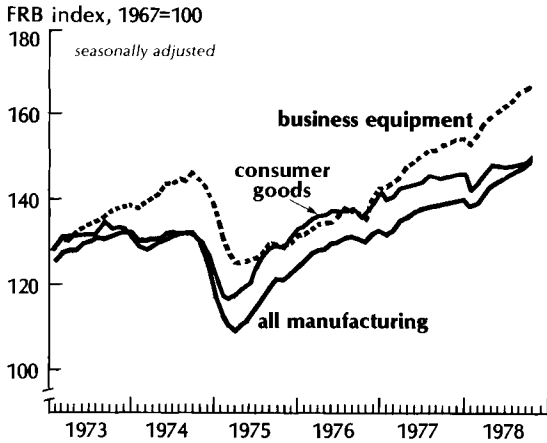
Outlays on structures peaked earlier in the last cycle than spending on equipment. From a high in the third quarter of 1973, spending on structures (again adjusted for inflation) declined 21 percent to the 1975 low. It rose slowly in 1976 and 1977, and at a faster pace this year. In the third quarter, outlays for business construction were running 23 percent higher than at the trough of the recession. But they were still 3 percent less than at the peak in 1973. The volume of construction contracts suggests that the new highs in business construction may be reached late this year or early next year.

### Equipment output soars

The index of industrial production prepared by the Federal Reserve Board provides a broad measure of output. Being in physical terms, it does not have to be adjusted for inflation. Component series of the index are aggregated into market groupings, one of which is business equipment. This category, which accounts for 13 percent of all industrial production, includes all types of producer equipment used by farms, factories, offices, construction, transportation, and utilities. Unlike the Commerce series on outlays, the business equipment index includes output destined for export, an important segment of the output of some types of equipment. Also reflected in this series are changes in manufacturers' inventories, both of goods in process and finished products.

Equipment output was strong in 1974, right up to the sharp downturn that began in October. Even then, production of equipment did not fall off as much as most manufacturing. The index shows production of business equipment at 147 (1967=100) in September 1974, compared with an average of 132 for all manufacturing. By March 1975,

## Gain in equipment output has left consumer goods far behind



output of business equipment had fallen 14 percent, but total manufacturing was down 17 percent. In most recessions, business equipment output has declined more than other manufacturing, often much more. Moreover, instead of lagging the general upswing as had been typical, business equipment output began picking up again in 1975, almost simultaneously with other manufacturing.

Equipment manufacturing recovered more slowly than total manufacturing in 1975 and 1976, but it has been rising faster for the past two years. In September 1978, business equipment output was 9.3 percent higher than a year before. Total manufacturing was up 6.6 percent. Output of business equipment was 13.4 percent higher than at its 1974 peak. Manufacturing was 12.2 percent higher. This is a striking performance. Until October 1974, equipment manufacturers were hard pressed to meet demand.

The surge in equipment output since 1976 has attracted less attention than the surge of 1973 and 1974. This may be because most producers have been able to expand output more in line with demand. In 1973 and 1974, *everything* was in short supply. Bottlenecks held up the production of components, like engines, transmissions, and axles. Since then, manufacturers have expanded capacity to produce these types of com-

ponents, eliminating many of the earlier bottlenecks and alleviating others. The biggest constraint in recent months has been supplies of large and special castings, a development that reflects the closing of many small foundries that did not meet pollution standards.

## Inflation and investment

Business has been getting less for its capital spending dollars. Changes in quality always present a problem in comparing price developments. This is particularly true of producer equipment. Every new line of producer equipment incorporates new and often radically different features. To a lesser extent, comparisons of construction costs also present problems. Despite these limitations, it seems clear that prices of plant and equipment, as estimated by the Department of Commerce, have been increasing faster than the general price level.

	Total GNP	Business fixed investment	Structures	Equipment
	(percent increase in average prices)			
1957-72	+54	+41	+55	+33
1972-77	+42	+47	+60	+41

From 1957 to 1972, the general price level, measured by the GNP deflator, rose faster than the average prices of equipment and structures. From 1972 through 1977, however, prices of structures and equipment rose faster than prices generally. Prices of structures and equipment rose more during these last five years than in the previous 15 years. Construction costs rose faster than equipment prices throughout this 20-year period, the difference reflecting not only the rapid rise in costs of construction labor and materials but also higher costs of complying with regulations. Productivity performance in construction has compared poorly with other activities.

Prices of plant and equipment this year will probably average about 7.5 percent

higher than last year. Most analysts expect a similar or larger increase next year. Such increases would be about in line with increases expected for prices in general.

Unfortunately, higher prices for labor and materials are not the only factors causing increases in the final cost of particular projects, which sometimes far exceed original estimates approved by corporate managements. Delays and modifications required by government decrees have frequently been a major factor.

### Regulatory compliance

Companies have spent over \$38 billion since 1972 on facilities to “abate and control” air, water, and solid waste pollution. This accounts for over 5 percent of all their spending on plant and equipment. Most of this spending has been to bring into compliance with the Clean Air Act and the Water Pollution Control Act. For some industries, such as primary metals, paper, chemicals, petroleum refining, and electric utilities, the proportion of P&E spending for pollution has been much higher, ranging up to 16 percent.

Although the proportion of spending on plant and equipment for pollution control continues to rise, the rate of rise has slowed.

Some industries, having come a long way toward compliance with regulatory deadlines, have been able to reduce their spending.

The total cost of pollution control remains uncertain. Data on pollution expenditures do not include outlays to redesign and tool up for new products, especially vehicles, that meet emission and fuel economy standards. Nor do they include the often substantial costs of operating the equipment. And finally, there is no accounting for facilities that were closed because of the costs of meeting standards. Compliance considerations may be only one of several factors leading to decisions to close older facilities.

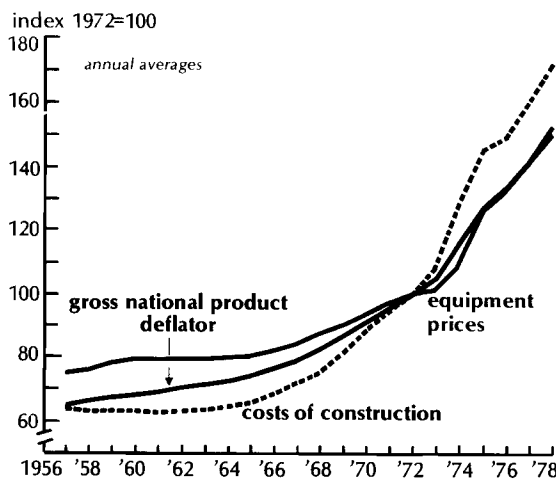
New rules for abatement of pollution are under study at state and federal levels. A continuing argument rages over the proposed installation of “scrubbers” at coal-fired electronic generating plants to reduce sulfur dioxide emissions. Some experts contend that scrubbers may cost billions and still not operate effectively.

Large sums have been spent on complying with state and federal laws to protect health and safety, control toxic substances, reduce noise, protect endangered species, and maintain or restore scenic areas. No data on these costs are available.

Another unquantified cost has involved postponements and cancellations of projects as a result of litigation, public and private. Some of the most spectacular examples relate to nuclear power plants, pipelines, metal processing plants, oil refineries, chemical complexes, highways, airports, dams, and harbor facilities. Local zoning authorities often reject proposed projects, citing the limitations of water, sewerage, and utility facilities—or simply to slow growth in the area.

Some executives say that regulations in themselves are less of a problem than uncertainties related to shifting policies and conflicts among regulatory bodies. If mandated restrictions on new projects were clarified, eased, or expedited, a heavy volume of postponed investments would doubtless be activated.

### Costs of new business structures have soared



There can be no question that many of the restrictions on the operation and development of facilities are long overdue. But it should also be recognized that untold billions—some suggest a round figure of a trillion dollars—will be needed to achieve announced goals for the next decade.

### **Energy needs**

Fuel prices have increased two, three, and four times in the past five or six years. There are various reasons: the OPEC oil cartel, the depletion of readily available domestic oil and gas reserves, restrictions on the use of high sulphur coal and oil, closings of older underground coal mines, and opposition to the development of new coal mines, nuclear plants, and pipelines.

Costs of facilities to provide new sources of energy have increased apace with the price of fuel. Huge outlays have been made to bring oil from the North Slope and from fields offshore and to produce synthetic natural gas (SNG). Large investments, still unproductive, have been made to extract oil from shale and gas from coal. Outlays on solar energy, fast breeder reactors, and other unconventional sources are still written off as research and development.

Conservation of energy involves large expenditures that would not have been undertaken in the days of cheap fuel. Examples include additional insulation, redesign or replacement of equipment, and conversions from oil or gas to coal—sometimes reversing changes made only a few years ago. Airlines have found that fuel costs alone can justify the replacement of aircraft. The auto industry is in the midst of a vast program to build cars and trucks that use fuel more economically. Nearly all the capital outlays of the auto industry in recent years can be traced to efforts to decrease emissions and to improve fuel economy.

As in the case of regulation, businessmen complain of uncertainties in government energy policy. New plants are usually designed to use particular fuels, and related decisions must be made early in the planning

process. Mandatory curtailment of supplies may mean plant shutdowns or emergency conversions, similar to those required during the natural gas crisis in January 1977.

### **Capacity limitations**

Government could induce business to step up its capital spending to some extent by increasing the investment tax credit, lowering tax rates, or liberalizing depreciation methods for income-tax purposes. The main limitation, however, is not funding but physical capacity. This reflects an inadequate level of capital investment in the past decade, especially in industries producing basic materials.

Estimates of utilization rates of manufacturing capacity suggest a significant margin of unused resources. Federal Reserve Board data show manufacturing as a whole operating at about 85 percent of capacity. Operating rates for broad industry groups are about the same.

The experience has been that an overall operating rate of 88 percent is close to *practical* capacity. Overall rates of utilization, however, are of little use in analyzing the potentials of specific industries.

For several months, for example, there has been a serious shortage of cement. Users have been put on allocation. Prices have increased sharply. Many projects are being delayed by the shortage.

There are several reasons for the cement shortage: the high rate of consumption, strikes that slowed production, closings of obsolete plants, and transportation costs that have kept cement from moving from areas of excess supply to areas of scarcity.

Some equipment producing industries are operating at maximum rates. Included are industries producing heavy trucks, aircraft, freight cars, and locomotives—all reflecting the heavy use of existing transportation equipment. If transportation facilities are fully utilized, a lid is placed on the whole economy.

Other basic industries operating at practical capacity are those producing machine

tools, construction equipment, gypsum board, insulation, lumber, petroleum products, and some aluminum and steel products. In addition to castings, cobalt and molybdenum are in short supply. Both these elements are needed in steel alloys used mainly in capital equipment.

More oil products and steel could be imported, but at the cost of additional deficits in the balance of trade. At current levels of economic activity, the country must import over 40 percent of its oil and perhaps 10 percent of its steel. At least half of various essential minerals are imported, and all of some.

Equipment industries are short of skilled workers, especially in the metalworking trades. Without adequate reserves of both workers and experienced managers, industries cannot go into additional shifts. The skilled worker shortage cannot be alleviated rapidly because proper training of apprentices takes years.

### **No easy solutions**

Although business capital spending has increased rapidly in the past three years, assurance of a comfortable and prosperous future depends on substantial further growth in these investments. Needed especially are renovations and expansions in the basic industries: steel, aluminum, electric power, minerals of all types, oil and gas, and coal. Often new large-scale facilities take three,

four, or more years from conception to completion—a span often lengthened nowadays by regulatory processes.

A substantial part of capital spending now is required to meet social rather than economic objectives, to conserve energy, and expand sources of fuel. For that reason, there is little use comparing the current proportion of capital spending to GNP with peak proportions of the past. Even higher levels are needed.

A McGraw-Hill preliminary survey released in November indicates capital spending will increase 10 percent in 1979, but only 2 percent in real terms. Realization of even such an inadequate rise will probably depend on a further expansion of the general economy. Either a recession (predicted by some analysts) or additional increases in interest rates (associated with reduced availability of credit) would cause spending plans of some companies to be postponed or scaled down. Fears that arbitrary wage and price rules may be mandated by the government also increase uncertainties and, therefore, the risks of financial loss.

Investment activity is limited more in late 1978 by availability of men and materials than by availability of funds. Partly reflected in these limitations are the demands placed on resources by consumers and governments. Investment in plant and equipment requires that current consumption be limited to provide the means for increasing consumption in the future.