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U.S. Investment in the 1980s: The Real Story

A CENTRAL proposition of conventional analyses of fiscal policy in this decade has been that unprecedented federal budget deficits have crowded out domestic investment, especially business investment. In this view, the Reagan administration did not achieve one of its central goals: to raise investment, productivity and growth. Instead, investment has been seriously eroded, and the burgeoning foreign claims on this nation's future income will confront a smaller capacity to generate that income than would otherwise have occurred. Professor Benjamin Friedman sums up this view of recent fiscal policy, arguing that it violates "the basic moral principle that had bound each generation of Americans to the next since the founding of the republic: that men and women should work and eat, earn and spend, both privately and collectively, so that their children and their children's children would inherit a better world."¹

An opposing view of fiscal policy argues that business investment was boosted substantially by the incentives adopted early in this decade.

In this view, the rise in both interest rates and the value of the dollar in the early 1980s were reflections of the unusual strength of U.S. investment and the associated reallocation of world capital stocks and income toward the United States.²

This article provides a critical perspective on the conventional view of domestic investment in this decade. Although there are measures of investment that suggest that it was depressed, this article will show that these measures have crucial limitations. A closer inspection will show that domestic investment and capital formation have been relatively strong, especially from 1980 to 1985.

INVESTMENT AND SAVING IN THE NATIONAL INCOME ACCOUNTS

Understanding the relationships among domestic investment, the government's budget position

¹Benjamin Friedman (1988), p. 4. Some of the other popular proponents of the conventional view include Business Week (1987) and (1988), Cooper (1986), Frankel (1986), Benjamin Friedman (1986), Jonas (1986), Kennedy (1987), Modigliani (1988), Peterson (1987) and Summers (1987).

²See Milton Friedman (1988), Reynolds (1989), Poole (1988), Tatom (1985), (1988) and Sinn (1988). The link be-

tween the reallocation of U.S. investment abroad to domestic investment, the nominal supply of dollars for international transactions and movements in the exchange value of the dollar are detailed more fully in Tatom (1986) and (1987a).

and the nation's foreign transactions can be facilitated by considering some national income and product account (NIPA) identities. Investment refers to purchases of durable goods that are used to produce future goods and services, such as business plant, equipment and inventory purchases and new housing. The accumulation of such real assets through investment has to be financed and the source of such financing is saving, the portion of income that is not spent on current consumption.³

In the NIPA, one way to measure gross national product or the nation's gross income is to add up expenditures or purchases of final goods and services. The principal types of such purchases of domestic products are personal consumption and housing purchases by households, purchases by businesses, government (G) or export sales to foreigners (X). Business purchases include investment in plant, equipment and inventory changes; business investment spending and residential investment comprise gross private domestic investment (I). Another way of measuring income is to add up the components of income according to what households do with it: pay taxes (T), save (S), or spend on consumption of domestic product or foreign imports (M).

Since consumer purchases appear in both expenditures and income, they cancel each other out when these two approaches are compared; the remaining components of purchases (I + G + X), by definition, must equal the remaining uses of income (T + S + M). Such an identity is written as:

$$(1) I + G + X \equiv T + S + M.$$

This identity can be rewritten in a couple of useful ways. The first way focuses on the government budget and trade deficits and the gap between domestic saving and investment. The budget deficit (BD) is the excess of government spending over receipts, which equals (G-T) above.⁴ The trade deficit (TD) is the excess of

imports of goods and services over exports, or (M-X) above. The identity can be rearranged by subtracting T, X, and I from both sides, and substituting the definitions of the deficits to obtain

$$(2) BD \equiv TD + (S-I).$$

This identity shows the relationships of three gaps: the government budget deficit, the trade deficit and the gap between private domestic saving and investment. A government budget deficit must be financed by an excess of private domestic saving over investment or by a trade deficit.

The nation's trade deficit represents a net credit flow from foreigners, or asset accumulation by foreigners in the form of loans or equity holdings in the United States. The trade surplus is called "net foreign investment" by the United States in the NIPA accounts. When it is negative, it represents an inflow into the United States, so the trade deficit can be called "net foreign saving" (NFS).⁵

By rearranging identity 2, we can obtain an identity of saving and investment, which shows that saving used to finance private domestic investment can come from private domestic sources (S), the government sector (government saving, or -BD) or foreign savers (NFS). Viewed this way, the identity emphasizes that changes in investment must reflect similar changes in saving. Movements in the budget deficit or domestic investment relative to domestic saving have counterparts in the trade deficit.

THE CONVENTIONAL VIEW OF INVESTMENT IN THE 1980s: AN EMPHASIS ON CROWDING OUT

A rise in the budget deficit (BD) due to increased spending or decreased taxes must change the right-hand side of identity 2 by an

³Purchases of consumer durable goods (like automobiles, furniture and appliances) also involve investment and saving, but in the NIPA account such purchases are treated as consumption. Reynolds (1989) includes such purchases in investment and argues that U.S. investment was unusually strong in the early 1980s. Like his findings, the results below would be reinforced if the unconsumed share of consumer durable purchases were included in investment and saving.

⁴Only purchases are included in G, but T is measured net of transfer payments. Thus, the difference, (G-T),

measures the excess of government spending over receipts, or the budget deficit.

⁵When the United States has a trade deficit and, simultaneously, the rest of the world has a balanced government budget, then the rest of the world must be saving more than its domestic investment, and this excess foreign saving equals the NFS of the United States.

equal amount. The financing of the deficit requires either increased domestic saving, S , reduced domestic investment, I , or increased foreign saving (which means a larger trade deficit, TD). Generally, the budget deficit must "crowd out" spending elsewhere by reducing exports (TD must rise), domestic consumption spending (S must rise) or domestic investment (I must fall). The conventional view emphasizes the crowding out of domestic investment.

Developments in the 1980s, however, indicate that the foreign sector cannot be ignored. The trade deficit has risen sharply in the 1980s, reducing the downward pressure on investment expected in the conventional analysis. To maintain and service this rise in net borrowing from abroad, a future flow of U.S. income has been promised to foreign savers. Thus, a budget deficit mortgages the future U.S. standard of living either by reducing the capital stock and future income or by reducing the amount of future output that can be consumed domestically, or both.

A SUPPLY-SIDE VIEW: TAX INCENTIVES FOR INVESTMENT

The alternative view does not focus on the budget deficit as either the principal influence on investment or the most significant macroeconomic change in the 1980s. It focuses instead on tax changes early in the decade that increased investment incentives and investment, especially its business component. The supply-side view argues that such tax law changes raise the optimal capital stock, temporarily raising investment, despite any indirect effects that these tax incentives may have on the budget deficit or interest rates.⁶

Actions like those adopted in the early 1980s that provide generous new tax credits for investment or accelerate depreciation will hasten the replacement of obsolete plant and equipment and make possible the purchase of new

facilities that otherwise might not have been considered. Moreover, as investment demand rises, the demand for funds to finance it increases as well. Firms compete with each other to attract investment financing by bidding up returns on both equity and debt instruments.

The cost of capital to firms, including market interest rates, rises as firms expand investment, but by less than the value of the new investment incentives; net of these tax benefits, the cost of capital falls. The net cost of capital rises for firms that do not have access to these incentives, however, including foreign firms operating abroad. Thus, these changes in market rates of return and the cost of capital result in a reallocation of capital and production among nations, expanding domestic investment in the United States and lowering it abroad.⁷

Similarly, when such investment incentives are reduced, the optimal domestic capital stock declines and the movements in investment, both domestically and abroad, are reversed. To the extent that the Tax Reform Act of 1986 reversed the earlier incentives, the optimal capital stock and the pace of domestic investment declined, despite any positive effects arising from movements in the budget deficit and interest rates.⁸

THE GOVERNMENT DEFICIT, SAVING AND INVESTMENT: THE RECORD

Figure 1 shows the total government deficit and net foreign saving measured as shares of nominal GNP.⁹ These measures correspond to two of the gaps in identity 2 above, measured as shares of nominal GNP. As the figure shows, budget deficits, especially the federal deficit, are strongly cyclical; the share of tax receipts tends to fall while the share of spending, especially unemployment compensation, rises during the shaded recession periods. Similarly, cyclical in-

⁶There are a variety of arguments that suggest that deficits do not affect investment via the conventional mechanism, but they are not the central issue in the investment debate. Tatom (1985) discusses the effects of budget deficits on economic activity. In addition, it is arguable whether tax law changes in the early 1980s raised the observed budget deficit; instead, these changes mainly offset other tax increases. See Tatom (1984) and Meyer (1983).

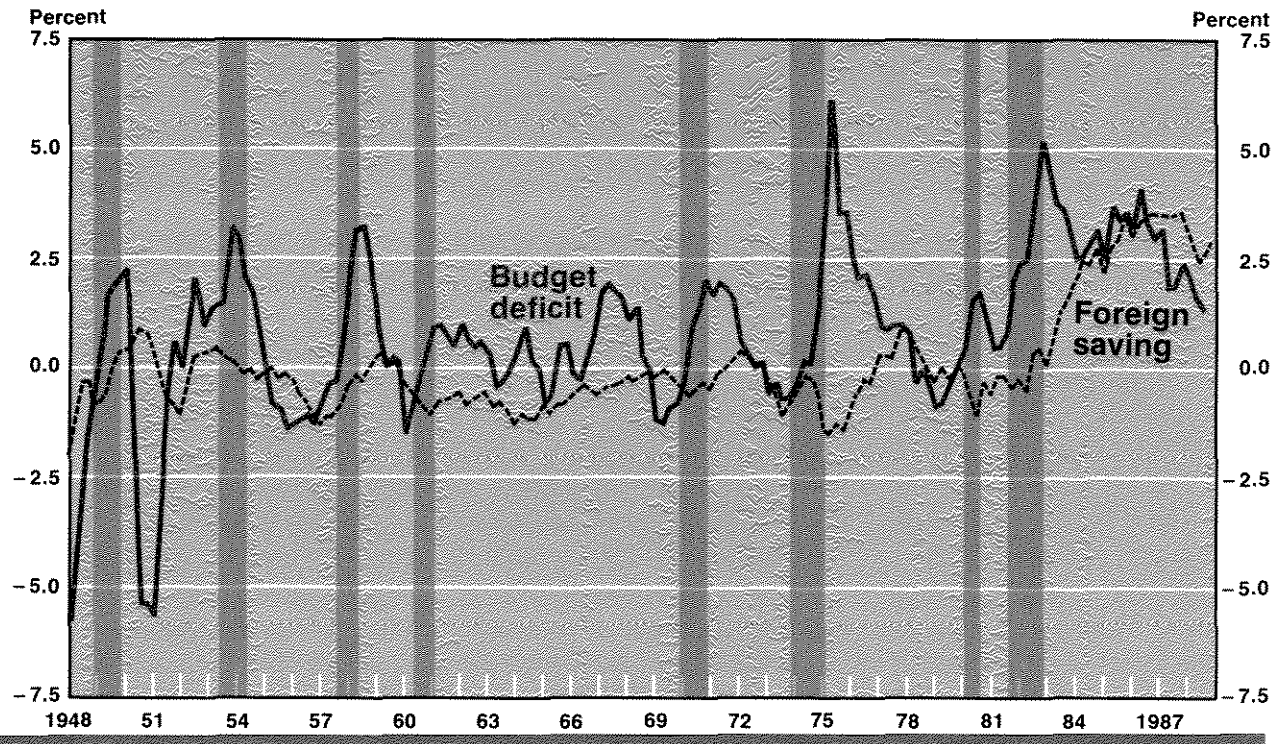
⁷Tatom (1986), (1987a), shows that movements in the value of the dollar were associated with changes in the U.S.

supply of dollars for international asset purchases consequent to changes in investment incentives.

⁸U.S. investment abroad would also be expected to rise, as in fact, it did. See Tatom (1987a).

⁹State and local governments have run budget surpluses in the 1970s and 1980s, so the total government deficit share has been smaller than that of the federal government since 1970. Before 1970, state and local government budgets were more nearly in balance, so there is little difference in the two deficit shares before then.

Figure 1
Government Budget Deficit and Foreign Saving
as Shares of GNP



creases in income and reductions in unemployment raise the share of tax receipts, while reducing the government spending share somewhat. Thus, periods of business recession coincide with periods of relatively large deficits.

Net foreign saving has been quite small historically and, until this decade, was generally negative; that is, on average, U.S. residents were net investors abroad. Also, such foreign saving did not exhibit much variation until the 1980s. As figure 1 indicates, the recent rise in the government deficit was matched, in part, by a rise in the U.S. trade deficit or net foreign saving.¹⁰

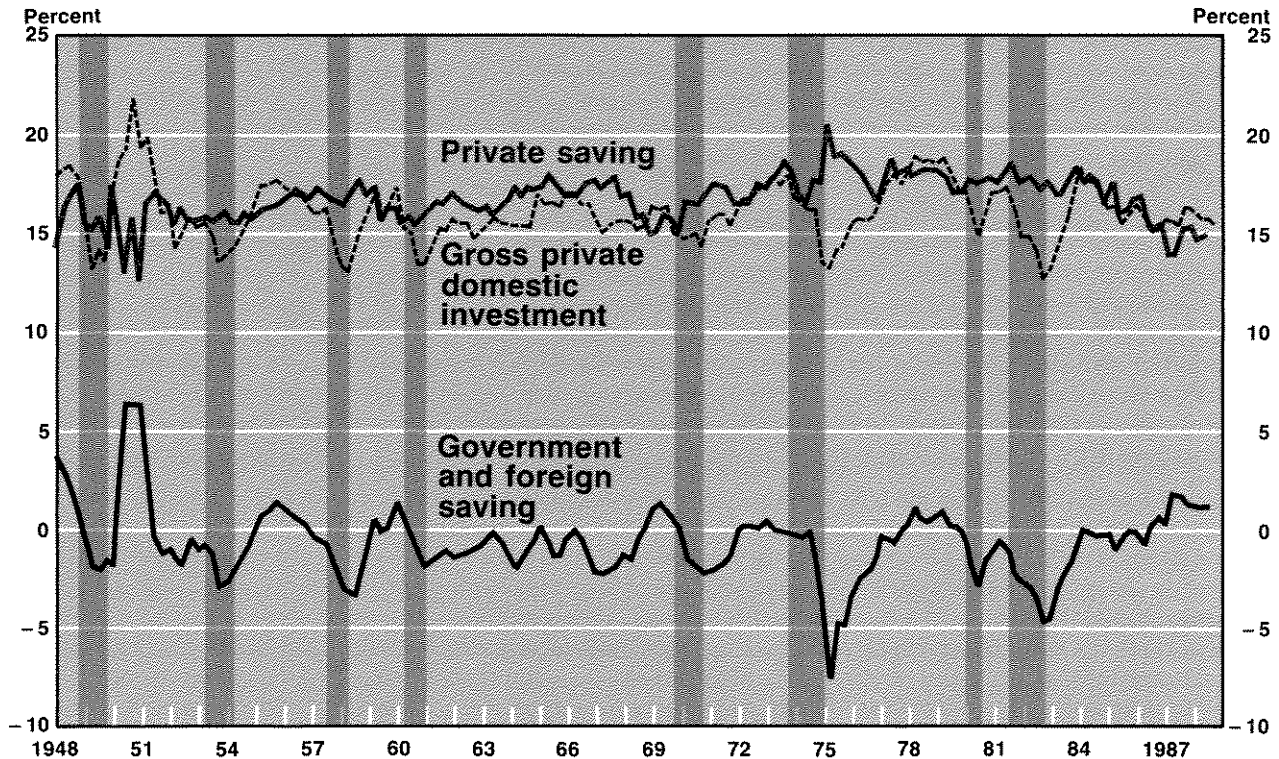
Figure 2 summarizes the net relationship of the government budget deficit and trade deficit to total domestic investment and the composition of its financing. The total of government

and foreign saving is shown in the figure, along with private saving and gross private domestic investment; all three are measured as shares of nominal GNP. The rise in the government budget deficit in the early 1980s and its subsequent reduction dominate the movement in the total of government and foreign saving; this ratio falls sharply in 1981-82 and then recovers somewhat. This total share rises quite sharply in 1986-88, as tax increases associated with federal tax reform, especially on income from capital, reduced the budget deficit and reduced U.S. investment incentives; the reduction in the budget deficit exceeded the associated reduction in net foreign saving. The private saving rate, which often moves inversely with the budget deficit share, is unusually high in the early 1980s, but falls beginning in 1985 and reaches

¹⁰One of the simple confusions that arises from NIPA terminology is that the net foreign saving rise was actually associated with a reduction in U.S. investment abroad, not a rise in foreign investment in the United States. This accounts for the movements in the flow and value of the

dollar in international exchange. Moreover, it means that the rise in foreign saving was really a reallocation of U.S. investment spending from foreign to domestic uses. See also Boskin and Gale (1986), Ohmae (1988) and Tatom (1986), (1987a).

Figure 2
Saving and Investment as Shares of GNP



about 15 percent, near the lowest level shown, in 1987-88.¹¹

The share of gross private domestic investment is also strongly cyclical: housing purchases and new plant, equipment, and inventory purchases fall relatively more than income when sales are falling and unemployment is rising. Similarly, as sales growth and employment expand cyclically, such investment purchases rise faster than income. The 1980 and 1981-82 declines in the investment share are associated with recessions. At its peaks in 1980-81 and

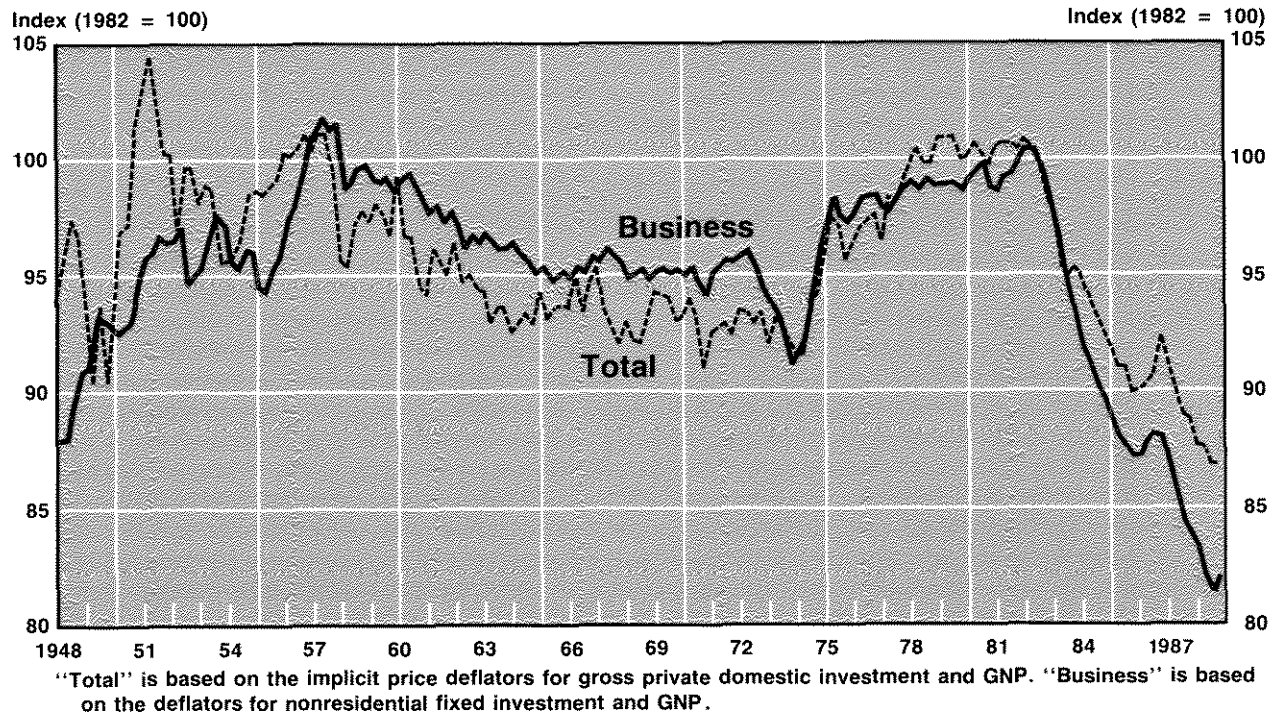
1984, the share of gross private domestic investment in GNP exceeded 17 percent. This proportion compares favorably with those at earlier peaks in 1948, 1955-56 and 1972-73, but was exceeded from 1977 to 1979 and in the 1950 cyclical recovery. Gross private domestic investment generally does not exhibit unusual strength as a share of GNP in the 1980s when compared with its earlier performance; moreover, like the private saving rate, it falls off from 1985 to 1988, although not to historically record lows.¹²

¹¹An explanation for this relationship is provided in Barro (1974), Kormendi (1983), Aschauer (1985) and Tatom (1985), among others.

¹²Modigliani (1988) takes another approach to the effects of the budget deficit. He credits administration policies with substantially raising the growth of real personal disposable income per capita (and consumption), but argues that this is transitory or illusory because it arose from unsustainably

low taxes or high national borrowing. In fact, however, from 1980 to 1987, personal disposable income rose 67.3 percent, essentially the same as the 66.9 percent rise in national income. Moreover, the tax wedge in their difference rose 71.9 percent, so that taxes actually depressed per capita disposable income and consumption growth over the period.

Figure 3
Relative Price of Total and Business Fixed Investment Goods



Other factors besides the business cycle influence investment, and these could account for the apparent lackluster recent performance of the investment share shown in figure 2. Major changes in business taxes or other costs associated with housing, plant, equipment or inventory will influence investment. For example, when business investment tax credits were suspended in 1966-67 and 1969-71, sharp declines in the investment share followed. Similarly, the 1986 decline was related, in part, to the end of the investment tax credit in 1986. Another key factor has been the cost of operating plant,

housing, and especially equipment. In 1974 and 1979, oil prices doubled, substantially raising the cost of operating plant and equipment. Not surprisingly, investment fell sharply relative to GNP both times.¹³

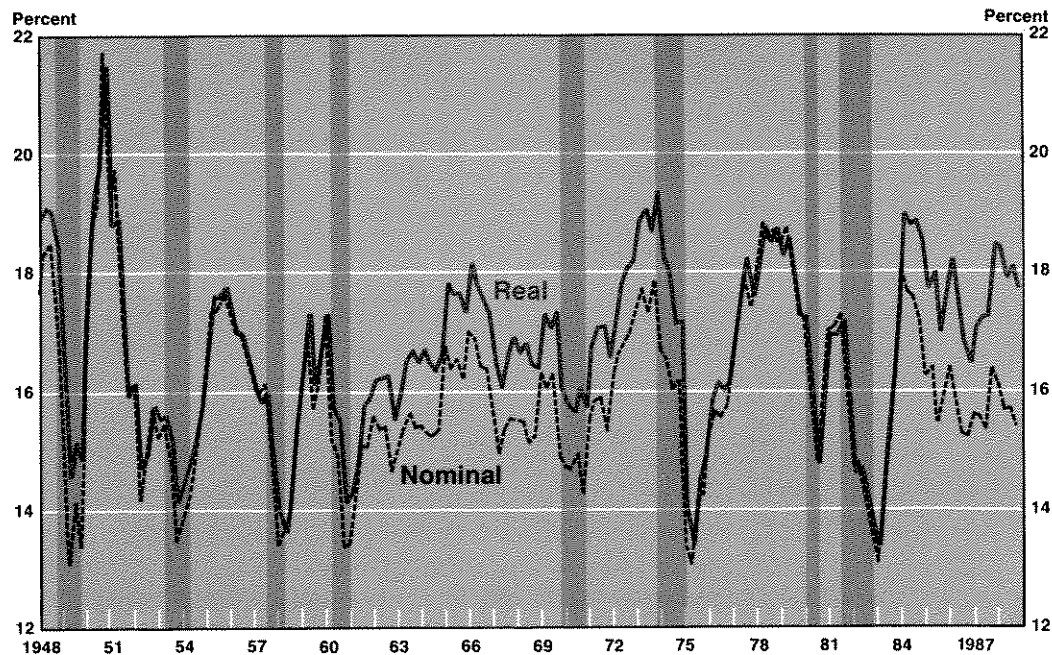
RELATIVE PRICES AND REAL INVESTMENT

Another factor that influences the investment share is the relative price of investment goods. Total spending on investment or other goods in-

¹³Energy-related investment is positively related to unexpected changes in the relative price of oil and energy. Thus, the decline in investment in 1986 could be attributed to a decline in such prices. When investment in petroleum and natural gas exploration shafts and wells, mining and oil field machinery, and public utility gas and petroleum

pipelines are excluded from the investment share, the pattern shown in figure 2 and in figures 4 and 5 below remains the same. This is not surprising since the dominant effect on aggregate investment is typically the opposite to that in the energy-related sector. See Tatom (1979a,b) for example.

Figure 4
**Nominal and Real Gross Private Domestic Investment
 as Shares of GNP**



cludes both a price and a quantity component; similarly, the investment share is the product of the relative price of investment goods and the quantity of such goods relative to real GNP. Gross private domestic investment equals the price (P_I) times the quantity or real investment, R ; similarly, the index for the price of the nation's output (P) times the measure of the quantity of GNP, called real GNP (X), equals nominal GNP. Thus, the share of nominal investment is ($P_I R / P X$) or the product of the relative price (P_I / P) and the real share of investment (R / X). As a result, the movements in the nominal share in figure 2 are only representative of real investment activity when the relative price of such goods is unchanged or changes little.

The relative price of investment goods has fallen sharply in the 1980s, however. As figure 3 shows, the relative price of all investment

goods declined about 15 percent from 1980 to 1988; for business plant and equipment, the decline was about 17 percent. Prices generally rose 41 percent over the period according to the GNP deflator, but the deflator for gross private domestic investment goods rose only about 23 percent and that for business fixed investment rose only about 18 percent.¹⁴ When the relative price falls, the share of spending declines proportionately unless the real share of spending increases. Since the nominal share of investment did not plummet in the 1980s, the real share of investment must have risen.

The Share of Real Investment Rose in the 1980s. . .

Figure 4 shows the nominal and real share of investment in nominal GNP and real GNP, re-

¹⁴The unusual decline in the relative price of investment goods could arise because of measurement errors. Such a suspicion recently has arisen for computer equipment, for example. Declining computer prices have produced an unusually large decrease for the nonelectric equipment industry, but other equipment producers, like electric equipment and transportation equipment, also show unusual decreases in their relative price. See Tatom (1988).

The reason for the decline in the price of investment goods is beyond the scope of this article, but the decline is relatively greater for internationally-traded goods like equipment than it is for structures. It is most easily tied to an unusual rise in productivity in the U.S. traded goods sector (see Tatom 1988) and to a sharp decline in the growth of world trade. The latter was associated, at least in part, with the dramatic decline in world oil trade.

spectively. The performance of the real share indicates that investment in the 1980s was unusually strong and that it was associated with the unusual decline in the relative price of investment goods. Indeed, there have been few periods when real investment was as large a share of real GNP as it was in 1984-88. In these earlier periods, however, the unemployment rate was substantially lower than recently and measures of capacity utilization were much higher. Adjusted for this cyclical difference, the real investment share in the 1980s was unprecedented in the post-World War II era.¹⁵

... Especially for Business Plant and Equipment

The controversy over investment's strength typically focuses on business fixed investment, not total investment. Movements in inventory or residential fixed investment could account for the favorable conclusion from figure 4. Figure 5 shows the share of real nonresidential fixed investment in real GNP and its cyclically-adjusted counterpart.¹⁶ The case for relatively strong investment is even stronger in figure 5. Despite the energy price and recession-induced declines in the share, the 1986-87 tax-reform-related decline, and the generally poorer cyclical performance of the economy in the 1980s, the real business fixed investment share has been quite strong relative to its history.¹⁷ At its lowest level in 1982, it was generally as high as it had been at most previous business cycle peaks.

¹⁵The share of real gross private domestic investment in real GNP was 19.6 percent in 1929; from 1930 to 1948, it was usually in single digits, but it exceeded 15 percent in 1930 (15.2 percent), 1941 (15.3 percent), and in 1946-48 (16.2 percent, 16.7 percent, 18.8 percent, respectively). In 1984, the share equaled that in 1948, the second highest level in 60 years. In 1929 and 1948, however, cyclical factors strongly boosted investment; unemployment was 3.2 percent of the civilian labor force in 1929 and 3.8 percent in 1948. In 1984 and 1985, the unemployment rate exceeded 7 percent.

Real business fixed investment in real GNP was 13.1 percent in 1929 and 12 percent in 1930. The share did not reach a double-digit level again until 1947-48 when it was about 11.5 percent. This pace was not exceeded until 1978, when it reached 11.6 percent. The 1978 share has been equaled or exceeded each year since then, except in 1983 when the share was 11 percent. The 1985 share of 12.5 percent was the modern peak.

¹⁶The cyclically adjusted share is based on a regression of changes in the logarithm of the actual share on current and four significant past changes in the logarithm of the manufacturing capacity utilization rate for the period III/1949 to III/1988. This regression has an adjusted R^2 of 0.39, a standard error of 7.76 percent, and a Durbin-Watson statistic of 1.89. The regression indicates that a 1 percent rise in the utilization rate raises the share of such

The cyclically-adjusted share indicates the recent strength quite clearly. This share surged to record levels when the 1981 tax act was passed in the third quarter of 1981 and remained there until tax reform began to reduce business investment incentives in the first quarter of 1986. This share has rebounded somewhat since its trough in the first quarter of 1987.

THE GROSS VS. NET INVESTMENT CONTROVERSY

One counter argument to the strength of domestic investment or its business component is that such spending has been boosted by an accelerated pace of obsolescence. The increased obsolescence is associated with an increasingly shorter-lived capital stock that is of lower quality. According to this argument, after subtracting depreciation, new investment has been depressed compared with its past performance.¹⁸

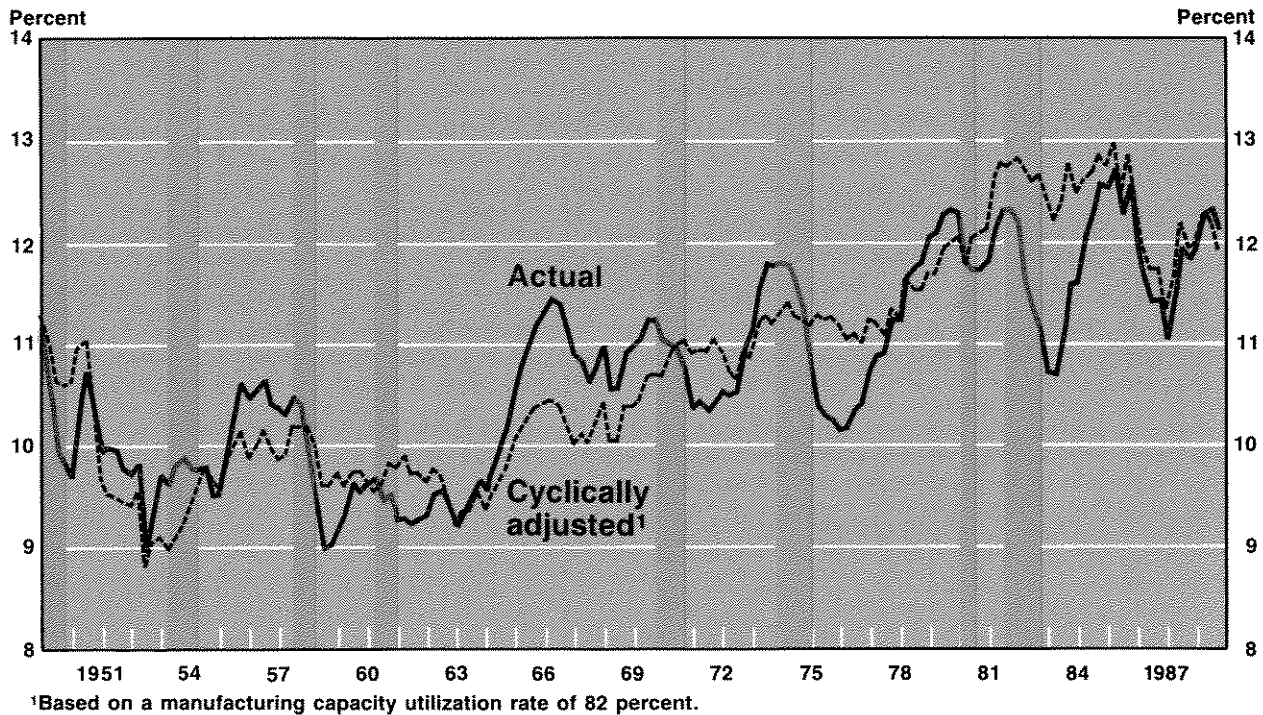
Figure 6 shows *net* nonresidential fixed investment as a share of GNP using both nominal and real measures. Again, relative price movements affect performance in this decade, but, either way, the net investment share appears relatively weak. Compared with a recent peak of about 4 percent in 1979, net investment declines to about 3½ percent in 1980-81, and then plummets. Except for a temporary recovery in 1984-85, the shares have been generally lower in this decade. In particular, net investment fell

investment by 0.9 percent. The adjusted share is computed on the basis of an 82 percent utilization rate, about the postwar average.

¹⁷The decline in the price of investment goods relative to the GNP deflator or, what is nearly the same, the price deflator for consumption goods and services, has the same implication for nominal saving rates as for investment rates. When the price of goods yielding future consumption services falls relative to current goods and services, a given saving rate out of nominal income implies a proportionately larger real saving rate. Thus, a given flow of future consumption can be obtained with a proportionately smaller share of saving in nominal GNP. Since the private saving rate (figure 2) did not decline as sharply, as the relative price of investment goods, the effective saving rate was relatively high, especially in 1982-85.

¹⁸The methods of estimating discard and obsolescence rates used in the national income and product accounts have not been altered since they were introduced in the late 1940s. Many analysts prefer the use of the unadjusted gross data because of the uncertain accuracy of depreciation data. See Denison (1979), for example. The Council of Economic Advisers (1989) discuss this distinction, pointing out the advantages of the gross measure.

Figure 5
Real Business Fixed Investment as a Share of GNP



to nearly its lowest recorded level following the tax reform act of 1986. Thus, the figure suggests that net investment was indeed quite weak in the 1980s, especially when nominal measures are used. The apparent weakness in the measures, however, is subject to the same qualifications as gross investment: the real measures are not as low and, adjusted for cyclical differences, the real net investment share was not depressed in the 1980s.¹⁹ Moreover, there are other reasons to doubt the validity of the apparent weakness of net investment.

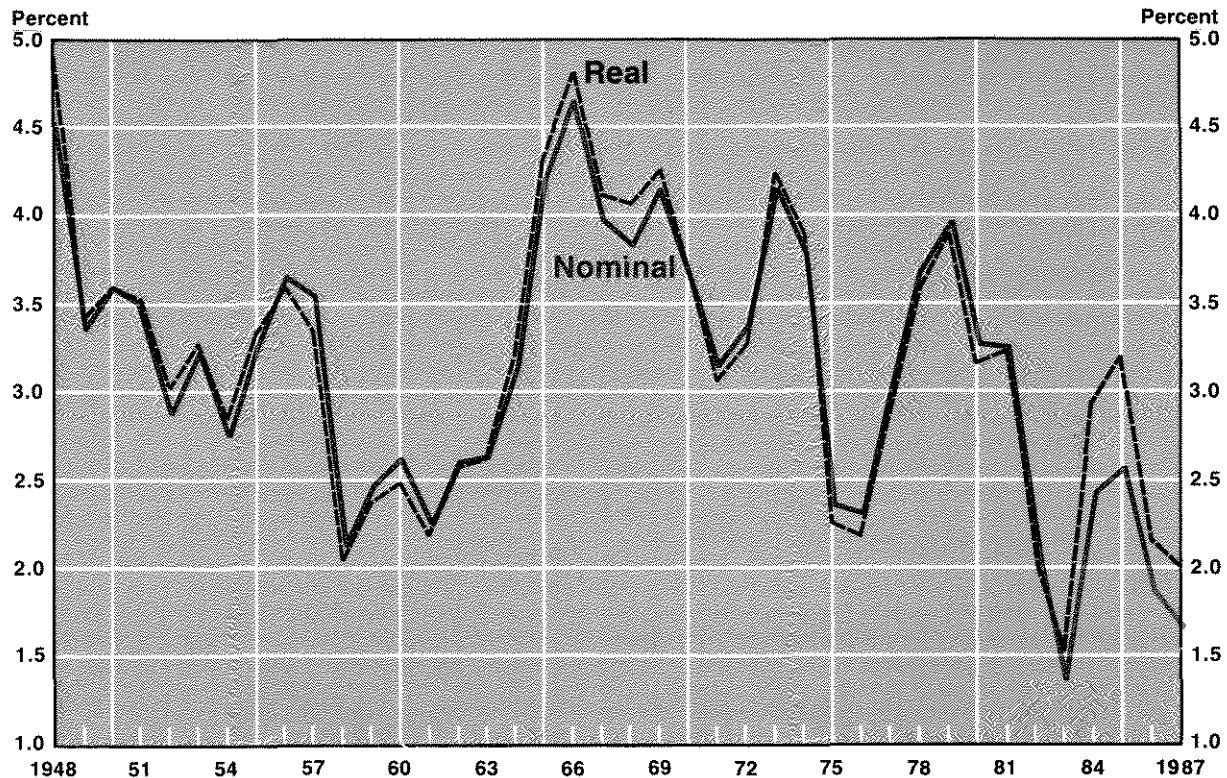
Did the capital stock become markedly shorter-lived in the 1980s, raising the rate of obsolescence of the given stock of business plant and equipment? One indicator of the

changing age of the capital stock is the mix of plant and equipment; equipment normally has a much shorter expected service life than structures do. The top panel of figure 7 shows a noteworthy shift in the mix of investment from 1980 to 1985. It was not a swing toward equipment, however. Instead, following the sharp upward trend that raised the share of equipment in total business fixed investment from about 51 percent in 1961 to 67 percent in 1978, the share declined, especially in 1981-82, then rose, but did not reach 67 percent again until 1985. Tax reform reduced the incentive to invest in structures relatively more than it did to purchase equipment. Thus, the equipment share surged to record highs in 1986-87. The bottom panel of figure 7 shows the depreciation rate

¹⁹The higher peaks of the net investment ratio in 1956-57, 1966, 1969, 1973 and 1979 than in 1981 and 1984-85 are due to cyclical differences noted above. The average manufacturing capacity utilization rate in those earlier years was 86.5 percent, significantly higher than the 79.6 percent average in 1981 and 1984-85. When adjustments

like those in footnote 16 are applied to quarterly data prepared by this Bank, the average real net business fixed investment share was sharply higher in these three years than the average for the six previous peak years listed above.

Figure 6
Net Business Fixed Investment as a Share of GNP



for the net stock of private nonresidential capital. This rate rose from about 9 percent of the net capital stock in 1980 to about 9.7 percent in 1984 and 1987. This rise reflects the pre-1980 increase in the share of shorter-lived equipment in total investment.

The rise in the depreciation rate suggests that the increase in the share of real gross investment overstates the strength of capital formation.²⁰ But net investment, independent of other measurement problems, understates capital formation. When scrapped old equipment is replaced by new equipment of equal market value, no

net investment occurs. Nevertheless, the newer vintage plant or equipment embodies a newer technology and is more productive than the older, discarded plant or equipment, so that output rises despite the absence of net investment.

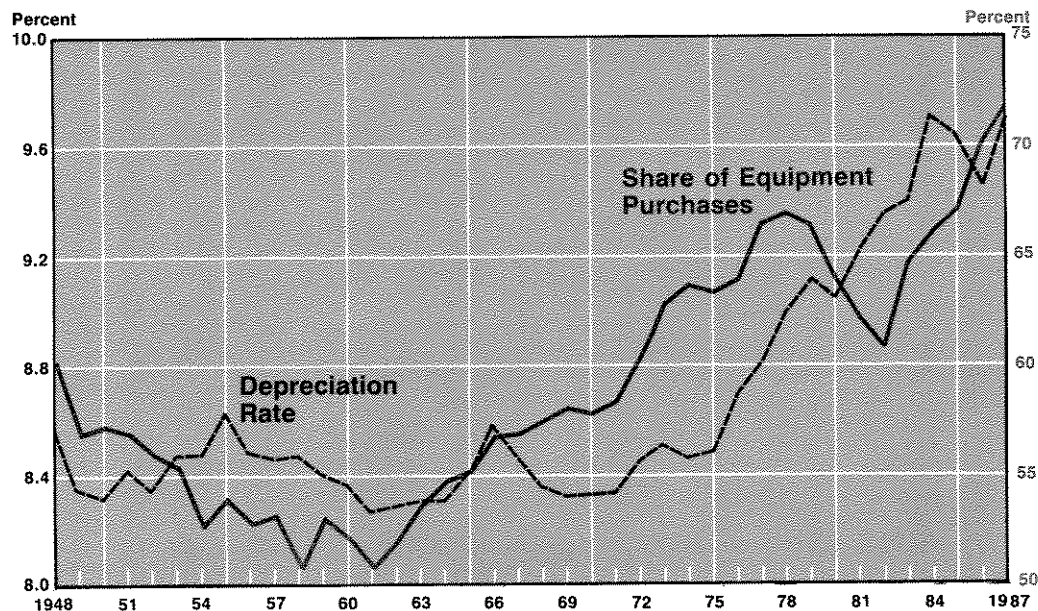
CAPITAL PER WORKER AND PRODUCTIVITY

The performance of net investment in figure 6 is misleading for another reason. Gross and net investment are measures of changes in

²⁰Direct estimates show that the average age of the net nonresidential stock of capital (1982 prices) has not fallen. The U.S. Department of Commerce (1987) estimates that the average age generally rose slightly from 1969 to 1981 and that it has been higher in this decade than in the 1970s, on average. The gross stock, a measure that

removes depreciated capital from the stock estimates only as it is discarded or removed from service, has a declining average age in the 1970s, reaching its lowest level in 1981. Its age subsequently rose and has exceeded its 1979 age every year since 1981, and generally by growing amounts.

Figure 7
Share of Equipment in Real Business Fixed Investment and
Depreciation Rate for the Real Net Nonresidential
Capital Stock



capital goods, but the purpose of investment is to affect the total plant and equipment available. Moreover, it is the total quantity of capital per worker that influences output per unit of labor, or productivity, and the standard of living, not the share of new investment goods in output. Growth in the stock of capital per worker is expected to alter the way people work and raise productivity, measured as the rate of output per individual worker or per hour. Since net investment is a measure of the change in the capital stock, it must be added to the existing stock and the total must be compared to available labor resources, if a meaningful assessment of the contribution of capital formation to income per worker is to be made.

Since 1979, labor force growth slowed markedly. Such a slowing would imply a rise in the growth rate of capital per worker and productivity, unless capital stock growth slowed as

much. From 1979 to 1988, the growth rate of the civilian labor force has been 1.7 percent, well below the 2.7 percent growth registered from 1974 to 1979. The growth of the constant-dollar net nonresidential fixed capital stock slowed from a 3.2 percent rate from the beginning of 1974 to the beginning of 1979 to a 2.9 percent rate over the next nine years.²¹ Thus, the capital-labor ratio showed faster growth in the 1980s.

The capital stock grew about 2.4 percentage points per year faster than the labor force from 1948 to 1973. In response to the oil price shock in 1973-74, however, the capital stock's relative growth nearly came to a halt, as firms adjusted to a lower desired proportion of capital per worker.²² Since 1979, relative capital growth resumed, with capital stock growth averaging 1.2 percentage points faster than the growth of the labor force, despite the fact that oil and

²¹The constant dollar net nonresidential capital stock measure is described in U.S. Department of Commerce (1987). Revisions appear in Musgrave (1988). Quarterly net capital stock data estimated by this Bank, adjusted for the capacity utilization rate in manufacturing, and data for

business sector hours show that the growth of utilized capital per hour declined from 3.5 percent from IV/1948 to IV/1973 to 0.6 percent from IV/1973 to IV/1980, and then rose to 1.5 percent from IV/1980 to IV/1988.

²²See Tatom (1982) and (1979a, b).

energy prices had risen about as much in 1980-85 as they had in 1974-78.²³

Productivity has reflected the renewed strength of capital formation as well. Output per hour in the business sector rose at only a 0.5 percent rate from 1973 to 1980, after rising at a 2.9 percent rate from the end of 1948 to the end of 1973. From 1980 to 1985, however, productivity rose at a 1.6 percent rate, more than three times faster than in the previous period.²⁴ Productivity growth subsequently slowed to a 0.4 percent rate from early 1986 to the fourth quarter of 1988.

CONCLUSION

U.S. domestic investment, especially business investment, was unusually strong in the 1980s. The policies adopted early in this decade contributed to a renewal in the growth of both capital per worker and productivity compared with their performance in the 1970s. This strength is surprising, given the unusual slack in labor markets, the availability of existing unused capital goods, and the rise in energy costs that immediately preceded this decade.

While some measures, like the nominal gross investment share or net investment shares of GNP, suggest that investment was not unusually strong in this decade, this perception is incorrect. Such a view exploits appearances arising from a strong decline in the relative price of investment goods, the business cycle and a sharp slowing in labor force growth. When these factors are considered, the strong rise in capital per worker and productivity, at least until the effects of the 1986 tax reform set in, are readily reconciled with a relatively strong performance of investment.

The differing assessments of investment performance in the 1980s are central to correctly judging past and prospective policies. For example, investment performance has deteriorated in the past two years. Whether this is judged a continuation of the purported dismal investment performance of the 1980s or another dramatic

example of the influence of tax policy on the economic environment can affect future policy choices significantly. Proponents of the first view want to raise taxes to reduce the budget deficit, which they view as central to the task of improving the performance of the U.S. economy, including investment and productivity. They deny the direct influence of tax policy on investment behavior, especially in this decade. Proponents of the second view emphasize that such a tax change, despite its budgetary implications, will perversely affect investment and productivity.

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²³Evidence for the redistribution of world capital stocks and productivity toward the United States can be found in Tatom (1986), and (1987a, b).

²⁴The increase in the constant dollar value of the capital stock was 19.8 percent from the end of 1980 to the end of 1987, much larger than the 7.1 percent and 12.1 percent increases in the population and in the civilian labor force, respectively, for the same period. The current value of the business capital stock rose 46.1 percent, or by \$1.3

trillion, substantially more than the \$563 billion rise in net indebtedness to foreigners, as measured by the cumulative current account deficit over the same period. When residential, consumer and government assets are added in, the rise in domestic current fixed assets for the same period is about \$3.9 trillion, a 46.8 percent increase. The substantial growth in capital assets relative to debt to foreigners suggests that the U.S. standard of living has been boosted by the use of net foreign saving in the 1980s.

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