

Editor's Note: This article, based on a lecture delivered by Professor James Tobin in May 1986, inaugurated the Atlanta Federal Reserve Bank's distinguished lecturer series. Those attending included both professional economists and the general public. The lecturer sought to present macroeconomic analysis familiar to many economists for a lay audience. The views expressed are Professor Tobin's, not those of the Federal Reserve Bank of Atlanta.

Professor Tobin analyzes the macroeconomic impacts of monetary and fiscal policies. Within limits, the same short-run paths of gross national product (GNP) and employment can be achieved by different "mixes" of the two policies. But a mix of high real interest rates and large budget deficits, though it temporarily dampens inflation, has adverse long-run consequences. Carried to the extremes of recent U.S. policies, such a mix if continued would lead to unending rises in the ratio of public debt to GNP, in interest rates, and in "crowding out."

Aggregate Demand and Supply

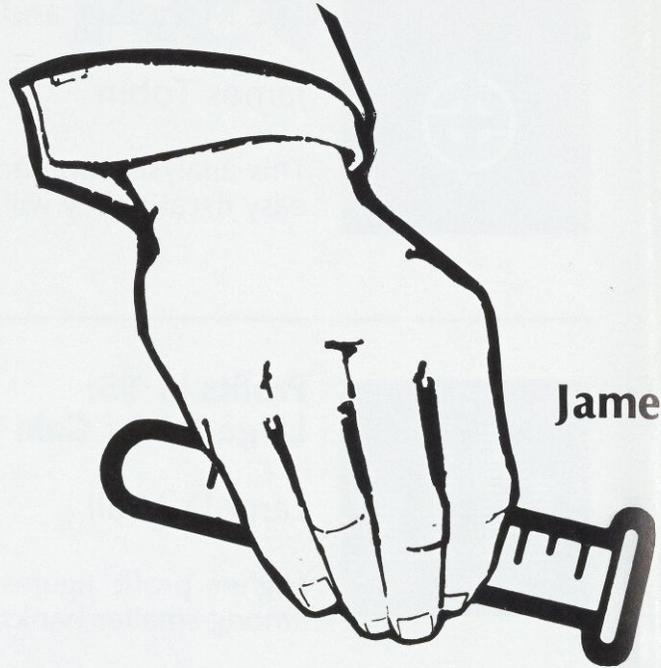
In this lecture, I shall discuss the strategy of what economists call *demand management*—the policies of the government, including the Federal Reserve, that affect the aggregate spending of the population on goods and services and so act upon the economy. I refer to the economy as a whole, not to particular products or markets.

I distinguish *demand* from *supply* in the following sense: During business cycles the economy is not always constrained by its capacity to produce, its supply potential. Cyclical fluctuations reflect variations, for one reason or another, in the overall demand for goods and services, and thus for workers to produce them. In the long run, however, the output of goods and services in the country is clearly limited by the capacity of the economy to produce.

"Supply-side" economics concerns the growth of productive capacity. "Demand-side" economics, my main focus in this lecture, has to do with the management of the economy, not for

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The Monetary and

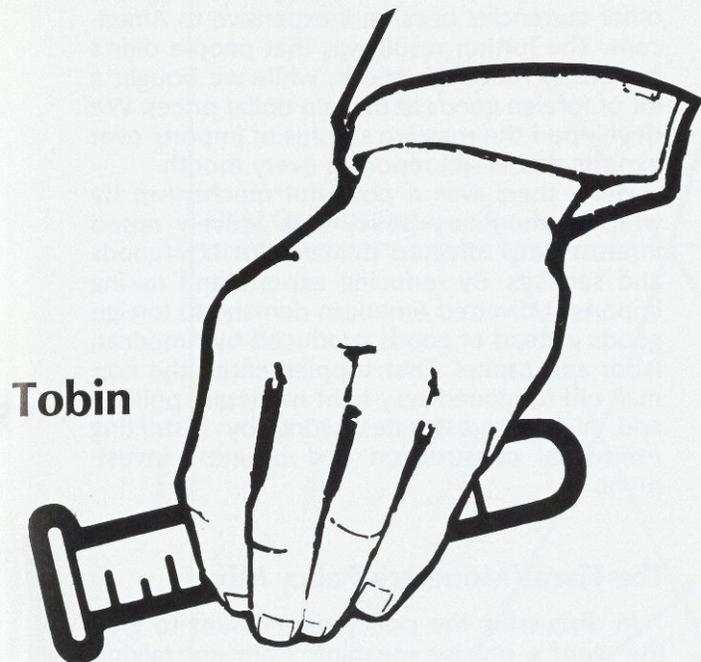


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accelerating its long-run capacity growth, but for stabilizing the business cycle and avoiding excesses of unemployment on the one hand and inflation on the other. The two "sides" are, however, related in a way that I will be discussing and trying to describe. Some strategies of short-run demand management are better for long-run growth than others.

In recent years, I think it is fair to say, the capacity of the economy to produce goods and services—potential output—has not been the binding constraint on the real output of the United States economy. Rather, the constraint has been the adequacy of aggregate demand to purchase the output of the economy. This has been true since 1980, when we fell into the first of two recessions that occurred in rapid succession. We began recovering from the second

Fiscal Policy Mix



Tobin

one at the end of 1982, but we haven't yet fully recovered. For more than two years the rate of utilization of the economy's potential has been flat; only 80 percent of industrial capacity has been utilized, recently even less. Normal capacity utilization in our economy in prosperity has been at 85, 86, or 87 percent. The unemployment rate of workers has been stuck for more than two years at 7 percent of the labor force, plus or minus a couple of tenths, more often plus than minus. There is no evidence that 7 percent is as low an unemployment rate as we can have today without setting off inflation. It's hard to find any bottlenecks or scarcities or shortages in this economy, or any tendency for wages to accelerate. The inflation rate has been extremely well-behaved, even after the end of the deep recession of 1981-82. This

means that ever since 1979, demand management, or short-run stabilization policy, which is the main business of the Federal Reserve, has been the decisive determinant of unemployment, capacity utilization, and the growth of real GNP.

Demand Management, Fiscal and Monetary

Two major instruments of demand management are available to the central government in the United States and other advanced economies: on the one hand, monetary policy and, on the other, fiscal policy. Reference was made in the introductions to my service in Washington on the President's Council of Economic Advisers. At that time we on the Council were doing a teaching job. We had an important student, the President of the United States, John F. Kennedy, who seemed not to have absorbed a lot of economics in his undergraduate training. He was a good student and able to learn fast, and we were good teachers, I must say. We knew we were getting somewhere one day when he said "I think I now know the difference between monetary policy and fiscal policy. Monetary policy begins with an 'M,' and the chairman of the Federal Reserve is [William McChesney] Martin, so that's monetary policy. What we do in the budget must be fiscal policy." These two instruments of demand management policy are the ingredients I refer to when I speak of "the mix."

How does the use of these two instruments work on aggregate demand? Fiscal policy involves spending money. When the government spends more money directly on goods and services—mainly armaments these days—or transfers money to the beneficiaries of Social Security and other programs, aggregate demand for goods and services increases. You may or may not like particular programs, but how the money is spent doesn't matter for our immediate purpose. What matters is the additional overall spending on goods and services. If you don't believe that defense spending is stimulating, I invite you to come to Connecticut or Massachusetts to see that economies supplying defense-related products do prosper. Tax reductions work the same way. People generally spend a large fraction of their tax savings. For example, in 1981 we had a mammoth reduction in income taxes under the Economic Recovery

Tax Act of 1981. To be sure, it was advertised by the Administration and in the press as a supply-side tax cut. Its philosophy was to increase incentives for working more, saving more, producing more, and taking more risk. Thus it was meant to be a policy to increase the capacity of the economy, its productivity, its potential output. In the immediate circumstances of the day, however, when the potential output of the economy was far above its actual performance, it worked to increase spending. The recipients of the tax cut didn't know that they weren't supposed to spend the proceeds, and so they spent them. Thus it worked as a demand-side stimulus.

Monetary policy generally works in ways that lower or raise interest rates and raise or lower market values of bonds, stocks, and other assets. Through these effects, monetary policy stimulates or restrains spending for investment goods—for house building, business plant and equipment, and inventories.

Exchange Rates and Aggregate Demand

There is one other mechanism by which monetary policy works to expand or restrict demand, a mechanism fairly new in American experience—and in world experience. Recent events have given a striking demonstration of its power. It works through the balance of exports and imports in foreign trade. Because of the floating exchange rate regime in which the United States and other countries have been operating since 1973, along with the amazing international mobility of funds, immense amounts of money can move rapidly across the exchange rates from, say, dollar assets into yen assets or vice versa, or into and out of pound-sterling, deutsche mark assets, or others. Recently we have had a textbook example of this mechanism, which, I must say to the credit of us economists, was well understood in theory before it actually occurred with such remarkable fidelity.

In the 1980s, thanks to our monetary and fiscal policies, interest rates in the United States were high, even higher than interest rates in other advanced economies. They attracted funds across the currency exchanges into dollar assets, often U.S. Treasury bills and bonds but into the whole range of dollar-denominated assets as well. Likewise, they

deterred Americans from lending funds overseas. The result was a big demand for dollars relative to other currencies, which bid up the price of a dollar in yen and other major currencies. The dollar became costly to foreigners; other currencies became inexpensive to Americans. The further result was that people didn't buy many American goods, while we bought a lot of foreign goods at bargain dollar prices. We developed the massive surplus of imports over exports that is still reported every month.

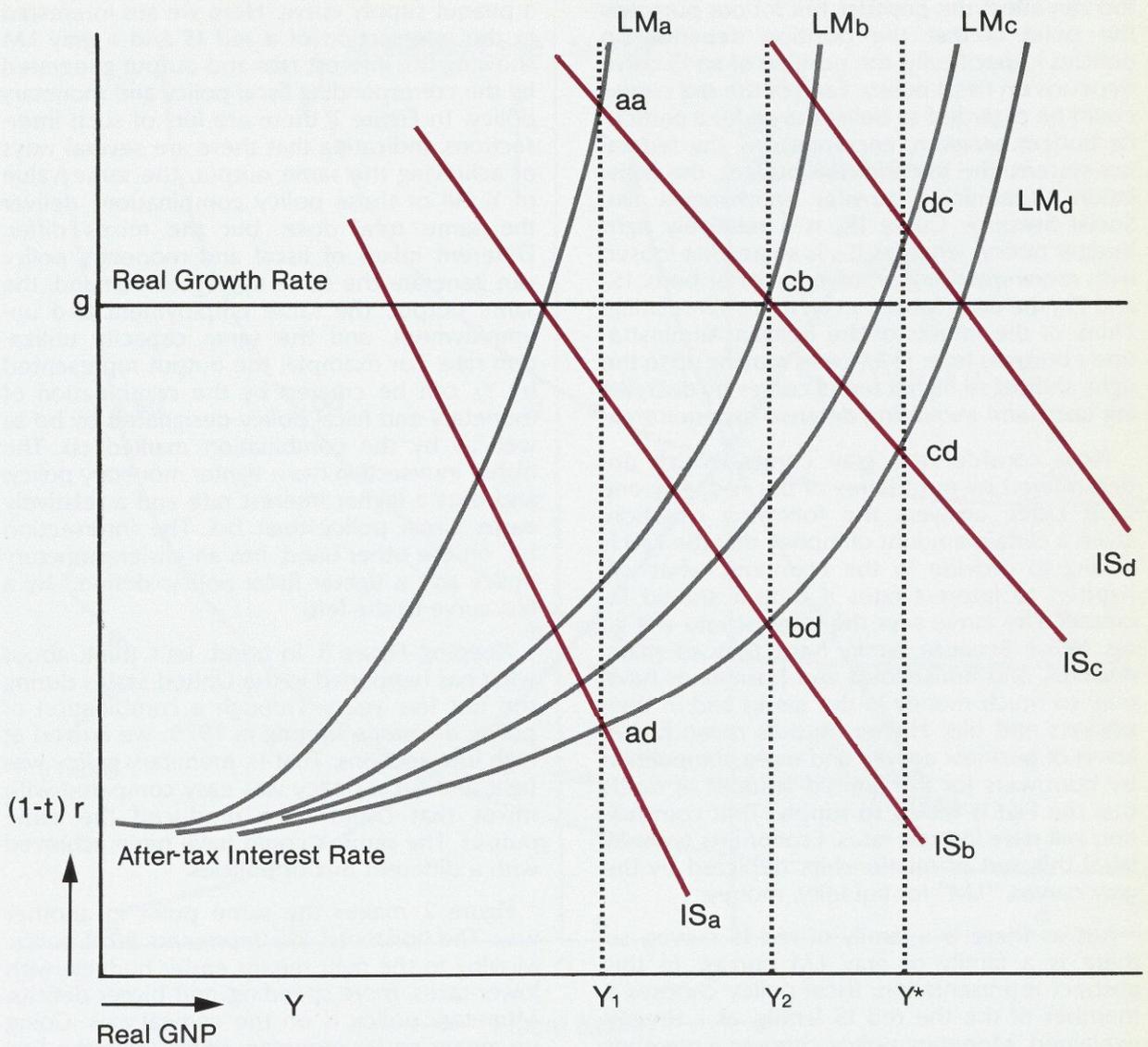
Here, then, was a powerful mechanism by which a monetary policy that actively raised interest rates affected demand for U.S. goods and services. By reducing exports and raising imports, it diverted American demand to foreign goods instead of goods produced by American labor and capital. That supplemented the normal, old-fashioned way tight monetary policies and high interest rates work, by restricting residential construction and business investment.

The Fiscal/Monetary Policy Mix

In discussing the policy *mix*, I want to give the word a precise meaning. I am not talking about a mix-up between the two policies, although that may often occur. I am not referring to the two policies in a general way. I make a precise distinction between the total stimulus administered by the two policies and the relative contributions of each of the two policies to that total. It's as if you have two types of medicine: first you ask what is the total dose of the two medicines together; and second, how is the dose split between the two medicines. Right now I want to address the second question, how the dose is split between the two medicines—the mix.

Figure 1 relates the after-tax interest rate in the economy and the real (inflation-corrected) output of the economy. The horizontal axis represents output, real GNP, labeled "Y." The vertical axis is the interest rate after tax: $(1-t)r$, one minus the tax rate, that quantity times the interest rate. Red curves, "IS," for investment and saving, tell how the interest rate has to move for given monetary and fiscal policies in order to induce the amount of spending that would buy exactly the output measured on the horizontal axis. Each red curve is sloping down, because lower interest rates are needed to get

Figure 1. Policy Mixes, Interest Rates, and GNP



The diagram shows how the same GNP values, Y_1 or Y_2 or Y^* (full employment output), can be achieved by different mixes of monetary and fiscal policies. Fiscal policy determines which IS locus the economy is on; curves higher and to the right result from easier fiscal policies. Monetary policy determines which LM curve the economy is on; curves lower and to the right represent easier monetary policies. The horizontal line at g depicts the real growth rate of GNP. As discussed in the text, an after-tax interest rate above g means that federal debt grows explosively indefinitely.

people to spend more money. When interest rates are low, people spend more money on investment and borrow more for consumption as well. The down-sloping effect also comes through exports and imports, as I already explained. Lower interest rates mean the dollar is

cheaper, and that helps our exports relative to our imports. All these effects together make an IS curve slope down, as shown.

This figure shows a whole family of red IS curves. Some are higher than the others and further to the right. The position of a curve

depends on government policies. (Other things too can affect the position, but for our purposes the point is that the position depends on policies.) Specifically, the position of an IS curve depends on fiscal policy. Each of the red curves could be regarded as being drawn for a particular budget program, encompassing the federal tax system, the expenditure budget, the legislation determining transfer entitlements like Social Security. Curve IS_a is a relatively tight budget policy, whereas IS_b is somewhat looser, with more spending or lower taxes or both. IS_c and IS_d are even looser, even more stimulating. Think of the effects of the Reagan Administration's budgets from 1981 on as moving up to the right, shifting to higher red IS curves by decreasing taxes and increasing defense expenditures.

Now consider the gray curves, which are determined by our friends of the Fed. Any one such curve answers the following question: given a certain amount of money that the Fed is willing to provide to the economy, what will happen to interest rates if output should increase? The curve says the interest rate will go up. Why? Because banks have only so many reserves, and households and businesses have only so much money in the banks and in their pockets and tills. Higher outputs mean higher levels of business activity and more competition by borrowers for the limited amount of funds that the Fed is willing to supply. That competition will raise interest rates. Economists typically label this sort of relationship, depicted by the gray curves, "LM" for liquidity, money.

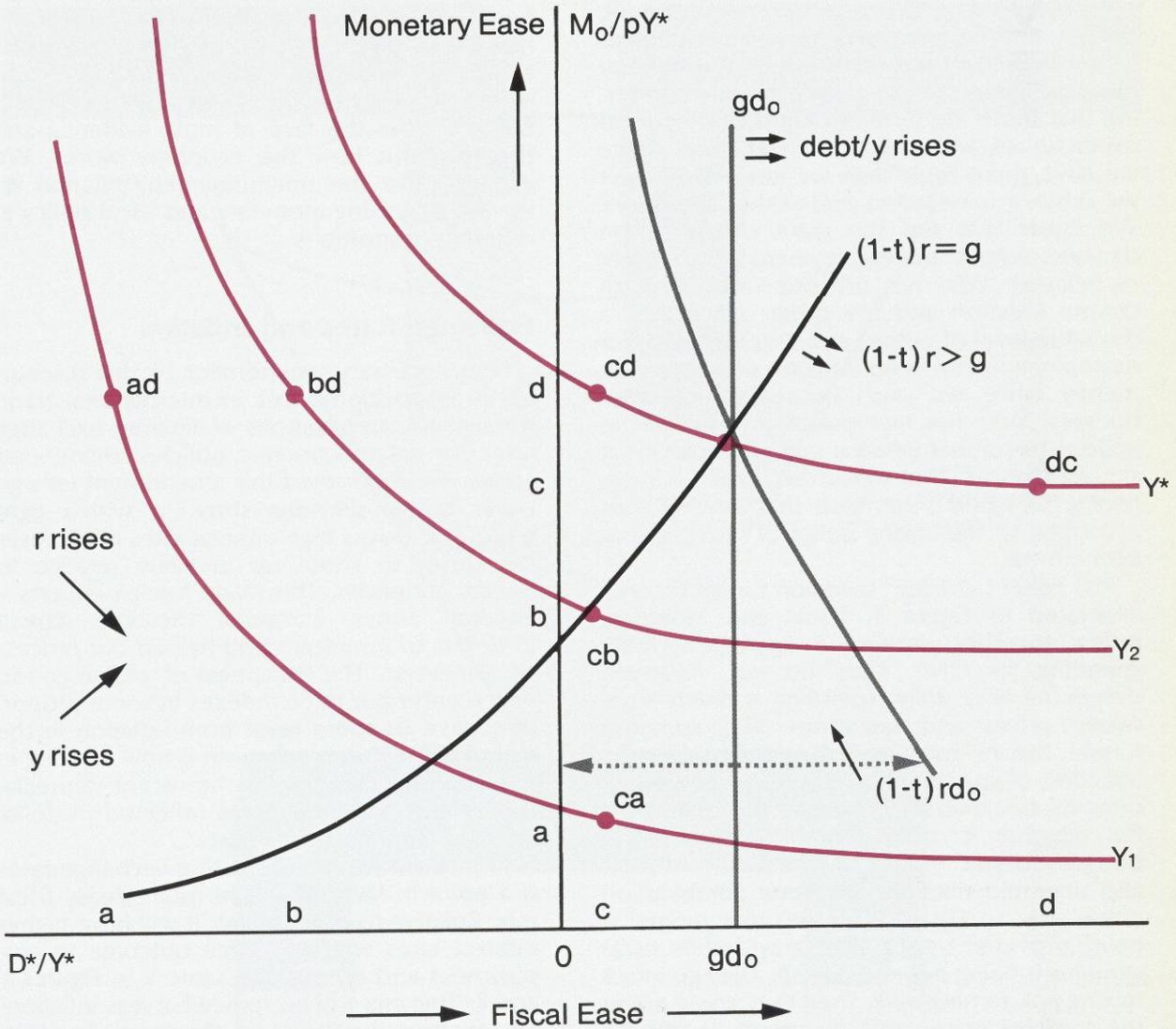
Just as there is a family of red IS curves, so there is a family of gray LM curves. In this abstract representation, fiscal policy chooses a member of the the red IS family, as I already explained. Monetary policy chooses a member of the gray LM family. If the Federal Open Market Committee, which meets every five or six weeks in Washington, decides to be more generous to the economy in the amount of money it provides, it will move to a gray curve further to the right and down; any given output of income will be associated with a lower interest rate. Easier monetary policy moves the economy's LM curve to the right, and tighter monetary policy moves it to the left. As all economics students know, economists like intersections of curves, such as those that show the price of peanuts and the quantity bought

and sold where a peanut demand curve crosses a peanut supply curve. Here we are interested in the intersection of a red IS and a gray LM showing the interest rate and output generated by the corresponding fiscal policy and monetary policy. In Figure 1 there are lots of such intersections, indicating that there are several ways of achieving the same output, the same value of Y . All of these policy combinations deliver the same total dose, but the mixes differ. Different mixes of fiscal and monetary policy can generate the same aggregate demand, the same output, the same employment and unemployment, and the same capacity utilization rate. For example, the output represented by Y_2 can be created by the combination of monetary and fiscal policy designated by bd as well as by the combination marked cb . The higher intersection has a tighter monetary policy, and thus a higher interest rate and a relatively easier fiscal policy than bd . The intersection bd , on the other hand, has an easier monetary policy and a tighter fiscal policy, defined by a red curve to the left.

Keeping Figure 1 in mind, let's think about what has happened in the United States during the last few years. Through a combination of policy decisions starting in 1979, we arrived at high intersections. That is, monetary policy was tight and fiscal policy was easy compared with mixes that could have produced the same output. The same Y could have been achieved with a different mix of policies.

Figure 2 makes the same point in another way. The horizontal axis represents fiscal policy. Moving to the right means easier budgets with lower taxes, more spending, and bigger deficits. Monetary policy is on the vertical axis. Going up means easier monetary policy, with the Fed providing more money relative to total output. The red curves in this diagram are called isoquants (same quantity). All the points on one of the red curves are different ways of getting a given output Y_1 . All the points on the next red curve Y_2 represent combinations that produce the common result Y_2 . The two Y_2 mixes we singled out in Figure 1 are both shown here, too, as cb and bd . One of them has easy fiscal policy and tight money and the other has tight fiscal policy and easy money. Then there is Y^* , which represents full capacity output—not the forced economic mobilization that occurred

Figure 2. Fiscal and Monetary Policies and GNP Outcomes



The information of Figure 1 is presented here in a different way. Monetary policy is measured by the ratio of the monetary base, in real terms, to potential output pY^* . Isoquants—combinations of the two policies that yield the same real GNP—are pictured for Y_1 , Y_2 , and Y^* . Points of intersection in Figure 1 are placed here also and labeled the same (ad, bd, etc.). The vertical line gd_0 tells how big a deficit will keep the debt-GNP ratio at d_0 , given GNP growth at rate g . The downward sloping curve $(1-t)rd_0$ is the interest cost of the existing debt d_0 . The upward sloping curve $(1-t)r = g$ is the boundary between stable (above) and unstable (below) debt-GNP ratios, as explained in the text.

during World War II but the highest output a peacetime market economy can expect without having a resurgence of accelerating prices, rising inflation. (I don't know how large that is nor do I know what the corresponding lowest

inflation-safe unemployment rate is. I was arguing with the local Fed people this morning about whether that figure is closer to 7 or to 6 percent or even lower than that now. As I said earlier, I am sure it's not as high as 7 percent.)

Prices vs. Quantities: The Common Funnel Theory

If our objective is just to determine output, our two policies evidently give us more degrees of freedom than we really need. We have at least two instruments—maybe more, considering that there are different kinds of taxes and expenditures, and several monetary tools. Since we have more tools than we need, why can't we achieve some other goal at the same time? We know that the the main constraint on demand, output, and employment is the danger of inflation. Why not use one instrument to control inflation and the other one to get a desirable level of output and employment? For example, why not keep inflation down by tight money while we push output up by easy budgets? Why not manipulate the mix of the policies to combat inflation and unemployment simultaneously? That would be ideal. Unfortunately, the world is not made that way—at least according to the strong belief of most macroeconomists.

This belief I call the "common funnel theory," illustrated in Figure 3. Fiscal and monetary policy together determine aggregate dollar spending for GNP. They do not, however, determine how dollar spending is divided between prices and quantities. The common funnel theory goes as follows: Consider an injection of spending in dollars into the economy. Its size matters for prices and quantities. But whether it comes from the Fed or the budget doesn't matter; it produces inflation and unemployment in the same combination either way. In Figure 3 we see that money is being provided by the Fed (gray), while fiscal stimulus is being poured in (red). They go into a mixing pot, turning pink. Then they come out in the form of prices and quantities. It doesn't matter from what source they came in, whether in red or gray, whether from fiscal stimulus or the Fed; they come out in the same proportions in changes in prices and changes in quantities.

Those proportions do depend on the state of the economy. If the economy is tight in terms of capacity utilization, then most of the demand goes into prices and little into quantity. If it is slack in term of capacity utilization and labor employment, then the injections will show up mostly in quantities and only slightly in prices. The price/quantity outcome depends on the state of the economy, not on the sources of the

demand or the policies that generated the demand.

Thus it is not true, according to the common funnel proposition, that the Fed has a particular handle on prices and the budget a particular handle on quantities. Some people in Washington thought that in 1981 or at least said that, but it flies in the face of most evidence and theory about how the economy works. We cannot solve the unemployment/inflation dilemma by mixing monetary and fiscal policy in different proportions.

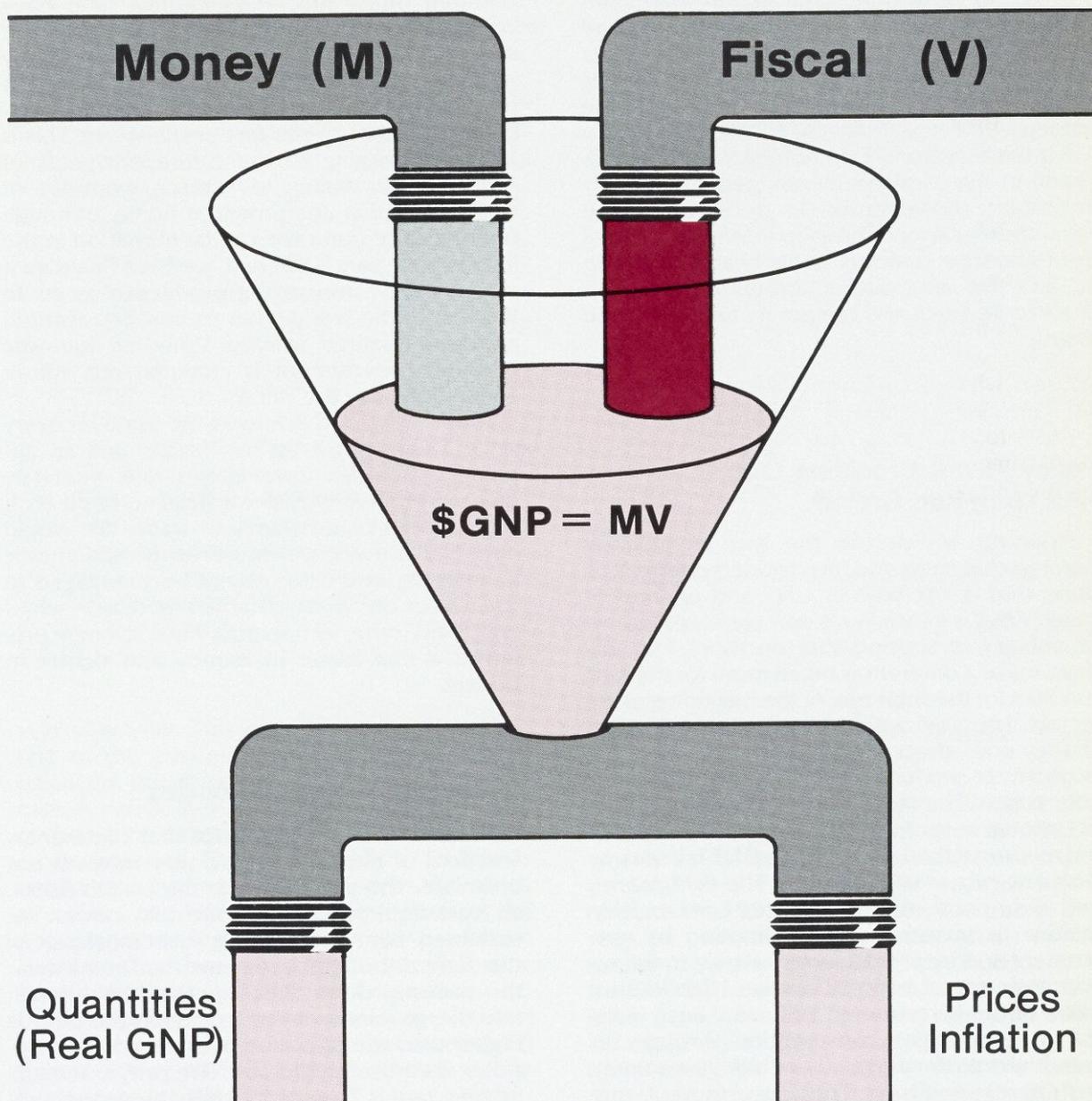
Exchange Rates and Inflation

One necessary amendment to this discouraging proposition arises in international trade through the implications of floating exchange rates for macroeconomic policies, mentioned above. To understand this amendment let's go back to my previous story, in which tight money produces high interest rates and causes the dollar to shoot up in value relative to foreign currencies. This made foreign imports—Toyotas, Sonys, European vacations—cheap in dollars to Americans and helped our process of disinflation. The cheapness of foreign goods, which enter our price indexes in some proportion, gave us some relief from inflation in the early 1980s. That mechanism is now working in the opposite direction as the recent depreciation of the dollar becomes reflected in dollar prices of imports and exports.

This consequence of floating exchange rates is a point in favor of a tight money/easy fiscal mix. Relative to other mixes, it will have higher interest rates with the same outcome in employment and output, the same Y in Figures 1 and 2. This mix will be somewhat less inflationary, or more disinflationary, than a mix in which low interest rates are the result of easy money combined with a tight fiscal budget.

But there is a catch, as we are now learning: A high exchange rate obtained through higher interest rates is only temporary. We can't live with massive import surpluses forever. At some point—a point we recently reached in the United States—the exchange rate has to go down again, the dollar has to depreciate. As that happens, we have to give back the price reductions we earned earlier by artificial appreciation of the currency. After all, the same movements of exchange rates that made things

Figure 3. The Common Funnel Theory



This schematic diagram illustrates the point that the mix of price/quantity outcomes is independent of the sources of aggregate dollar demand. Monetary policy affects the supply of money and fiscal policy its circuit velocity. It is the product MV (money supply times circuit velocity), which is equal to dollar GNP, that represents demand for goods, services, and labor and induces output and price responses from businesses and workers.

cheap for us made things dear for other countries. This game is not one that all countries can play at the same time. One reason that Japan and Germany objected to the high value of the dollar is that it made not only American imports but also oil, which is also invoiced in dollars, much more expensive in yen and deutsche marks.

For these reasons, I do not regard this qualification to the common funnel theory as a really important consideration in deciding on the monetary-fiscal mix. The gains in inflation control from choosing one mix rather than another to achieve the same output and employment are likely to be small and temporary for the United States.

Policy Mixes, Crowding Out, And Long-Run Growth

How do we decide the mix of policies? Assume that someone has decided on the total dose, that is, the path of GNP and unemployment. What is a socially rational choice of the mix of policies to support that decision? The mix does make a difference, much more for the long run than for the short run. At the beginning of the lecture, I pointed out that demand management strategy does affect the long-run capacity of the economy to produce. The policy mix makes that connection. The reason is that the *composition* of national output will be different with a different mix, even though aggregate GNP is the same with one mix as with another. The tight money and easy fiscal mix emphasizes consumption relative to investment—consumption by government and by private sector relative to future-oriented uses of national output. High interest rates deter investment, while an easy fiscal stance encourages consumption through tax cuts, high transfer payments, or high government current expenditure. True, government purchases are not always for consumption; if the government were running deficits to accumulate public capital that would enhance the productivity and capacity of the economy over the long run, this characterization would not be valid.

Recently the federal government has been financing current expenditures by deficit spending and the Federal Reserve has countered the expansionary effects of this fiscal policy by

high interest rates. The result is a larger consumption component of output than with a different policy mix. High interest rates have "crowded out" some domestic investment and a spectacular amount of foreign investment. By running big trade deficits, we are spending the overseas capital we previously acquired and going into debt to the rest of the world. This is just as damaging to the future prospects of Americans as failing to replace worn-out or obsolete capital equipment at home. Although our record of domestic capital formation in the last several years is not bad, we have financed it essentially by mortgaging productive assets to the rest of the world. That cannot be regarded as future-oriented activity. Whether domestic or foreign investment is crowded out, future generations pay the price.

Suppose we had achieved the same recovery since 1982 with a tighter budget and an appropriately easier, lower-interest-rate, monetary policy. Then we would not have suffered such big deficits in our balance of trade. We would have had as much, perhaps even more, domestic investment, and it would not be mortgaged to the rest of the world. That is one reason why I and many other economists have strongly preferred a mix easier in money and tighter in budget.

Stable and Unstable Policies

There is another reason for that preference. Freedom of choice among policy mixes is not unlimited. The mix chosen in the United States, at least until recently, is one that cannot be sustained. Let me explain: A substantial part of the federal budget is payment of interest on the national debt. Suppose that the interest rate the government has to pay on the debt is higher than the rate of economic growth. Suppose, realistically, that the Treasury's average interest rate is 7 percent, while the economy is growing in current dollar GNP at 6 percent per year, with 3 percent inflation and 3 percent real growth. Even if the budget is otherwise balanced, this disparity alone will make the debt grow by 7 percent while GNP will be growing by only 6 percent. As the debt grows faster than GNP, the interest burden will grow further, so that the deficit and debt become still larger relative to GNP. This accelerating process will continue

Table 1. Federal Fiscal History and Projections

	(As percent of GNP)				(Percent Per Year)		(Percent)
	(1) Debt Beginning of Period	(2) Primary Deficit	(3) Total Deficit	(4) Real Deficit	(5) Net Real Interest Rate Assumed	(6) Growth of Real GNP	(7) Equilibrium Debt/GNP Ratio
1952-57	65	-0.6	0.3	-1.0	-0.7	2.8	-17
1958-66	48	-0.5	0.1	-0.8	-0.7	3.4	-12
1967-74	36	0.3	1.1	-0.5	-2.8	3.8	5
1975-79	23	1.4	2.5	-0.8	-2.8	3.5	22
1980-85	22	2.6	4.5	2.7	0.3	1.9	45
1986	38	2.7	5.2	4.0	3.4	3.0	Unstable
1991 A	35	-1.9	0.0	-1.4	1.5	3.0	-126
1991 B	35	-0.7	1.4	0.0	2.0	3.0	-70
1991 C	35	0.2	2.5	1.1	2.5	3.0	35

1991 A Balanced Budget, G-R-H.

1991 B Balanced Budget, Correcting Interest for Inflation (4%).

1991 C Stabilizing Debt Relative to GNP.

Source: Author's calculations. Before 1980, originally presented in *Towards a Reconstruction of Federal Budgeting*, The Conference Board, 1983, pp. 51-59.

year after year. This would be true even if the rest of the government budget were exactly balanced, but of course that has not been the case. A deficit in the "primary" budget—that is, exclusive of debt service—makes the process more explosive. The ratio of debt to GNP rises indefinitely, faster and faster, as does the deficit as a share of GNP. An even larger share of the population's saving is diverted from productive investment, at home or abroad, into financing the federal government. As "crowding out" becomes more and more severe, the interest rate itself rises. The policy mix becomes a still tighter money, easier budget combination. The circle is really vicious.

Note the black line or curve on Figures 1 and 2. These depict the boundary I have just been discussing; crossing it leads to the vicious circle just described. The black boundary traces the limit at which the interest rate becomes the same as the growth rate. If you go to mixes tighter in monetary policy and looser in fiscal policy, you enter the unstable territory of exploding debt.

The Policy Mix in the United States Today

Table 1 presents some data on the United States' federal debt and deficits since 1952. It shows the ratios of federal debt (to the public) to GNP at the beginning of each of several periods. In 1952, for example, the public debt was 65 percent of one year's gross national product. As the Table shows, the ratio declined until 1980, to about 22 percent. The debt-GNP ratio actually started declining right after World War II, which had raised the ratio to 120 percent. While many people think the federal government has been following profligate fiscal policies continuously, as long as anyone can remember, at least since the Great Depression, the Table shows that this charge is far from true. The debt grew more slowly than GNP from 1946 to 1980.

Things changed radically in the 1980s. In the last five years the debt to GNP ratio has risen to 38 percent. That is a big increase, though 38 percent is still not a disastrously high number.

We have had higher numbers before without disaster; nonetheless, in the 1950s and 1960s the ratio was declining, while in the 1980s it has been rising.

Table 1 also shows the primary deficit in percent of GNP. This is the deficit we would have had if there had been no outstanding debt at the beginning of the period. For example, in the first period, 1952 to 1957, the primary budget showed an average surplus of 0.6 of one percent of GNP. It continued in surplus or close to balance in all periods through 1974. In 1986 prior to Gramm-Rudman, however, the primary deficit would have been 2.7 percent of GNP, the largest ever in peace time. The next column shows the total deficit, including interest payments on the debt, again in percent of GNP. The total deficit, which was very close to zero in the 1950s and 1960s, has risen to about 5 percent of GNP. Most of the increase occurred after 1980. Much of it, as the Table shows, is due to the tight money/easy fiscal mix, which brought high interest rates and in turn a tremendous surge of interest payments compared to the years before 1980.

Column 4 of Table 1 shows the "Real Deficit." Applying inflation accounting principles to the government budget and its debt means counting only real interest—the difference between the interest rate and the inflation rate—as a cost to the government. The implicit assumption is that the public's latent demand for government debt will cause people to save enough to maintain their holdings of the debt in real terms. In other words, people are assumed to understand that part of the high nominal interest they receive just pays for the loss in the real principal value of government securities due to inflation. Inflation accounting gives lower deficit figures, but the pattern shows a very sharp increase since 1980.

Columns 5 and 6 of Table 1 compare the real growth rate of the economy with the interest rate the government has to pay on its debt. I pointed out earlier the danger that confronts us if the interest that the Treasury has to pay (allowing for taxes) exceeds the growth rate of the economy. We were never close to that point until now; we crossed the line some time between 1980 and 1985. Before 1980 real GNP growth always exceeded interest cost by a wide margin—you get the same answer by comparing nominal interest rates and dollar

GNP growth. But since then the comparison turned the other way, and these circumstances produced the unstable vicious spiral I described. This mix of monetary and fiscal policy simply cannot be allowed to continue indefinitely.

The last column is a bit more esoteric. It addresses the question: Is there a value at which the debt-GNP ratio would settle down permanently, as long as the parameters of the budget and the economy remained constant? If so, what is it? The answers depend on the values of three parameters: the primary deficit in ratio to GNP, x ; the net (after-tax) interest rate $(1-t)r$; and the rate of growth of GNP, g . The answer to the first question is "yes," if $(1-t)r$ is less than g , as was true in every period except 1986. The answer is "no, unstable," if $(1-t)r$ exceeds g , as in 1986. When a numerical answer to the question exists, it can be calculated for each period from the parameters of the period. Those numbers are shown in column 7. The negative numbers are especially hypothetical. Their significance is that the debt-GNP ratio would rapidly decline and, in principle, would settle down only if and when the government became a creditor rather than a debtor.

Three possibilities are shown for 1991 in Table 1. All of them assume that through fiscal year 1990 deficits will be reduced according to the Gramm-Rudman-Hollings schedule, enough to lower the debt-GNP ratio to 35 percent. The first scenario, A, assumes the Gramm-Rudman-Hollings target of a balanced total budget by conventional accounting will be met in 1991 and ever thereafter. As the applicable row of Table 1 shows, this is a very austere regimen, requiring a primary surplus of 1.9 percent of GNP, about \$120 billion in 1991. A less austere policy would be to balance the budget calculated according to inflation accounting. The result is given in row B. The third possibility is to let bygones be bygones and be satisfied to maintain a 35 percent debt-GNP ratio. As row C shows, this could be approximated just by balancing the primary budget. The total deficit would then be 7 percent of the debt, 2.5 percent of GNP; the real deficit would be only 1.1 percent of GNP.

Table 2, borrowed from an article by Barry Bosworth in *Brookings Bulletin* of Winter/Spring 1986, offers additional relevant insights into our topic. Bosworth's numbers show for several periods national saving relative to net national

Table 2. National Saving and Investment as Percentage Shares of Net National Product, 1951-1985

	National Saving			Net Investment	
	Private	Government	Total	Foreign	Domestic
1951-60	8.4	-0.7	7.7	0.3	7.4
1961-70	9.2	-1.0	8.1	0.6	7.6
1971-80	9.7	-2.0	7.7	0.3	7.4
1981-85	8.6	-4.7	3.9	-1.3	5.2
1985	8.8	-5.4	3.4	-3.1	6.5

Source: Barry Bosworth, "Fiscal Fitness: Deficit Reduction and the Economy," *Brookings Bulletin*, Winter/Spring 1986, Table 1, p. 5.

product (NNP). (NNP is smaller than GNP by allowing for capital consumption.) National saving is composed of two parts, "private" (inclusive of state and local governments) and federal. In the 1950s private saving amounted to about 8.4 percent of NNP, but the government had a small deficit, and so national saving was 7.7 percent of NNP. Similarly in the 1960s and even the 1970s the national saving ratio was still close to 8 percent. Throughout these decades net national saving went both into domestic investment and, via trade surpluses, into increasing the nation's net claims against the rest of the world. Once again, the drastic change occurred in the 1980s. Federal dissaving offset more than half of private saving. Foreign investment, in consequence, turned strongly negative, and, even so, domestic investment fell relative to NNP.

These dismal outcomes are the result of the policy mix. The mix of fiscal and monetary policy we have drifted into in recent years is bizarre, extreme, and unprecedented. It has had very unfortunate consequences. This policy was meant, according to the rhetoric of 1981, to increase investment. It was supposed to be oriented toward using resources in ways that would increase productivity and long-term growth. The results are just the opposite. Fully 97 percent of the additional output the country has been able to produce since 1978 or 1979 has been consumed, either publicly or privately.

How did we manage to adopt such a bad policy mix? Tight monetary policies were used to bring down inflation after 1979, and real interest rates have never been the same. Then came the reckless budget policies of the 1980s—big tax cuts and rapid growth of defense spending.

Changing this policy mix is a high priority. We seem to be embarked upon a course that will tighten the budget under the gun of Gramm-Rudman. I do not myself believe Gramm-Rudman is a good way to correct our fiscal policy, and I think the target of balancing the conventional budget is overkill. I believe the federal government needs more tax revenue, but this is not the forum for arguing these points.

In any case, let me emphasize, fiscal correction is only half the needed remedy. The other half is up to the Federal Reserve, to whom I never fail to give advice, generally unheeded, when given the chance. As budget policy is tightened, monetary policy must be eased and interest rates substantially lowered. Otherwise, we will not achieve the same results in output and employment as under the present mix. Indeed, there is ample evidence now that the overall dose of stimulus from the two policies together is inadequate. It's not enough to keep the economy from outright recession. It needs to be rescued from stagnation. It is not enough

to keep the unemployment rate near 7 percent and capacity utilization at 78 percent. The economy can do better than that without courting renewed inflation. In the present circumstances fiscal policy obviously can make

no contribution to the resumption and completion of the recovery; it will instead be moving us the other way. Prosperity is the responsibility of the institution playing host to us today, the Federal Reserve System.

Appendix

The formulas used for the calculations reported in column 7 of Table 1 are as follows: Let \dot{d} be the speed at which the ratio d is rising. The other symbols were defined in the text, p. 14. Then,

$$(1) \dot{d} = x + [(1 - t)r - g] d$$

This tells us immediately that d will be rising if neither x nor $[(1 - t)r - g]$ is negative and if one or both of them is positive. We can also see, by putting \dot{d} equal to zero,

that the equilibrium or stationary ratio d^* is $x/(g - r)$. Therefore,

$$(2) \dot{d} = [(1 - t)r - g] (d - d^*)$$

Equation (2) tells us that if $[(1 - t)r - g]$ is negative d moves toward its equilibrium value d^* . If $[(1 - t)r - g]$ is positive, however, it moves away from d^* , which is then an uninteresting unstable stationary point.