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The Macroeconomic Effects of Deficit Spending: A Review

FOLLOWING the Keynesian Revolution in macroeconomics, a large number of economists argued that deficit spending was required to achieve two of the stated national economic objectives: full employment and a high rate of economic growth.[1] Society was thought to benefit from deficit spending because of the reduction in lost output and because the economy would achieve a higher rate of growth.

This view of deficit spending has been challenged increasingly over the years. A sizable number of economists now believe that deficit spending has little effect on employment and output, especially in the long run, and that it primarily results in a redistribution of output, either within the private sector or as a transfer of resources from the private to the public sector.[2] Support for this viewpoint has produced a growing concern about the potentially harmful effects of deficit spending and the size of the public debt.[3]

The existence and magnitude of the benefits from deficit spending have important implications for the public policy debate. Presumably, the decision to incur deficits is affected by the public's belief about whether deficits provide benefits to some individuals at little or no cost to others, or whether they merely redistribute income. Hence, a central issue in the debate over deficit spending is whether, and to what degree, it can be used to produce net benefits for society as a whole. The purpose of this paper is to examine some of the arguments and evidence on whether deficit spending yields net benefits to society.

DEFICIT SPENDING: SOME KEY TERMS

The phrases "deficit spending" and "fiscal policy" are not necessarily synonymous. While deficit spending is a particular fiscal policy action, not all

[1]One of Keynes' initial arguments was that saving would exceed investment at a level of output consistent with the full employment of labor. That is, the U.S. savings rate was too high. The view that the budget should be in persistent deficit was termed the "new fiscal policy." To see how opinions about deficit spending have changed in two decades, compare the deficit discussions in Levy (1963) with those in Levy, et. al. (1984).

[2]The once-common view that the market economy cannot sustain full-employment equilibrium has given way to the concept of the natural rate of unemployment. For a discussion of these issues, see Modigliani (1986b), Blinder (1986) and Laidler (1988).

[3]For a discussion of the potential harmful effects of the public debt, see Bruce and Purvis (1986), Barro (1987) and Levy, et. al. (1984).

fiscal policy actions produce or involve deficits.[4] For example, the government could devise a policy whereby expenditures and taxes are changed by the same amount. This well-known "balanced budget" operation affects aggregate demand, because the change in government expenditures affects aggregate demand more than the change in taxes, but does not affect the deficit.[5]

Despite the balanced-budget multiplier, the stance of fiscal policy today is often associated with, and frequently measured by, the size of the federal budget deficit.[6] Thus, in this article, deficit spending and the stance of fiscal policy will be treated as synonymous. Furthermore, since they both produce the same qualitative shift in aggregate demand, no distinction will be made between deficits that arise from increases in government spending and those that result from tax reductions.

Cyclical and Structural Deficits and Discretionary Fiscal Policy

It is important to differentiate between "cyclical" and "structural" deficits when examining the effects of policy changes on the economy. Tax revenues rise during the expansion phase of the business cycle and fall during the contraction phase; in contrast, certain government expenditures (e.g., unemployment compensation) fall during expansions and rise during contractions. These counter-cyclical components of the deficit—the so-called automatic stabilizers—are intended to smooth cyclical swings in income.

The structural deficit, on the other hand, reflects discretionary fiscal policy actions.[7] It is the part of the deficit that is invariant to the phase of the business cycle. Chart 1 presents measures of the actual and cyclically adjusted budget deficit. Although these measures depart substantially at times, generally they move together. While the analysis in this paper applies equally well to cyclical and structural deficits, from now on the discussion will focus solely on structural deficits.

THE NET BENEFITS FROM DEFICIT SPENDING

The effectiveness of deficit spending depends on two factors: the slope of the aggregate supply curve and the extent to which deficit spending shifts the aggregate demand curve. These factors are discussed in detail in latter sections of the paper. In this section, we present some general notions underlying the view that society can be a net beneficiary from deficit spending.

The initial popularity of using deficit spending to increase output was based on the belief that the market economy is unable to sustain aggregate demand at a level consistent with full-employment output. This idea of persistent unemployment is illustrated in chart 2 which shows a gap between actual and "potential" real output.[8] The

[4]There is a well-known caveat to this statement. Government tax rate changes are not neutral. The government may change certain marginal tax rates and simultaneously alter government expenditures to produce no net effect on aggregate demand, all other things constant. The ultimate effect on aggregate output, however, need not be neutral; the non-neutrality of the tax rate change could produce changes in aggregate supply.

Such analysis underlies much of the recent work by Auerbach and Kotlikoff (1987) and Kotlikoff (1988). Consequently, they have challenged the usual convention of associating deficit spending with fiscal policy. For example, Kotlikoff (1988), pp. 489–90, states that ". . . fiscal policies can matter a lot, but deficits may nonetheless tell us nothing useful about the true stance of fiscal policy." They argue that, within their life-cycle model, the labels "taxes" and "spending" are arbitrary. For them, a tight fiscal policy occurs when a larger burden of "government consumption" is borne by current rather than future generations.

[5]Aggregate demand increases because the marginal propensity to spend of the public sector (1) is greater than the marginal propensity to spend of the private sector (<1). If the private sector's marginal propensity to spend is large, the difference between the marginal propensities will be small and so, too, will be the effect of tax-financed expenditures on aggregate demand.

[6]It is common to measure fiscal action by the full-employment budget surplus or deficit. For a discussion of this, see Carlson (1987) and Seater (1985).

[7]See de Leeuw and Holloway (1983) for a detailed discussion of these concepts and Fellner (1982) for a critique of these measures. For a discussion of these concepts and a breakdown of the deficit, see Erceg and Bernard (1988).

[8]There is an issue, not taken up here, about the extent to which such unemployment is "involuntary." According to the usual textbook definition, involuntary unemployment occurs when individuals are willing to work at the market wage but are unable to find employment; that is, when there is an excess supply of labor at the market wage rate. If the market is competitive, the wage rate should fall to eliminate the involuntary unemployment. Hence, nearly all theories of involuntary unemployment require some form of nominal or real wage rigidity.

In early Keynesian models, involuntary unemployment was due to nominal rigidities in wages. This explanation requires real wages to fall when output rises. Empirical evidence, however, suggests that real wages are pro-cyclical. Recently, research by "New Keynesian Economists" suggests that persistent under-employment equilibria and involuntary unemployment can result from nominal price rigidities in the output market because of monopolistically competitive firms, and because of rigidities in real wages due to "efficiency wages." See Blinder (1988), Mankiw (1988), Rotemburg (1987), Prescott (1987), The New Keynesian Microfoundations (1987) and the cited references.

Chart 1
Actual and Cyclically Adjusted Budget Surplus/Deficit

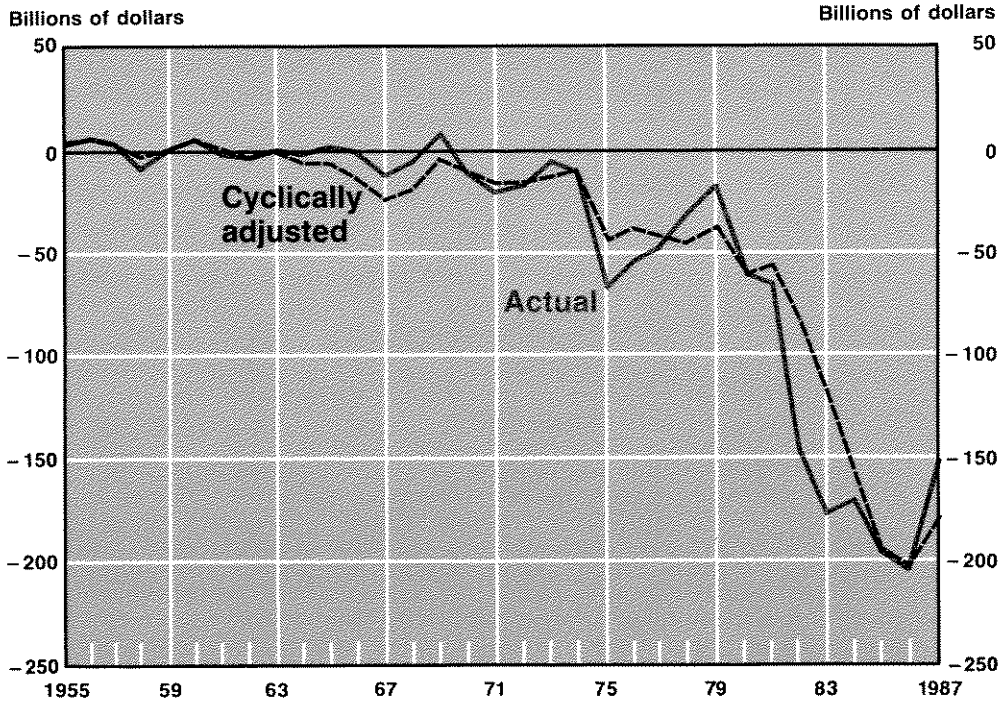
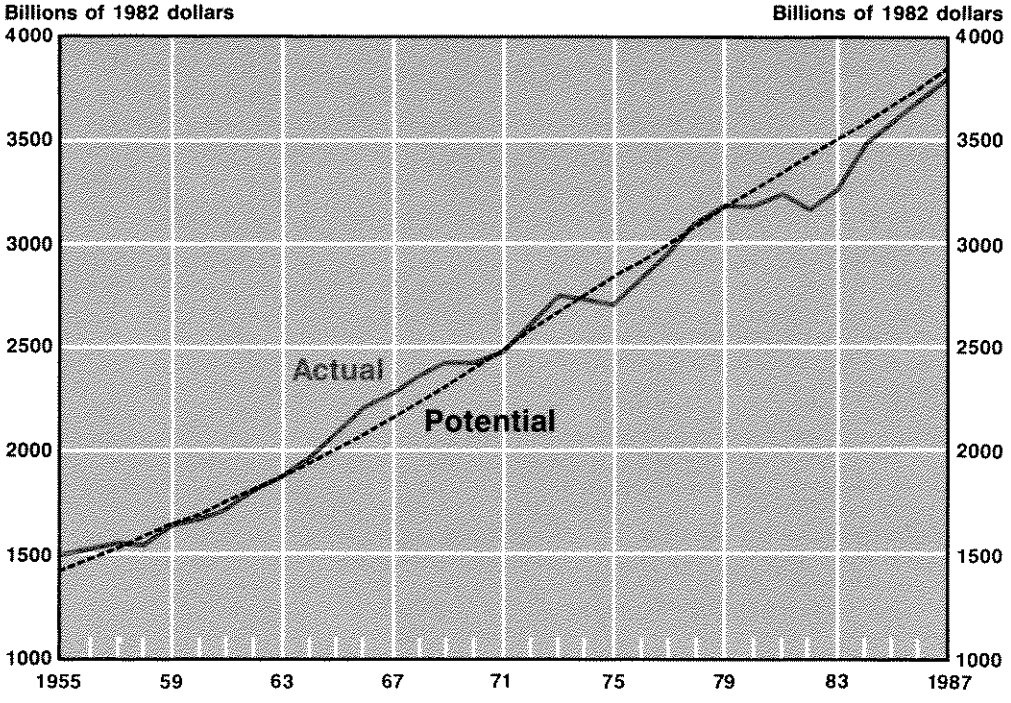


Chart 2
Actual and Potential GNP



potential path of real output usually is associated with some full-employment rate of unemployment. Periods in which real output falls below its potential represent episodes of persistent excessive unemployment. If the economy is prone to periods of prolonged unemployment due to deficient aggregate demand for goods and services, the government could run a sustained deficit to make up for the deficiency. If successful, this deficit would keep output closer to its full-employment potential. Moreover, on average, real output growth would exceed the rate that would otherwise occur.

Deficit Spending and Capital Accumulation

Deficit spending could have a secondary effect on the rate of economic growth. Production of real output (y) is related to factor inputs, labor (N) and capital (K), via a production function, that is, $y = f(N,K)$. The marginal products of both labor and capital are positive: for any quantity of capital (labor), output increases as more labor (capital) is used. The growth of the labor force is often considered synonymous with population growth, which is determined in part by factors that are independent of economic considerations. The size of the capital stock, on the other hand, is usually assumed to be related to economic factors. The higher the rate of capital formation (investment), the higher the rate of economic growth.

Firms determine the most profitable level of output and, simultaneously, the optimal capital/labor ratio. Because of the nature of capital goods, the decision to acquire capital is based (among other things) on expectations of output growth. If the market economy is subject to prolonged periods of unemployment and slow growth because of insufficient demand, expectations for output growth and investment will be lower than if these periods did not occur. If deficit spending raises the path of real output over what it would achieve otherwise, investment and, thereby, potential real output growth should rise even higher. Thus, deficit spending could produce a higher rate of actual and potential growth because of increased capital formation.[9]

Deficits and Symmetric Business Cycles

The gains in output discussed so far are predicated on the assumption that cyclical swings in output around its potential path are asymmetric: cyclical downturns are longer and more pronounced than cyclical upturns. Since we are assuming that cyclical swings are due to variation in the demand for goods and services, this means that increases in the demand for goods and services are less frequent and smaller than decreases. If, on the other hand, fluctuations in aggregate demand around potential output are symmetric, periods during which output is above or below the potential path also will be symmetric.[10] This is illustrated by path 1 in figure 1 and by the aggregate demand and supply curves in figure 2. Given the slope of the aggregate supply curve, symmetric variation in aggregate demand produces symmetric movements in output about the potential level, y^*. On average, there are no "net output" gains to be achieved from deficit spending *over the cycle*. Periods of deficit spending when the economy is below the full-employment path would be matched by periods of budget surplus when output is above the path, so the budget would be balanced over the cycle and the average output level would be the same as with no fiscal action.

Society still may benefit, however, if the government runs deficits during the contraction phase of the cycle and surpluses during expansions. A cyclically balanced budget could stabilize aggregate demand and reduce the variability in output; this is illustrated by path 2 in figure 1.[11]

The Benefits From Stable Output

More stable output could reduce the risk associated with capital investment and, as a result, increase investment.[12] Consequently, the capital

[9]Achieving a higher rate of economic growth was part of the fiscal policy agenda during the 1960s. See Levy (1963).

[10]Recently, Sickel (1988) has investigated the asymmetry of the business cycles. He tests for both the "steepness" and "deepness" of post-World War II cycles and finds evidence that cyclical troughs are deeper than cyclical peaks.

[11]This discussion implicity assumes that deficit spending does not alter the path of y^*, i.e., that deficit spending merely dampens the cycle.

[12]Many authors merely assert that there are benefits from more stable output growth without identifying these gains, e.g., Modigliani (1986a), (1986b) and Bossons (1986). At other times explanations of these gains sound hollow. For example, Bruce and Purvis (1986), pp. 60–61, argue for the benefits of avoiding a cyclical downturn by stating that "a government deficit will provide some stimulus to the economy and hence help reduce *the dead-weight costs of unemployment that would have occurred in the absence of the deficit*." In the case where the government runs a surplus in order to prevent an economic boom, they argue that the surplus helps "avoid the *dead-weight costs that again arise because the economy is away from its long-run equilibrium*." (Italics added.)

Figure 1
Symmetric Swings in Output

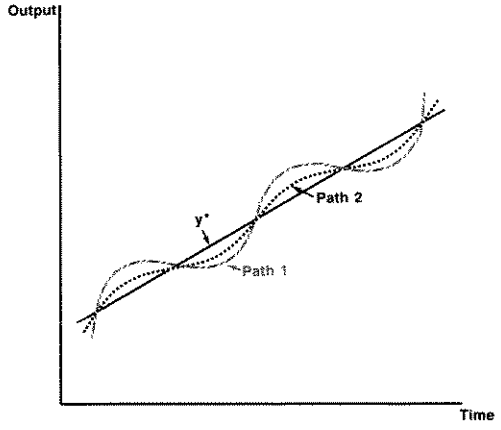
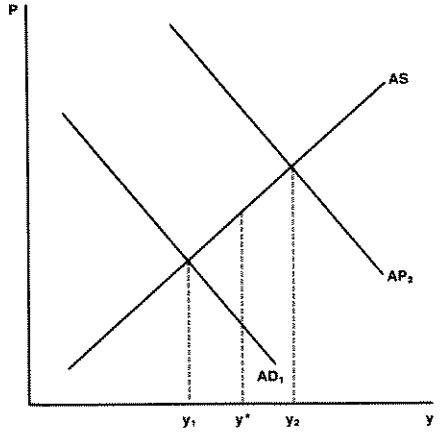


Figure 2
Symmetric Swings in Output and Aggregate Demand and Supply



stock would increase, as would the level of potential output.[13] The economy would then achieve a higher rate of growth than otherwise.

Additional benefits could arise if more stable output growth results in more stable consumption. Economists usually argue that people maximize the utility of their consumption over some planning horizon and that the utility gains from increased consumption are smaller than the losses from equally probable decreases in consumption.[14] Even if the distribution of shocks to income and, therefore, consumption are symmetric, the distribution of utility gains and losses will be asymmetric. Consequently, the expected utility of consumption rises as income is stabilized.

The Benefits from Stabilizing Nominal GNP

There are additional benefits from stabilizing aggregate demand if cyclical movements in nominal GNP are symmetric, but cyclical movements in real output are asymmetric. That is, the aggregate supply curve is more steeply sloped above potential output as in figure 3. In this case, random variation in aggregate demand would produce larger changes in real output below the potential output level than above it. Of course, the change in nominal spending above and below potential output must be the same if variations in aggregate demand are symmetric about the natural rate. Stabilizing discretionary fiscal policy reduces both inflation and unemployment over the cycle and, thus, the cost of lost output associated with unemployment *and* the cost of inflation.[15]

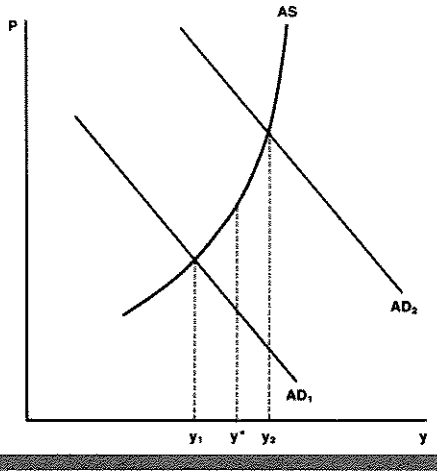
Finally, deficit spending could yield net benefits if it merely offsets downward shifts in aggregate demand. For example, assume that cyclical swings in real output are symmetric so that there are no output gains on average over the cycle from stabilizing aggregate demand. Deficit spending still could result in net output gains for society, if de-

[13]The issue is whether the growth rate of real output is made *permanently* higher. Certainly, if economic stabilization policy merely causes the level of real output to be higher but does not affect the rate of real output growth permanently, there would still be a period immediately following the enactment of stabilization policy in which the observed rate of real output growth would exceed the full-employment growth rate.

[14]That is, the utility function is concave. Such gains from economic stabilization have been suggested by New Keynesian economics. See Rotemburg (1987), p. 83. To illustrate this point, assume that consumption is a random variable that is uniformly distributed on the closed interval 1 to 2, and let the utility of consumption be the simple concaved function, $u = C^{.5}$. In this case, the expected value of utility is 1.22. Now assume that income and, hence, consumption are more variable, but with the same expected value. Specifically, assume that consumption is now uniformly distributed on the closed interval 0 to 3. In this case, the expected value of utility of consumption is reduced to 1.15. Hence, reducing the variability of consumption increases the expected (average) utility of consumption. Of course, consumption may fluctuate much less than output over the business cycle if the life-cycle or permanent income theories of consumption are correct.

[15]The costs of expected inflation are in terms of its effects on long-term bond markets, the misallocation of productive resources and its effects on regulations. The casts of unexpected inflation are primarily in terms of its redistribution of wealth. For a discussion of these costs, see Leijonhufvud (1987) and the references cited there.

Figure 3
Asymmetric Swings in Output but Symmetric Swings in Nominal GNP



ficits were incurred when aggregate demand was weak, but surpluses were not incurred when aggregate demand was strong. Of course, in this case, the level of government debt would rise, both over the cycle and over time.

CRITICISMS OF THE ALLEGED BENEFITS OF DEFICIT SPENDING

As we have seen, the gains from deficit spending consist of reducing "lost" output due to reduced employment, increasing the growth rate of real output or stabilizing output and consumption. To achieve these gains, deficit spending must shift the aggregate demand schedule and the aggregate supply curve must be upward-sloping, at least in the short run. If the aggregate supply curve were vertical, shifts in the aggregate demand schedule would not affect output. Consequently, there could be no output gains from offsetting shifts in aggregate demand. Of course, if the aggregate supply curve were positively sloped, deficit spending would be effective only if it succeeds in shifting the aggregate demand curve. Attacks on the efficacy of fiscal policy have focused, therefore, on the slope of the aggregate supply curve and the ability of deficit spending to shift aggregate demand.[16]

Asymmetric Cyclical Variation in Output

Both the Great Depression of the 1930s and the rise of Keynesian economics, with its emphasis on underemployment equilibrium, led to the acceptance of the notion that the market economy is neither able to sustain a full-employment level of output nor able to move back to it quickly when aggregate demand failures occur.[17] Prior to Keynes, it was commonly believed that output would naturally move to the level consistent with no involuntary unemployment. While shocks to either aggregate demand or supply might cause temporary periods of unemployment, resources were thought to be sufficiently mobile and wages and prices sufficiently flexible that the economy would return to its full-employment equilibrium fairly quickly.

Keynes argued that the economy might remain permanently below its full-employment level because of insufficient aggregate demand and market imperfections.[18] This below-full-employment equilibrium requires an upward-sloping aggregate supply curve. Typically, it was also argued that the aggregate supply curve would become steeper around the full-employment level of output, like the aggregate supply curve in figure 3.

The Phillips Curve

The Keynesian view was strengthened by the discovery of what appeared to be a stable long-run empirical relationship between the rate of inflation and the unemployment rate; this relationship was called the Phillips Curve.[19] If unemployment was too high (relative to the full-employment rate), policymakers could achieve a permanent increase in output by increasing aggregate demand through deficit spending. The cost would be a permanent increase in inflation. The extent of the cost is determined by the slope of the Phillips Curve. The closer income was to its full-

[16]This applies to monetary policy as well.

[17]For an interesting discussion of Keynesian and classical economics, see Blinder (1986), Laidler (1988), Eisner (1986) and Niehans (1987).

[18]There is a problem in defining "persistent" unemployment and establishing if and when it differs from cyclical unemployment. Many economists argue that there is no such thing as persistent unemployment because the market economy eventually will adjust to the point at which the labor market clears. Keynes himself almost certainly believed this to be true in the long run; however, he regarded the long run to be too long for the adjustment to be left to market forces alone. His much-quoted defense of his view was that ". . . in the long run we are all dead."

[19]This apparent empirical regularity was first discovered by Phillips (1958) who used wages and unemployment.

employment level, the steeper the slope and, consequently, the higher the inflation rate. Presumably, without deficit spending, the economy would be stuck permanently below the full-employment level of output.

The Natural Rate Hypothesis and Rational Expectations: A Counter View to the Phillips Curve

The view that the economy could remain permanently at underemployment equilibrium was challenged by the Natural Rate Hypothesis.[20] It reintroduced the once-prevalent argument that the economy eventually will return to its full-employment equilibrium. That is, the Natural Rate Hypothesis implied that the long-run Phillips Curve is vertical at the natural rate of unemployment.

The implications of the Natural Rate Hypothesis were enhanced by the rational expectations revolution, which argued for the same conclusions, albeit along different theoretical lines. Rational expectations models of the business cycle showed that systematic stabilization policies could not affect real output permanently in markets populated by "rational" individuals.[21]

Both theories argue that the employment rate will tend toward its natural rate; consequently, demand management policies will be unable to keep the unemployment rate below the natural rate in the long run. The natural rate of output, y_n, is determined solely by the level of employment N_n, consistent with the natural rate of unemployment, given the stock of capital K. That is,

$$y_n = f(N_n, K).$$

Since demand management policies have no lasting effect on employment or the capital stock, they have no effect on the natural rate of output. In effect, these theories make it less likely that there will be asymmetries in the business cycle, thus, eliminating the possibility of permanent gains in net output from deficit spending. Unless shocks to demand or supply are asymmetric, on average, cyclical downturns need be no more pronounced nor of longer duration than cyclical upturns.[22]

The Natural Rate Hypothesis asserts that the long-run aggregate supply curve is vertical at an output level consistent with the natural rate of unemployment. It does not assert, however, that the short-run aggregate supply curve will be vertical at this level of output.[23] Hence, accepting the Natural Rate Hypothesis does not imply that society cannot benefit from appropriately timed and implemented deficit spending; however, it limits significantly the benefits that society can receive from deficit spending. As discussed previously, society benefits only if deficit spending reduces cyclical swings in output or nominal GNP.[24]

CAN DEFICIT SPENDING SHIFT THE AGGREGATE DEMAND SCHEDULE?

Even when the aggregate supply curve (short- or long-run) is upward-sloping, deficit spending will have little effect on output or prices if the increase in aggregate demand that it produces is largely offset by a deficit-induced decrease in private spending, that is, if deficit spending fails to change aggregate demand.

Competition for Credit—Indirect Crowding Out Through Interest Rates

When the government runs a deficit, it issues government debt.[25] Thus, the demand for credit increases relative to the supply. All other things

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[20]See Friedman (1968) and Phelps (1967).

[21]Neither the Natural Rate Hypothesis nor many rational expectations models give rise to involuntary unemployment as defined in footnote 8. Many rational expectations models, however, give rise to cyclical movements in the natural rate of unemployment. See Fischer (1977), Taylor (1988) and McCallum (1986). For a list of other factors that could cause the unemployment rate to change without involuntary unemployment, see Blinder (1988).

[22]In chart 2, "potential" output is defined arbitrarily. Consequently, persistent unemployment can exist by definition. This applies to estimates of "potential" GNP as well as cyclically-adjusted deficits, etc. See Fellner (1982) and de Leeuw and Holloway (1982) for a discussion of this point.

[23]Also, it does not say explicitly what the level of the natural rate is. See Carlson (1988) for a discussion of the level of the natural rate.

[24]Actually, in such models, deficits can provide benefits in the absence of stabilizing output. These benefits come from smoothing taxes over the cycle. Public finance theory asserts that variation in tax rates across goods or activities results in welfare losses under most conditions. Consequently, it would be more efficient to run deficits and surpluses over the business cycle rather than balance the budget annually by altering tax rates. See Bossons (1986) and the references cited there.

[25]In models with a government budget constraint deficits are often financed directly through money creation. Given the current institutional structure, however, the government must initially issue debt even if it is subsequently monetized. See Thornton (1984a). See Thornton (1984b) for a discussion of and evidence on debt monetization.

unchanged, this causes interest rates to rise, reducing private expenditures in interest-sensitive sectors of the economy. Hence, the increase in aggregate demand associated with the deficit could crowd-out private expenditures indirectly by affecting interest rates.[26] Since investment spending is one of the most interest-sensitive components of spending, analysts often argue that deficit spending might retard the rate of capital formation and, hence, economic growth.[27]

Deficit Spending and the Trade Deficit

Assuming that deficit spending increases the demand for credit, its effect on interest rates depends on whether the economy is "open" or "closed." In the preceding example, we implicitly assumed that the economy was closed so that the government ran a deficit by borrowing from the private sector. In an open economy with a floating exchange rate and perfect capital flows, the results would be somewhat different.[28]

An increase in the budget deficit puts upward pressure on domestic interest rates. This leads to inflows of financial capital and an appreciation of the exchange rate. This appreciation, together with the higher domestic demand, is associated with a current account deficit in the balance of payments. In effect, the government deficit is financed by a larger trade deficit.[29] The economy may gain in terms of higher short-term consumption, but at a cost of an increase in external debt.

The decline in private expenditures is affected through higher interest rates, a larger trade deficit or both. In any event, the result is the same: the group that gains directly from deficit expenditures does so at the expense of those who lose, with little or no net increase in aggregate demand. The only difference is that those who gain directly are more readily identified than those who suffer indirect losses through higher interest rates or increased foreign claims on U.S. assets.[30]

Ricardian Equivalence

Another argument, referred to as the "Ricardian Equivalence Hypothesis," holds that deficit spending cannot shift the aggregate demand curve.[31] The closed-economy conclusion that deficit spending does not crowd-out private spending directly implies that government debt is net wealth to society. In other words, when the government issues debt to purchase goods and services, the holder of the debt views it as an asset; but the taxpayer does not view it as a liability (or, at least, views it as a smaller liability). That is, individuals believe that they will not have to pay current or future taxes to service or retire the debt.

[26]This problem cannot be solved by monetizing the debt. The increased rate of money growth will result merely in a higher rate of inflation and, hence, higher nominal interest rates. Many advocates of countercyclical fiscal policy view this as one of the most serious drawbacks to deficit spending. See Modigliani (1986b).

[27]This argument ignores how the deficits are spent. Recently, Heilbroner (1988) has argued that deficit spending is necessary to finance the purchase of public capital, that is, infrastructure. Other economist (for example, see Sturrock and Idan (1988)) argue that the real burden of deficits comes only when they are used to finance current consumption. This does not establish the desirability of deficit spending; it merely asserts that spending for infrastructure capital may increase the rate of economic growth, depending primarily on the relative productivity of the factor resources in the two sectors and on the productivity of public versus private capital.

The idea that such expenditures should be financed by deficits rests largely on the long-lived nature of capital goods. Since these capital goods provide services over a number of years, it is argued that public sector capital goods should be financed by borrowing just as businesses or households finance their acquisition of durable goods. In the case of businesses, however, debt service is financed out of the increased earnings that the capital goods are expected to provide. In the case of households, deficit financing is used to better match the desired consumption with expected future income. Hence, households, too, expect to service the debt through higher incomes. No similar increased earnings necessarily accrues from the acquisition of public capital. Income will increase only if the marginal product of public capital is larger than that of private capital. This is a difficult point to establish. Proponents of this view point to the productivity gains that could accrue from public expenditures on education and the like; however, these services could be provided by the private sector. Hence, this argument is about the appropriate role for government and public goods. See Aschauer and Greenwood and Aschauer (1988a, b and c) for a discussion of the benefits from social infrastructure expenditures. Hence, the only real argument for deficit financing of such expenditures is that it would equalize their costs and benefits across generations. This implies, however, that the increased indebtedness that such expenditures necessitate will eventually be retired through increased taxes unless the infrastructure acquired is infinitely lived.

[28]The assumption of perfect capital flows means that domestic real interest rates could not rise above world levels without inducing an inflow of financial capital from overseas. For a situation in which there is no expectation of exchange rate changes, this means that domestic and foreign nominal interest rates must be equal.

[29]See Mundell (1963). This result assumes no change in monetary policy to accommodate the defict.

[30]In this model, the real market value of government debt is part of society's net wealth. In the closed economy model, at the natural rate of unemployment, the increase in wealth resulting from the increase in nominal debt due to deficit spending is just offset by a decline in wealth due to higher prices, interest rates or both. In the open economy model, it is offset by a reduced stock of national wealth due to increased claims by foreigners on U.S. assets.

[31]Technically, Ricardian Equivalence argues that, for a given level of government expenditures, aggregate demand will not change as the government switches from tax to bond financing. As O'Driscoll (1977) points out, Ricardo was merely offering this as a theoretical possibility and did not himself believe it.

Ricardian Equivalence, on the other hand, asserts that public and private debt are perfect substitutes. Individuals believe that they or their heirs will have to pay taxes equal to the deficit-financed expenditures, so an increase in present value of the expected future taxes just equals the current deficit.

At the macroeconomic level, Ricardian Equivalence implies that deficit spending will not be associated with increases in real interest rates, output, prices or the trade deficit.[32] Consequently, the Ricardian view yields a radically different notion of the national debt. For those who believe in the benefits of deficit spending, the national debt, which is the accumulated deficits, should be viewed as a blessing, not a curse. For those who believe in Ricardian Equivalence, deficit spending merely results in a redistribution of income and the national debt represents the cumulative amount of this net transfer.

Can Discretionary Fiscal Policy Be Successfully Implemented?

There is also an argument against the usefulness of deficit spending that is independent of its ability to shift aggregate demand. It is critically dependent, however, on the Natural Rate Hypothesis and on whether shifts in aggregate demand caused by other factors are temporary or permanent. It has been suggested that policymakers do not have the information needed to offset shifts in aggregate demand to stabilize output.[33] This argument is usually couched in a discussion of the lags in economic policymaking. For fiscal policy, the most important of these are the "recognition" and "implementation" lags. The recognition lag is the time between when a need for corrective action arises (an exogenous shift in aggregate demand) and when policymakers recognize the need. The issue is simply whether policymakers know where the economy is in the business cycle at any particular point in time.

The implementation lag is the time between when the need for corrective action is recognized and when policymakers take action. Thus, even if policymakers are quick to recognize that the demand has shifted, by the time they react to the situation, it may have changed and the need for corrective action may have vanished.

This argument is presented graphically in figure 4a. Assume that the Natural Rate Hypothesis holds and that the short-run aggregate supply curve is symmetric around the level of output consistent with the natural rate of unemployment. Assume further an exogenous decrease in aggregate demand, shifting it from AD to AD'. Now if policymakers did not react to the shift in demand immediately, the process of adjustment toward the natural rate would begin; the price level would decline and the quantity of output demanded would increase. Once policymakers reacted to the problem by increasing deficit spending, they would shift the aggregate demand curve upward, bringing output back to its natural-rate level.

If the shift in aggregate demand were temporary, a delay in policy might actually exacerbate the situation if deficit spending coincided closely with the return of aggregate demand to its former level. This is illustrated in figure 4b, where the simultaneous increase in deficit spending and the return of aggregate demand to its former level shift aggregate demand to AD".

Of course, if the decline in aggregate demand were permanent, the timing of policy would be less important. Deficit spending eventually would move the economy back to the natural rate; the timing of the policy action would determine only how quickly deficit spending moved the economy back to its full-employment potential. Of course, the economy would move back eventually to full employment even without deficit spending.

Demand or Supply Disturbances

Another problem is that policymakers must be able to differentiate between demand- and supply-side disturbances. Recently, some have suggested that business cycles can be explained solely by supply-side disturbances. Indeed, some "real business cycle" models have successfully produced cyclical swings in output that mimic real world data. Whether all cyclical swings in economic activity can be explained by such models is the subject of intense debate. Nevertheless, to the extent that some cyclical swings are the result of supply-side shocks, fiscal policy can succeed in stabilizing output only by exacerbating movements in prices (or it can help stabilize the price level only by exacerbating movements in output).

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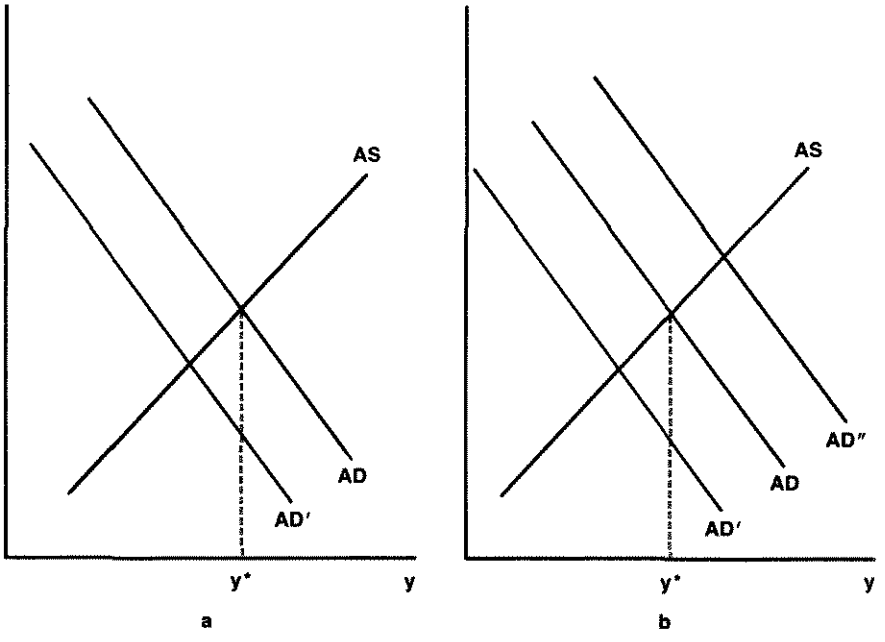
[32]Analysts frequently argue that Ricardian Equivalence must be invalid because the necessary microeconomic conditions for its validity are so stringent that they cannot possibly be satisfied. For example, see Buiter (1985). Also, see McCallum (1984).

[33]It is argued that inappropriately timed policy might destabilize the economy. See Friedman (1968).

Figure 4
The Timing of Changes in Fiscal Policy



Consequently, policymakers must know not only where in the business cycle the economy is at any point in time, but whether its position was caused by a shift in aggregate demand, aggregate supply or, perhaps, simply the cyclical dynamics of the economy, unrelated to exogenous disturbances in either aggregate demand or supply. In short, some would argue that the information required to use discretionary fiscal policy effectively is simply too great.

WHAT IS THE EVIDENCE?

Assessing the evidence on discretionary fiscal policy is difficult. Effective discretionary fiscal policy implies that output should be more stable and suggests that perhaps the rate of real output growth should be higher on average when fiscal policy was used aggressively. It also suggests that deficit spending should be positively correlated with interest rates, prices (or inflation) or trade deficits.

A number of large-scale econometric models suggest that fiscal policy has significant short-run and, in some cases, long-run effects. Estimates of reduced-form models, however, typically show no long-run effects of deficit spending and, often, only weak short-run effects.[34] Hence, such models essentially substantiate the Natural Rate Hypothesis. These studies are subject to considerable controversy because of the difficulty in finding commonly accepted variables that reflect discretionary changes in fiscal policy and the continued controversy over reduced-form estimation.

The greatest challenge to the orthodox view of deficit spending comes from the Ricardian Equivalence Hypothesis.[35] Macroeconomic evidence from three recent surveys is largely consistent with the Ricardian view.[36] In general, there is no statistically significant relationship between structural deficits and interest rates or inflation, or between the budget and trade deficits.[37] These results are bolstered by work that shows a high negative correla-

[34]One of the earliest of these was the Andersen-Jordan equation. See Andersen and Jordan (1968).

[35]See Barro (1987), Bernheim (1987) and Aschauer (1988a). For more recent studies which report results consistent with Ricardian Equivalence, see Evans (1988), Koray and Hill (1988) and Leiderman and Razin (1988).

[36]The microeconomic evidence yields mixed results.

[37]Barro (1987) reports that he finds a statistically significant correlation between government deficits and the trade deficit only if 1983 is included.

tion between public and private savings.[38]

The Evidence on Stabilization

One commonly cited piece of evidence that demand management can stabilize the economy is a comparison of the volatility of U.S. output, unemployment and industrial production, before and after World War II. The fact that the pre-war series are more volatile than the post-war series has been cited as evidence of both the inherent instability of unmanaged capitalism and the success of demand management policies in stabilizing the economy.

There are several criticisms of this evidence. First, pre- and post-war data vary in terms of a quality and uniformity. Indeed, some argue that the excessive pre-war volatility of the commonly used series on unemployment, GNP and industrial production is due to various quirks in their construction.[39]

Second, even if the post-war economy is more stable, this may be due to other changes in economic fundamentals, not to discretionary fiscal policy per se.[40] Furthermore, even if fiscal policy is responsible for the apparently more stable post-war economy, this may be the result of increased relevance on the automatic stabilizers, not to discretionary fiscal policy.

Also, post-war real output growth in the United States is below its pre-war growth. The discrepancy is even larger if the Depression years are omitted.[41] Moreover, there has been a secular rise in the unemployment rate. These adverse movements roughly coincide with a secular rise in the U.S. structural deficit.[42] Hence, if the more stable post-war economy is used as evidence on the success of fiscal policy, the associated slower output growth and higher unemployment must be considered the costs of stability.

CONCLUSION

This paper has examined the theoretical arguments about the wisdom of deficit spending. The once-prevalent Keynesian approach, which concludes that such gains clearly exist, has come under attack. Increasingly, both theoretical innovations and empirical evidence suggest that modern economies are not well characterized by the Keynesian view. Support for the Natural Rate Hypothesis, which argues that deficit spending has no effect on the equilibrium level of output and employment in the long run has grown. If this hypothesis is valid, the gains from deficit spending result from stabilizing output around the level consistent with the natural rate of unemployment. Such an effective use of deficit spending, however, imposes information requirements on policymakers that are unlikely to be attained.

In general, empirical evidence on the effects of deficit spending is sparse and, for the most part, ambiguous. Most persuasive is the growing macroeconomic evidence, consistent with Ricardian Equivalence, that deficit spending has no long-run effect. The challenge for those who argue that deficit spending merely redistributes income and that stabilization policy will likely hurt is to explain phenomena like the Great Depression. Through adherents to both extreme Keynesian and extreme rational expectations views (and everything between) usually are able to rationalize historical events on their own terms, the Great Depression is as likely to be seen as an example of what bad policy can create as it is of what good policy can eradicate.

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[38]Of course, in a closed economy with output unchanged, the public sector deficit must equal the private sector surplus. Other studies of consumption have tried to determine whether government debt is net wealth, e.g., Tanner (1979) and Kochin (1974). Again, the results are consistent with the Ricardian Equivalence Hypothesis.

[39]See Romer (1986a, 1986b, 1986c and 1988). Romer's evidence has been challenged by Weir (1986) and Lebergott (1986).

[40]Pre- and post-war real output series for the United Kingdom, Germany and Italy show significant decreases in the variability of real output of a similar order of magnitude as that of the United States. The pre-war standard deviations of annual output growth for the United States, United Kingdom, Germany and Italy were 6.61, 3.98, 6.10 and 4.79, respectively. The post-war standard deviations were 2.83, 2.00, 2.45 and 3.49. In all cases, the decline in variability was statistically significant at the 5 percent level. The data were obtained from Liesner (1985).

[41]The growth rate of real output from 1869 to 1938 was 3.1 percent, from 1945 to 1983, 2.7 percent, and from 1965 to 1983, 3.7 percent. These growth rates were calculated from data in Gordon (1986).

[42]The unemployment rate averaged 4.5 percent in the 1950s, 4.8 percent in the 1960s, 6.2 percent in the 1970s and 7.7 percent in the 1980s, respectively.

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