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The Capital Market Crowding Out Problem in Perspective

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The large Federal deficit of 1975-76 has inspired a critical debate. The issue—to what extent does deficit-inspired Treasury borrowing replace or “crowd out” private borrowing in U.S. credit markets? Private borrowing is crowded out in one sense whenever an increased Federal deficit inspires the Treasury to raise an additional dollar in the market for private savings. For that matter, when *any* borrower enters this market with an increased need for funds, other borrowers must compete more keenly, and pay more for available savings. In this way, credit is rationed and savings increased. The presence of the Treasury in the credit markets is the direct effect of fiscal policy upon interest rates, but there are indirect effects of fiscal policy upon interest rates as well.

This paper, like other discussions of crowding out, attempts to consider the totality of the Federal Government impact upon capital markets. To do this we analyze two time periods over which government policies may have distinct effects upon capital markets—the short run and the long run. By short run effects, we mean the temporary effects of government policies to reduce the impact of a recession—policies whose effects would be neutralized by other policies at other stages of the business cycle. An example would be a recessionary Federal deficit, which would be offset by a surplus at the peak of the business cycle. Long run policies, on the other hand, are at work through all stages of the business cycle. Examples would include the average rate of growth in the money supply over a decade, or the tendency of the Federal budget to be in deficit throughout the business cycle.

In the first part of the paper we analyze the long-run effects of fiscal policy upon capital markets. From these conclusions, we move to a discussion of the effects of short run fiscal stimulus upon an economy in the depths of a recession. The strength of the short-run impact of fiscal stimulus upon economic growth is still a matter of debate among economists. We therefore present two extreme positions—first the argument that fiscal policy has no impact upon economic growth, then the argument that fiscal stimulus is essential to promote recovery from a recession. In each of these two cases, we consider the implications of the assumed behavior of the economy for capital markets and for the central issue—the question of crowding out. This leads to some interesting conclusions about the use of fiscal policy.

The long run fiscal policy effects

To analyze the long run effects of fiscal policy upon capital markets we consider a permanent increase in the average level of government borrowing. In our analysis, we draw an extended analogy, comparing the long run effects of increased government demand upon the market for capital to the long run effects of increased government demand upon the market for current production.

What is the long term effect of government entry into the marketplace? Economists are generally agreed that if the government increases its expenditures, the long term rate of real economic growth remains unaffected. That is, fiscal policy cannot permanently raise the aggregate demand for goods and services in

either real or nominal terms. If government expenditures increase permanently, the eventual effect will be that government expenditures will replace, or "crowd out" an equal quantity of private expenditures, leaving the rate of growth in GNP unchanged. The basis for this proposition is that over the long term, GNP growth depends upon things more fundamental than fiscal and monetary policy, such as technology, individual tastes, and the supply of factors of production. The long-run neutrality of fiscal policy effects upon GNP growth also has implications for the effects of fiscal policy upon inflation. Since fiscal policy cannot increase aggregate demand over the long term, it also cannot increase the rate of inflation.

If fiscal policy has a neutral effect upon GNP, it also has a neutral long-run effect upon capital markets. That is, a permanent increase in government borrowing may not permanently increase the rate of growth in private saving. Private saving will remain unchanged from its long-term trend regardless of the extent of government borrowing. When increases in government borrowing are neutral, in the sense that they have no effect upon the rate of increase in private saving, a permanent increase in government borrowing will necessarily create an equal reduction in private investment. Interest rates must therefore play a long term role similar to prices. An increase in government borrowing has no long term effect upon interest rates because it is offset by an equal reduction in private investment, leaving the long term net demand for savings unchanged.

Unlike the government expenditure effect, a long-term increase in the rate of monetary expansion does have an effect upon prices. Prices go up, bringing the real value of money balances in line with long term trends in GNP growth. Since money growth determines the long term growth in prices, monetary policy alone can increase nominal GNP. Similarly, while a permanent increase in government borrowing does not raise interest rates over the long term, a permanent increase in the rate of monetary expansion does raise interest rates permanently.

This is a result of the well-known Fisher effect. A permanent increase in the rate of money growth leads to a permanent increase in the expected rate of inflation and therefore to an increase in interest rates, so that savers may retain the purchasing power implicit in their interest payments.

This analysis leads to some reasonable conclusions about the long-term realities of crowding out in capital markets. First, a permanent increase in government borrowing does not permanently increase interest rates. Instead, there is a permanent decrease in the level of private investment at old rates of interest. In other words, although increased government borrowing in the long run crowds out an equal amount of private investment, this crowding out does not result in higher rates of interest, although the government share of private saving is permanently increased. On the other hand, a permanent increase in the rate of monetary expansion does increase interest rates via the Fisher effect.

These conclusions appear to fly in the face of much of the current analysis of the crowding-out question. Often in these analyses—where the focus is on the short rather than the long run—responsibility for increases in interest rates, and therefore for crowding-out, is laid at the feet of tight monetary policy rather than easy fiscal policy. The argument is that with sufficient monetary expansion, increased government borrowing need not lead to increases in interest rates and therefore need not create crowding out in capital markets.

Indeed, analysts of the crowding out question frequently base their arguments on one of two options: (1) assume the Federal Reserve will decide to create sufficient credit through monetary expansion to hold short-term interest rates low, so that crowding out *will not* occur; or (2) assume the Fed, out of concern for inflation, will stick to a money growth path insufficient to hold interest rates down, so that crowding out *will* occur.

Our analysis suggests that interest rate increases are, over the long term, a poor measure

of the effect of government borrowing on private borrowers' share of the market for private savings. Government borrowing does not create crowding out at higher interest rates; rather, government borrowing leads to a reduction in the private share of national savings at the old rates of interest. Therefore, those authors who consider deficits as placing upward pressure upon interest rates and monetary policy as placing downward pressure upon rates refer to short-run phenomena, rather than long-run phenomena.

Short term crowding out

While the long-term effects of government borrowing upon capital markets may be clear, the short-term effects are not. Private savings and investment depend upon three basic variables: (1) the current level of income, (2) wealth, or the present value of the flow of future consumption, and (3) interest rates, a cost to investors, but a return to savers. Roughly speaking, interest rates are the relative prices that bring about the desired balance between present income and wealth to be used in the future, while investment measures the amount of present expenditure for the purpose of increasing wealth.

Short run crowding out depends upon the relative levels of savings and investment—and ultimately upon the underlying economic variables that affect savings and investment.

We consider first the effects of the variables income and wealth upon savings and investment, and also their effects upon interest rates. We consider two cases (1) a temporary decline in income with wealth unchanged, and (2) a decline in wealth with income unchanged.

If income should decline unexpectedly, due to some outside "shock" that did not affect wealth, what would happen to capital markets? Without some additional assumptions, we are not sure. Savings will decline and so will investment, but without knowledge of the relative magnitude of these declines, we cannot be certain of the effect upon interest rates. In this circumstance, it is reasonable to suppose income

and wealth to be "normal" goods. That is, when income declines, individuals attempt to maintain their current consumption, at the expense of investment, thereby depressing interest rates. Savings will decline as well, due to the combined effects of falling interest rates and falling income.

The effect of an unexpected decline in wealth with income unchanged is in some respects similar to the effect of a decline in income. Both savings and investment will decline. But again, because income and wealth are normal goods, the decline in investment will not be sufficient to return the relative price of income to its old level. The rate of interest must increase.

Capital markets are simply the place where people trade to adjust their claims between income and wealth. If the resources of an economy are reduced, either through a reduction in present production or through a reduction in capacity to produce in the future, individuals will reduce their holdings of both present and future income. The source of the initial reduction, be it income or wealth, will become relatively more expensive thereafter, until income and wealth are returned to their old balance. In sum, an unexpected decline in income tends to reduce interest rates, while an unexpected decline in wealth increases interest rates.

This construction gives us a framework for determining the short term effects of fiscal policy upon capital markets, and helps lay bare the different views of economic behavior that lead economists to disagree upon the question of crowding-out. But the analysis skirts some critical questions. For example: (1) Is a recession simply a decline in income, or does wealth decline as well? (2) What are the effects of monetary and fiscal policy upon the levels of income and wealth?

It would be easier to discuss the relevance of crowding out if we could be sure of the role of wealth in the U.S. economy and the effect of government policies upon it. Unfortunately, it would also be presumptuous to do so. We will consider crowding out within the context of two poles of current opinion, but will find that these

two extremes have an unfortunate property—one cannot look at the data and tell which is the correct point of view. We shall suppose that the economy is separated into three entities: the household, which earns, spends and saves; the firm, which organizes production and distributes capital; and the government, which spends, taxes and borrows.

Alternative 1: "*Deficits do not spur economic growth*" In a world so defined, consumers and producers behave rationally given the information at their disposal. Their desires are communicated easily and efficiently through signals transmitted in various markets. Through the prices they accept and the quantities they trade, market participants express their accurate judgment of the amounts of each item they wish to buy and sell, given limitations on their various resources. A summary measure of the availability of future resources to the consumer is his wealth, the capitalized value of the income he expects to receive in the future. Wealth plays an important role in consumer behavior in this world where deficits do not "work." It contributes stability to the economy. When income declines temporarily in a recession, individuals react by cutting their spending less than they would if the decline in income were permanent. They cut spending relatively little because the wealth upon which the spending decision is based depends upon future income as well as present income. The recession is not expected to affect income permanently. Since consumers base their spending decisions upon wealth, consumption declines less than income and helps to increase demand for present goods and services.

This phenomena is the primary force that accounts for the economy's natural tendency to *bring itself* out of a recession. In this world, a federal deficit cannot help the recovery because deficits do not increase total wealth. A deficit is government borrowing to be paid out of future taxes. That is, the government borrows, gives the proceeds to taxpayers, and pays for the debt incurred out of future tax revenues. As a result, lower present taxes are purchased at

the expense of higher future taxes, leaving the taxpayer with more income during the deficit, but less income as the deficit is repaid. Over the long haul, the taxpayer breaks even, so that a deficit does not increase wealth.

Example of an impotent deficit

Consider the case of a consumer who expects a disposable income (income after taxes and transfer payments) of \$200 per year in perpetuity. Out of this income, he consumes \$180 and saves \$20. Now, as a result of a recession, he experiences a one year decline in income, say to \$150. Since this decline is temporary, he nonetheless expects to receive \$200 in succeeding years. Our consumer realizes he is going to be worse off, but sees no reason to bear the entire brunt of his misfortune in the present. He therefore decides to borrow \$29 from past savings and consumes his entire income (now \$179) in the present, reducing his future consumption by enough to replace his savings. Assuming his repayment schedule is to be \$1 per year in perpetuity, he will consume \$179 henceforth out of an income, net of interest payments, of \$199. His consumption expenditures in the present have risen from \$150 to \$179, a natural force for recovery from the recession. However a tax cut would *not* affect this consumer's current consumption expenditures. Suppose he received an extra \$29 tax cut at this point. He knows the government borrowed to pay him this \$29, so that he will owe \$1 more in taxes each year to repay the government loan. This \$29 tax cut enables him to pay off his previous loan and to replace his \$1 interest payment with a \$1 increase in taxes. His reduced private borrowing is replaced by government borrowing in the same amount. He still spends \$179 per year now and in the future. Crowding out has occurred because his private demand for savings has been replaced by an equal amount of government demand for savings. Interest rates would remain unchanged, however, since total net borrowing is unchanged.

In this example, the consumer has already expressed his preference for present and future income in the marketplace for savings and investment. In fact, in this example the consumer, in effect, "saves" his entire tax reduction. But if the consumer saves the entire proceeds of the deficit, the deficit will have no effect upon spending—and it was to increase spending that the deficit was incurred in the first place! The deficit is impotent.

In this world larger government deficits do nothing except perhaps ease the lot of elected officials. Consumer spending decisions are unaffected. It is worth noting, however, that while government borrowing replaces private borrowing in this world, there is no effect upon interest rates. For every dollar the Treasury borrows, consumers save an extra dollar. The amount of savings available to private borrow-

ers is the same as it would have been without a deficit.

Crowding out is important in this scenario. Crowding out definitely occurs in the sense that for every dollar borrowed by the government, the private sector reduces its net borrowing by a dollar. But interest rates are unaffected. In essence, the private sector simply replaces a net loan from itself with a loan from the government. This loan takes the form of reduced taxes, and is repaid in the form of higher future taxes. In sum, this short-run analysis has the same implication about a deficit's neutral effect upon GNP and interest rates as the long-run analysis does.

Alternative 2: "*Deficits are important*"
There is another way to look at the world—a way that views fiscal stimulus as very important. This cosmology has been framed by Axel Leijonhufvud.¹ He posits a crucial role for government deficits in the smooth running of an economy, based on the view that a recession is a communications failure. In this world, the firm is a creature of the moment. During a recession the firm tends to ignore the possibility of future pressure upon capacity in deciding upon current capital expenditures. When use of capacity is low, this myopic firm does not take advantage of low interest rates to borrow ahead for future expansion needs. It waits until its sales approach its productive capacity before entering bond and equity markets to fund capital outlays. If the recession is not a permanent condition, this decision is irrational, since it increases the eventual cost of capital to the firm.

The consumer, according to Leijonhufvud, may be guilty of this same sort of myopia. He does not reduce wage demands as rapidly as the firm reduces its desires for labor, because he is not aware that reduced desires for labor are a prevalent condition, rather than simply a phenomenon peculiar to his own employer. Furthermore in contrast to the consumer of the first cosmology, he believes the recession-induced decline in income to be permanent. The result of this myopia is disastrous. Because producer and consumer see the recession as permanent,

they lower their expectations of future income or wealth and make spending decisions accordingly. As a result of this lowering of planned spending, the recession becomes permanent!

This permanent decline in income has an interesting property. If consumers and producers could be persuaded that a decline in income and spending is temporary, it would in fact be temporary. Thus they need some outside force to increase their incomes. In the right circumstances, an increase in income will be seen as permanent and therefore *will* be permanent, since the economy has the ability to sustain such an increase once it is set upon the right track. This is the critical role of the deficit. When a tax cut increases income temporarily, the effects of the added future taxes are not important, because the consumer expects his income to rise to a greater extent than his tax bill, thereby making him better off despite the extra tax payments. An example of the behavior of a consumer in Leijonhufvud's world helps to clarify this notion.

Example of an effective deficit

Consider the consumer of example 1. He expects to make \$200 per year in perpetuity. A recession reduces his income to \$150. Because he views this reduction as permanent, he considers himself to be permanently poorer. He therefore reduces spending. His new level of spending is consistent with lower total wealth and lower income. There is no reason to expect this economy ever to return to the old level of income. At this point we suppose the government introduces a \$50 tax cut, raising the consumer's disposable income to its old \$200 level. Since the myopic consumer views this increased income as permanent, he revises his plans and assumes a permanent flow of income of \$200. He will be slightly disappointed since his taxes will go up to some extent to repay the government borrowing—his future disposable income will actually be about \$199 per year, the same as the consumer in the first example—but he will be far better off than he would have been, had there been no tax cut.

Crowding-out is more a problem in the Leijonhufvud cosmology than in the world of impotent deficits. The deficit in our second example is a large one, sufficient to restore the consumer to his old level of disposable income, but \$20 of this increase in disposable income is saved, so that only \$30 of the deficit is required in additional savings to support it. Interest rates will therefore rise to induce the additional savings.

In the world where deficits matter, crowding-out in the form of higher interest rates is a serious possibility. Indeed, a tax cut serves to increase present income, but it has no direct effect upon wealth. As indicated earlier, in the case of increased income with wealth unchanged, interest rates will rise, bringing a recovery to a premature halt. In this circumstance it is necessary to induce an increase in wealth as well, to convince the consumer that his increased income is permanent. This goal may be accomplished through expansion in the money supply, since money is part of total wealth. For this reason Leijonhufvud gives monetary policy an important role in government anti-recession policy. As the quantity of money expands, wealth increases and future taxes decline because of reduced government borrowing from the private sector. As wealth increases relative to income, interest rates fall, and the recovery is under-way.

Who is right?

With differences of opinion of this magnitude, one would expect that by looking at the behavior of the economy during a recession, we could draw some broad conclusions about the comparative strength of the two opposing positions. Unfortunately this is not an easy matter. First, fiscal policy is "automatically" stimulative during a recovery. Indeed, a large part of the increased deficit during a recession has little to do with the policy maker's intent to stimulate the economy, but is rather a consequence of the structure of pre-recession legislation governing Federal payments and receipts. This "automatic" portion of the deficit occurs largely because of the decline in tax receipts associated with the recessionary decline in income, and because of increased expenditures associated with various measures intended to reduce the burden of unemployment. In our first world, where this stimulus does not matter, it also does not harm the recovery. The damage done is long term—the government share of private saving is permanently increased. In other words, the recovery behaves *as though* it occurred as a result of

fiscal stimulus (which actually had no effect) and monetary stimulus (which does affect income indirectly through its effect upon wealth).

In the second world, where income increases *because of* fiscal and monetary stimulus, government's share of savings is increased through a deficit-financed tax cut, but the level of private investment is actually higher than it would otherwise be. Fiscal and monetary policy have permanently increased both income and wealth, and have therefore increased private saving enough to leave plenty of added savings for the private sector. Although the government slice of the savings pie is greater, the pie itself has grown through fiscal and monetary stimulus.

What's a policy-maker to do?

This picture of the uncertain effects of fiscal stimulus seems to leave the policy-maker very much at sea. To leave this impression would be unjust. In fact, the choice of policy at any given time is less doubtful than the above analysis suggests because the risks involved in being "wrong" about the effects of fiscal stimulus are far from symmetrical. If the Alternative 1 is correct—i.e., deficits are not stimulative—and we choose Alternative 2, no important adverse effects will occur. Households will simply reduce private borrowings by an amount equal to the Government deficit. However, if Alternative 2 is correct—i.e., deficits are stimulative—and we choose Alternative 1, there will be a more severe recession than otherwise. In this circumstance the sensible policy response is to assume deficits are stimulative and reduce taxes in a recession. What is needed is a balanced government budget or surplus at the peak of the business cycle to reduce the long-term government demand for private savings to its pre-recession level.

Furthermore one important assumption underlying the theory that fiscal policy does not stimulate recovery is actually mistaken. Government borrowing implicit in fiscal policy is not a perfect substitute for private borrowing. The risks involved in a loan from one private citizen to another are greater than the risk of

lending to the U.S. Government. As a result, private lending is accomplished only at a higher rate of interest than public borrowing. The substitution of fiscal policy for private borrowing works to reduce the interest cost of transferring funds from saver to spender.

Summary and conclusion

We have considered the issue of crowding out in both the long term and the short term. In the long term, we adopt the common assumption of a "neutral" effect of fiscal policy upon private savings behavior. Given this assumption, we have found that persistent deficits would indeed retard private capital accumulation. However, this crowding out would not be reflected in higher interest rates. Thus deficit crowding out of private investment in capital markets is entirely analogous to the crowding out of private expenditures by those of the government.

In contrast, our analysis suggests that the short-term effects of fiscal policy upon capital markets and interest rates are uncertain. We examine two polar cases: (1) where the deficit

provides no assistance in speeding an economic recovery and (2) where without a deficit there is no momentum provided by the economy itself to recover. We discover the unfortunate fact that, given the policy decisions of fiscal and monetary policy to be stimulative, it is impossible to tell which of these two possibilities is correct. Nonetheless, our analysis suggests that under the worst circumstances (fiscal policy impotent) there is no damage in short-run fiscal stimulus) while under the best circumstances there is much to be gained. In the depths of a recession, fiscal stimulus is well advised. But to avoid long-term damage, it is equally necessary to reduce this stimulus as the economy recovers, balancing recessionary deficits with surpluses during periods of economic health.

FOOTNOTES

1. Leijonhufvud, Axel, *On Keynesian Economics and the Economics of Keynes*. New York: Oxford University Press, 1968. Clower, R., and Leijonhufvud, A., "The Coordination of Economic Activities: A Keynesian Perspective," *American Economic Review, Papers and Proceedings*, May 1975.