Deficits, Savings and Capital Formation

One of the oldest issues in economics is the question of who bears the burden of the national debt. Adam Smith discussed the burden question extensively in **The Wealth of Nations,** published in 1776, and economists are still debating the issue today.

There have always been two basic sides to the controversy. One side says the burden of national debt is passed forward into the future, while the other argues that there is no real difference between debt finance and taxation so that the burden is borne at the time the debt is issued.

These theoretical arguments ultimately boil down to one issue: how does deficit financing affect the national savings rate and hence the amount of money available for investment? During the current policy discussion on deficit finance, some people have argued that the size of the budget deficit is not important as long as the amount of government spending is reduced. Others have argued for tax increases because they believe that deficits cause high interest rates, reduce investment, and hamper economic growth.

We will examine the record to see how deficit finance has affected actual saving and investment behavior. Some evidence indicates that deficit finance does cause higher interest rates and lower investment. The lower investment of today makes the economy less productive in the future, so the burden of the debt is passed on. The economy is less productive in the future if the government uses deficit finance today.

The historical debate on this issue is fascinating, because the issues being discussed today are the same ones that economists have been discussing for hundreds of years.

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Historical Roots of the National Debt Controversy

During the Great Depression, when the American economy had several years of budget deficits in a row, President Roosevelt argued that deficits were innocuous. The debt was really not a burden, he said, because we owe it to ourselves. The argument that FDR was making was at least 200 years old, and was made by French economist Jean Francois Melon in 1735.[1] Adam Smith, argued against this position in 1776:

> In payment of the interest of the public debt, it has been said, it is the right hand which pays the left.... It supposes that the whole public debt is owing to the inhabitants of the country.... But that the whole debt were owing to the inhabitants of the country, it would not upon that account be less pernicious.[2]

Smith argued that the problem with government borrowing was that lenders did not need to assess the merits of spending projects as they would in the private sector. Lenders will

[1]Jean Francois Melon, **Essai Politique sur le Commerce** (Amsterdam: F. Changuion, 1735), Chapter 23.
[2]Adam Smith, **The Wealth of Nations** (New York: Modern Library, 1937, originally published in 1776), p. 879.

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Deficit financing reduces private savings and investment and lowers future productivity. Government deficits funded through bond issues instead of increased taxes are passed on to future taxpayers.

lend to a private corporation only if they view the borrower as making sound investments. Otherwise, the borrower might not be able to repay the loan. With the government, on the other hand, lenders can be paid back from tax revenues whether taxpayers like it or not. Therefore, there is no assurance that the government will spend the proceeds from its borrowing wisely. Smith went on to note: "The practice of (deficit finance) has gradually enfeebled every state which has adopted it."[3] Even in the 1700s, economists were debating the burden of the national debt.

Perhaps the most insightful analysis of the national debt was done by David Ricardo in the early 1800s.[4] Much of the current analysis is based on the foundation that Ricardo laid over a century and a half ago. Ricardo reasoned that in theory the burden of the national debt should be no different from the burden of taxation to finance the same expenditures. If a tax is levied, taxpayers must pay the burden immediately. If deficit finance is substituted for taxation, though, taxpayers are instead given the burden of paying interest payments on the debt. The present value of the interest payments will be the same as the amount of taxes that would have been levied, so the burden of the debt is the same as the burden of taxation.[5]

An example will help to illustrate Ricardo's idea. Assume that the government decides to increase its spending by an amount that will raise a person's taxes by $1,000. If the government decided instead to borrow the money, it would increase the individual's share of the national debt by $1,000. If the interest rate were 10 percent, this person's taxes would go up by $100 per year in order to pay the interest on the debt. From the individual's standpoint, the choice is to either pay $1,000 in taxes now, or to have the government borrow the money and pay $100 more in taxes every year. Either way the individual bears a burden of $1,000 at the time the government spends the money.

This example illustrates that the burden on the individual taxpayer will be the same whether government expenditures are financed by taxation or by debt. According to this theory, the burden of deficit finance is the same as the burden of taxation, so from this standpoint, it makes no difference whether government expenditures are financed by taxation or debt.

Ricardo saw that there was another side to this argument, however.[6] The careful and prudent taxpayer would realize that, with a 10 percent rate of interest, the effect on an individual's wealth will be the same whether a one-time tax assessment of $1,000 is levied, or if tax rates increase by $100 per year. But Ricardo argued that despite this equivalence, taxpayers will tend to treat the $100 per year tax increase as a smaller increase, and will not save enough to offset the future stream of taxes. If the government borrowed that $1,000, the individual would have to save $1,000 in order to offset the future liability of $100 per year. Ricardo argued that despite the possibility for individuals to save now in order to offset higher future tax payments, people in fact will not save enough to offset future tax payments, so that tax finance and debt finance will not be equivalent. Ricardo's argument, ironically, was

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[3]Ibid., p. 881. In place of deficit finance, Smith used the term "funding," which was the contemporary name of government borrowing.

[4]David Ricardo, **The Principles of Political Economy** (London: J. M. Dent & Sons, Ltd., 1912, originally published in 1821).

[5]This assumes that interest payments are discounted at the government's borrowing rate.

[6]Gerald P. O'Driscoll, Jr., explains Ricardo's views on the burden of the debt in "The Ricardian Nonequivalence Theorem," **Journal of Political Economy** 85, No. 1 (February 1977), pp. 207-210.

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that the so-called Ricardian equivalence theorem is in fact not true.

Although Ricardo developed these ideas in the early 1800s, their relevance to the issues of deficit finance in the 1980s is crucial. The key issue is how individuals respond when the government uses debt to finance its expenditures instead of taxation. Table 1 uses hypothetical data to illustrate the two sides of the debate. The first column shows how the individual spends his income of $30,000 under the current state of affairs. The individual's income can be divided into three general categories: consumption, saving, and taxes. The debate over the Ricardian equivalence theorem then asks the hypothetical question: What if government spending does not change, but the government lowers taxes and borrows the money to make up for the foregone taxes? The second column shows the answer if the equivalence theorem is true. The person's taxes go down by $1,000, but the person realizes that this must mean future taxes will go up, as previously explained. The taxpayer increases his savings by $1,000 to offset the lower present taxes and higher future taxes triggered by the deficit spending. Consumption remains unchanged. This hypothetical example illustrates the equivalence theorem in action.

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The third column shows the result that Ricardo thought would be more likely if debt finance were used instead of taxation. The individual's income remains unchanged, and taxes are lowered as they were in the second column, but in the third column the individual does not save all of the reduction in taxes. Saving goes up by only $200 in this example, and consumption rises by $800. In this case, financing by taxes and financing by debt are not equivalent, because debt finance causes consumption to rise. Individuals do not save for their future higher taxes, but instead use the money from lower taxes primarily for consumption. The validity of the equivalence theorem is a key element in understanding current issues regarding the national debt.

The Current Issues

Two events made discussions of the debt burden especially relevant after World War II. The first was the fact that the nation had increased the national debt by over five times in the years from 1940 to 1945. The national debt was $48.5 billion in 1940, but because of the war it had increased to $259.1 billion by 1945. After the war, the nation questioned the impact of this massive increase. The second event was the publication of John Maynard Keynes' **General Theory** in 1936, and its enthusiastic acceptance by the economics profession in the intervening years.[7] Writing during the Depression, Keynes argued that the government could use taxes and expenditures to maintain full employment with low inflation. If unemployment threatened, a budget deficit would be called for, while inflation could be reduced by a budget surplus. This type of policy—functional finance, as it was called—argued against a goal of balanced budgets every year. Instead, it said the government should have the flexibility to use functional finance to help solve the nation's economic problems.

According to this theory, several consecutive years of budget deficits might be required to fight an unemployment problem. This naturally raises the question of who bears the burden of the debt resulting from the deficit. This theoretical issue plus the real-world question about the debt resulting from World War II renewed economists' interest in the question.

The generally accepted answer at that time was explained by Abba Lerner in 1948.[8] Lerner said the national debt was really not a burden because the debt was, for the most part, owned by Americans, and therefore we owe it to ourselves. This, of course, is the same argument made more than two centuries before by Jean

[7] John Maynard Keynes, **The General Theory of Employment Interest and Money** (New York: Harcourt, Brace and Company, 1936).
[8] Abba P. Lerner, "The Burden of the National Debt," in **Income, Employment, and Public Policy** (New York: W. W. Norton and Company, 1948).

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Table 1. Expenditures of a Hypothetical Individual

	Tax Finance	Debt Substituted for Some Taxation, Equivalence Theorem Holds	Debt Substituted for Some Taxation, Equivalence Theorem Does Not Hold
Consumption	$20,000	$20,000	$20,800
Saving	2,000	3,000	2,200
Taxes	8,000	7,000	7,000
Total Income	$30,000	$30,000	$30,000

Francois Melon. Given the history of the debate, it is surprising that Lerner's argument generally went unchallenged through most of the 1950s.

The first serious questioning of Lerner's theory was done by James M. Buchanan in 1958.[9] Buchanan argued that the present sellers and purchasers of the public debt voluntarily agree to the transaction, and so are not bearing the burden of the debt. However, future taxpayers who face higher taxes as a result of the debt are being made worse off. The government, because of its ability to force future taxpayers to pay higher taxes, pushes the debt burden into the future. Once again, we note the similarity between Buchanan's argument and that made by Adam Smith. In 1776, Smith said that deficit finance would gradually enfeeble a nation because the government has the power to burden future taxpayers. This certainly appears to be a case of intellectual history repeating itself, but the story is not finished yet.

In 1974, Robert Barro published a restatement of the Ricardian equivalence theorem.[10] Barro argued that if debt finance were used instead of taxation, people would save more, so there would be no real difference between taxation and debt. Other economists disagreed, saying that people would not save enough to make up for the debt finance.[11] Surprisingly, the state of the theoretical debate seems to remain much as Ricardo left it in 1821.

The Equivalence Theorem and the Burden of the Debt

The intellectual history we have reviewed is interesting in its own right, but it is also crucial to the contemporary debate on deficit finance. Ultimately, questions about the effects of the budget deficit are questions about the equivalence theorem. At one extreme is the argument that the size of the budget deficit does not matter, that the only truly significant variable in government finance is the size of the budget. How this budget is divided between taxes and borrowing is unimportant according to this view, which asserts that the equivalence theorem is true.

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Those who disagree argue that the equivalence theorem is not true, that a larger deficit causes individuals to alter their spending patterns and

[9] James M. Buchanan, **Public Principles of Public Debt** (Homewood, Illinois: Richard D. Irwin, Inc., 1958).

[10] Robert J. Barro, "Are Government Bonds Net Wealth?," **Journal of Political Economy** 82 (November/December 1974), pp. 1095-1117.

[11] See, for examples, James M. Buchanan, "Barro on the Ricardian Equivalence Theorem," **Journal of Political Economy** 84 (April 1976), pp. 337-342, and Martin Feldstein, "Perceived Wealth in Bonds and in Social Security," **Journal of Political Economy** 84 (April 1976), pp. 31-336.

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reduce private saving and investment. A look back at Table 1 illustrates why private sector investment will decline if the equivalence theorem does not hold.

This decline in investment is what causes concern about deficit financing. By running a deficit, the level of private saving and investment declines, which lowers the future productivity of the economy. Because of this lower future productivity, the debt burden is passed on into the future.

Does the Budget Deficit Matter?

These theoretical issues are directly relevant to the contemporary discussion about the budget deficit. If recent political campaigns are any indication, the budget deficit is an important issue; major candidates have run on a platform of balancing the budget. Now, with the prospect of large deficits continuing for the foreseeable future, some economists argue that the size of the budget deficit really does not matter, and that the important thing is to lower government spending. In this view, the level of government expenditures is the relevant variable in public finance, not whether those expenditures are financed by taxes or debt. The opposing view argues that large amounts of government borrowing raise interest rates and as a result make it more difficult for businesses to borrow, which lowers capital accumulation and hinders economic growth.

A look at both sides of the argument reveals an important difference, again related to the equivalence theorem. If the size of the budget deficit is not important, then individuals must be willing to save additional amounts to offset government borrowing. If individuals do not save more to offset the government's borrowing, then less money will be available for private borrowing and private investment. The key to the debate, both contemporary and historical, is how private saving responds to changes in the government's debt.

Professors John Jackson, Asghar Zardkoohi, and I examined data from 1929 to 1976 to estimate the relationship between saving and the government budget deficit.[12] We estimated a log-linear regression equation using annual data with saving (S) as a function of the budget deficit that year (D), government spending (G), a dummy variable for the increased saving of the World War II years (W), the inflation rate (I), the change in the unemployment rate from the previous year (U), a measure of transitory income (Y), and a variable for liquid asset holdings (A).The resulting regression equation was:

$$S = \underset{(2.87)}{-39.19} + \underset{(4.71)}{.20D} + \underset{(2.78)}{.07G} + \underset{(2.78)}{.07W} + \underset{(2.34)}{78.68I}$$

$$+ \underset{(3.55)}{806.6U} + \underset{(6.15)}{.42Y} + \underset{(4.19)}{.03A}.$$

$$R^2 = .97 \qquad F = \underset{(42.7)}{185.53} \qquad DW = 2.29$$

The purpose of our estimation was to find the relationship between deficit finance and saving, taking account of the other variables. Since the equation was run in log-linear form, the coefficient of .2 on the debt variable implies that a one percent deficit will result in only a 0.2 percent increase in private savings.

This result supports the view that the size of the budget deficit does make a difference for the time period under study. If an increase in the national debt of $1 caused an increase in saving of only 20 cents, this meant that, in a closed economy, the other 80 cents of the increase in the debt must come from money that otherwise would have been used for private investment. As a result of increasing the debt, private investing was reduced by about 80 percent of the deficit.

The Burden of the Debt

The burden of the national debt is indeed borne by future generations, but not because the debt must be repaid, or because interest must be paid on the outstanding debt. Those future payments will be made by some people in the future to others in the future. The burden is passed on to the future because deficit financing by the government lowers private saving. Lower private saving means less money

[12]Randall G. Holcombe, John D. Jackson, and Asghar Zardkoohi, "The National Debt Controversy," **Kyklos** 34 (1981), pp. 186-202. See that article for a more complete discussion of our work than is given here.

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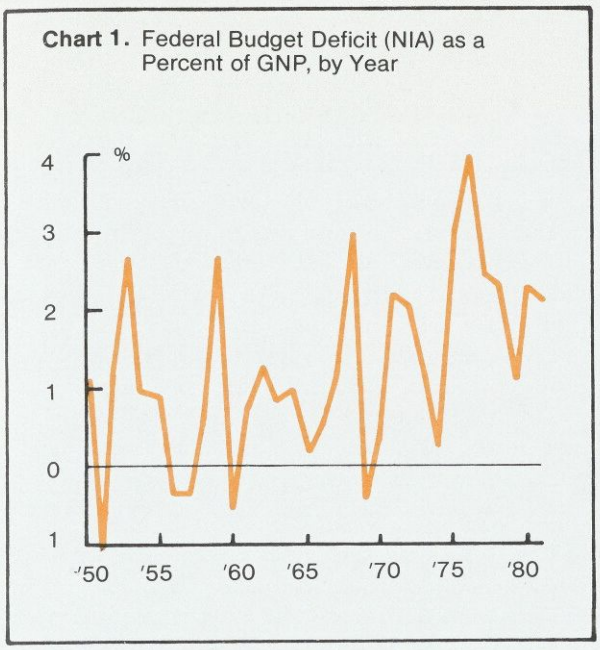

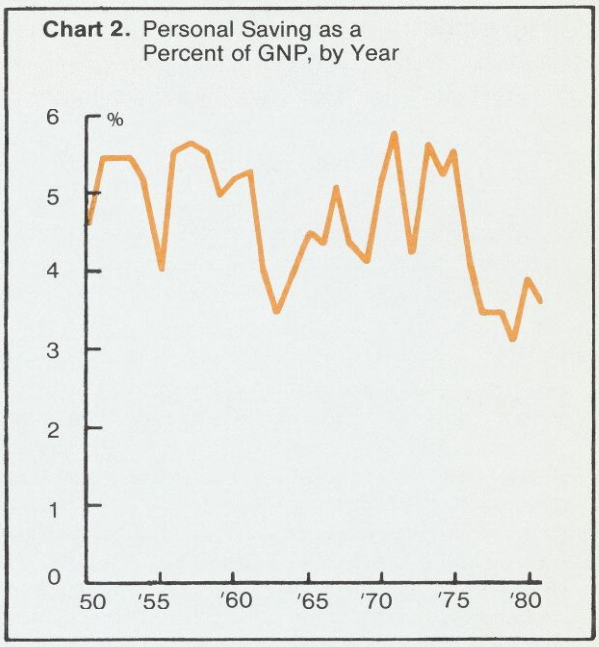

available for private borrowers, which in turn lowers private investment. Less investment today means a less productive economy in the future, so the debt burden is passed into the future in the form of lower future productivity.

The regression equation (1) shows the effect of deficit financing on saving, and the same ideas are illustrated graphically in Charts 1 and 2. Chart 1 plots the federal government's budget deficit as a percent of GNP from 1950 to 1981. In the 25 years before 1975, the deficit exceeded 2 percent of GNP only four times, in 1953, 1959, 1967, and 1971. These years also contain five years of budget surplus, in 1951, 1956, 1957, 1960, and 1969. In contrast, six out of the past seven years have seen budget deficits greater that 2 percent of GNP. In the 25 years from 1950 to 1974, the budget deficit averaged 2.5 percent of GNP. Looking at the budget deficit as a percent of GNP, only three times from 1950 to 1974 has the budget deficit been larger than the average deficit from 1975 to 1981.

If the equivalence theorem is not true, as was suggested in the earlier analysis, then individual savings should not have been sufficient to offset the increase in deficit financing since 1975. In fact, a look at Chart 2, which plots personal saving as a percent of GNP, shows a large decrease in the savings rate since 1975. From 1950 to 1975, personal saving averaged 4.9 percent of GNP. From 1976 to 1981, the average has been 3.6 percent. The low average savings rate over the past six years is remarkable, especially since only in one year between 1950 and 1975 did the saving rate fall below the average of the past six years. In 1963 the savings rate fell to an anomalously low 3.4 percent of GNP, but the savings rate for each of the past five years has been lower than in any year since 1950 with the exception of 1963.

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Conclusion

Over a century and a half has passed since Ricardo analyzed the burden of the national debt, but the same issues still are being debated. Some economists argue that the size of the budget deficit does not matter because people can save to offset the effects of the deficit, while others contend they will not save so investment will decline and future productivity will be lower as a result.

The evidence seems to support the latter view. Regression analysis indicates that, holding everything else constant, a $1 increase in the deficit accompanied by a $1 decrease in taxes will lead to an increase in savings of only 20 cents. Therefore private sector investment will decline by 80 percent of the deficit. The budget deficit as a percent of GNP has increased substantially since 1974 and, as a result, the personal savings rate has shown a substantial decline since 1975.

The conclusion is that the burden of the national debt is passed on to the future. Deficit financing reduces private saving and investment. Lower investment means a less productive economy in the future, and the lower future productivity is the price we pay for deficit financing.

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