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The National Debt: Who Bears Its Burden?

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ABSTRACT

The burden of a national debt and who bears that burden is a matter of Congressional concern since the gross national debt of the United States stands at some $5.5 trillion dollars. The consensus view among economists is that the burden of this debt comes from the federal budget deficits and that the burden is largely borne by future generations. It arises because budget deficits tend to "crowd out" or displace private sector spending that is sensitive to interest rates and this tends to be spending on capital goods. As a result, future generations inherit a smaller private capital stock (or one that is American owned) which translates into a lower level of income. Thus, future generations of Americans tend to bear the major part of the burden. In a era of budget surpluses, the process is reversed. Budget surpluses "crowd in" interest-sensitive private sector spending meaning that future generations inherit a larger privately owned capital stock and a higher level of income. If the budget surplus is used to reduce the national debt, future generations tend to gain. Alternatively, if the surplus is used for cutting taxes, a large share of the gain accrues to the current generation. This report will be updated as events warrant.

The National Debt: Who Bears Its Burden?

Summary

The United States has been free of a national debt for only two years, 1834 and 1835. We began our existence as a country in 1790 with a debt of $75 million. It has risen to $5.6 trillion in 1999. It rose to a high of 121.6% of gross domestic product (GDP) at the end of World War II; declined to a post-World War II low of 32.5% of GDP in 1982; and, then, rose to another high of 67.3% of GDP in 1996. The major cause of debt accumulation has been war. The United States has financed the extraordinary expenditures associated with war by borrowing rather than by raising taxes or printing money. This pattern was broken by the large budget deficits of the 1980s and 1990s which caused the national debt to rise as a fraction of GDP.

While economists have long recognized that a national debt imposes an inescapable burden on a nation, they have debated whether the burden is borne by the generation who contracts the debt or is shifted forward to future generations. There has also been some controversy over the nature of the burden.

The current consensus among economists is that the burden of the national debt is largely shifted forward to future generations. However, the burden imposed by the national debt does not arise from debt per se, but from government budget deficits that gives rise to a national debt. If an economy is fully employed and the government increases its expenditures, for example, the resultant increase in aggregate demand will cause interest rates to rise and this will reduce or **"crowd out"** interest-sensitive spending by the private sector. This type of spending is likely to be for capital purposes (e.g., business spending for plant and equipment and household spending for housing and durable goods including automobiles). As a result, the private capital stock inherited by future generations is likely to be smaller and their real income or output will likely be lower. It is the reduction in future output that constitutes the burden of the national debt and it is a burden borne largely by future generations. It is a burden that cannot be decreased by borrowing abroad even though foreign borrowing could leave unchanged the size of the private capital stock.

Crucial to the consensus view (and other views) is the assumption that the economy is fully employed. And the burden discussed must be regarded as a gross burden in the sense that certain intangible gains must be set against it such as freedom from tyranny and domination by a foreign power that might have occurred had the United States lost such a contest as World War II.

Beginning in FY98, the federal government has run budget surpluses. These surpluses have been used to reduce the national debt. If Congress continues to use them for debt reduction, the gain to the United States will be a larger capital stock for the future as debt reduction **"crowds in"** the interest sensitive spending of the private sector. As a result, the size of the private sector capital stock in the future should be larger and this should increase the level of income enjoyed by future generations. This is the legacy of reducing the national debt and it is a legacy that comes from budget surpluses.

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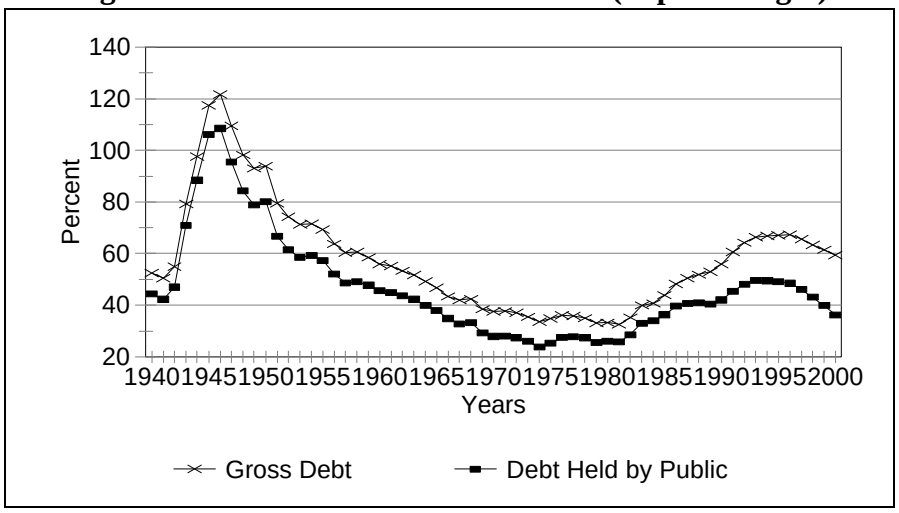
The United States, from its beginning in 1790 to the present, has been free of a national debt for only two years, 1834 and 1835.[1] The national debt has grown from $75.5 million in 1790 to $5.6 trillion in 1999. The history of the U.S. national debt as a percent of gross domestic product (GDP) since 1940 is shown in figure 1.[2] The national debt reached a high of 121.6% of GDP in 1946. It than began a long decline, reaching a low of 32.5% in 1981. The large budget deficits of the 1980s and 1990s reversed this trend and pushed the percentage to another high of 67.3% in 1996.

Figure 1. Federal Debt/GDP 1940-1999 (in percentages)



Source: Office of Management and Budget

The debt used for the computations in figure 1 is the gross interest-bearing debt of the United States.[3] It is customary to divide this debt into two parts: debt held by

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[1] During 1834 the national debt was $37,733 and in 1835 it was $37,513. It is generally believed that the bonds represented by these sums were lost, misplaced, or destroyed and, thus, were not presented for payment.

[2] Official data on U.S. GDP are available subsequent to 1929. Finding a consistent series on the national debt prior to 1940 is difficult since the treatment of U.S. Agency debt is not consistent across time. When a somewhat comparable series for gross debt for the period 1929-1939 is used, it is shown to rise from 16.6% of GDP in 1930 to 44.3% in 1934. It then remains in the low 40% range until 1938, rising to 45.5% in 1939. However, the rise from 1930 to 1934 is due mainly to the decline in GDP during the Great Depression. During the period 1934-38, the national debt grew at about the same rate as GDP.

[3] Traditionally, the national debt of a country has consisted only of its interest-bearing debt. Non-interest-bearing debt or currency, even though a *technical* liability of the government,

(continued...)

the public (including the Federal Reserve) and the amount held in accounts called federal trust funds, the principal one being for social security. The publicly held debt is often subdivided into that portion that is domestically owned and that portion owned by foreigners. U.S. Treasury securities have become increasingly popular among foreigners. Over the ten-year period from the end of 1989 to the end of 1999, the percentage owned by foreigners nearly doubled, growing from approximately 21% to 40% of the publicly held debt.

The federal budget surpluses that began in FY98 are being used to retire the publically held portion of the national debt. Current projections by OMB show that between FY98 and FY00, the publicly held portion of the debt should decline by nearly $300 billion.[4]

The need to finance wars has been the major reason for the growth of a national debt. In common with other major countries, the United States has rarely financed the surge in wartime expenditures exclusively by raising taxes. A large part of wartime expenditures have been bond financed. During the Civil War, from mid-1861 to mid-1865, the national debt grew from about $65 million to $2.7 billion. Between mid-1916 and mid-1919, the increased debt associated with World War I, grew from $1.2 billion to $25.5 billion. And from mid-1941 to mid-1946, the debt associated with World War II, rose from $49 billion to $269 billion. Thus, it has been a common practice of American public finance to increase the national debt during wartime and then reduce the debt, at least as a percentage of GDP, during times of peace. This pattern was broken during the 1980s and early 1990s when the national debt grew both absolutely and relative to GDP. Growth of the national debt has also occurred during periods of economic contraction.

The Traditional View of the Burden of a National Debt

Is a national debt a burden on a country? If it is, what is the nature of the burden? Who bears this burden? Questions such as these have perplexed economists at least since the days of Adam Smith for Great Britain in his day had accumulated a large national debt fighting the Seven Years War (the French and Indian War) and was about to add a further considerable sum suppressing the rebellion in its American colonies.

Curiously, mainstream macroeconomics views the burden of a national debt, not in terms of the debt per se, but in terms of government budget deficits that are the

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[3] (...continued)
has been excluded from national debt calculations.

[4] Because of various accounting conventions and practices used by the federal government, it is possible for the gross debt of the United States to rise even as the publicly held portion declines. And, indeed, OMB projections recorded in Appendix A show this happening. For an additional discussion of this issue as well as other useful information about the national debt, see CRS Report RS20065. *Surpluses and Federal Debt* by Philip Winters. Updated periodically, and CRS Report RS20455. *The Effect of Surpluses on Federal Debt* by Philip Winters. Updated periodically.

cause of the debt and its growth. Thus, the burden that a national debt imposes on a country is due to the government's budget deficits.[5]

To see clearly the nature of this burden and who bears it, assume that the country is fully employed and that capital (or saving) cannot flow internationally between countries. Also assume that this country now engages in a war with a neighbor and that the increased expenditures associated with the war lead to a budget deficit that is financed by issuing bonds.

The increase in government expenditures increases aggregate demand. In a fully employed economy, in addition to raising prices, the increase in demand will lead to a rise in interest rates.[6] The increase in interest rates is the means by which the government obtains the additional resources to fight the war for the increase will discourage interest-sensitive spending by the private sector. This is primarily business spending for capital goods such as plant, equipment, and structures and spending by households for homes, automobiles, appliances and the like. Thus, the budget deficit **"crowds out"** private capital and the burden of the growing national debt represented by the bonds issued to finance the war, is the decrease in the private capital stock of the country. Since the private capital stock inherited by future generations will be smaller, it implies that the level of output enjoyed by them will be lower.[7] The lower level of output is thus the ultimate burden of the debt and it is a burden that is largely shifted forwarded to future generations.[8]

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[5] The literature on the burden of a national debt is extensive. It is selectively reviewed in Appendix B.

[6] The mechanism by which this occurs is presented in the literature in two different ways. Often is it said that real (or inflation adjusted) interest rates rise because the government must float additional bonds to cover the deficit. This increases the demand for funds in financial markets which raises interest rates. In the standard or text book macroeconomic explanation, however, the rise in real interest rates results from an increased demand for money as income increases in response to the rise in aggregate demand. This increase in money demand, in the presence of a fixed money supply, causes interest rates, the price of money, to rise to restore equilibrium between demand and supply.

[7] If by some magic, additional resources were made available through additional saving by the public, the increase in government expenditures would not raise real interest rates and crowd out private investment. This would not, however, eliminate the burden of the debt. It would merely shift it forward to the present generation. The consumption of this generation would be reduced by the additional saving.

[8] Some of the burden will be borne by the current generation (or generation present when the debt is contracted) for they will share part of the lower output over their remaining life as well. Of course, this burden must be regarded as a gross burden. Some budget deficits are incurred to increase the stock of social capital such as highways, power grids, water supplies, etc. This capital may perform a very useful and complementary role relative to private capital. In addition, offset against the burden may be a large immeasurable gain enjoyed by future generations such as freedom from tyranny and domination by another country.

Suppose Capital Can Flow Internationally

It might be thought that a high degree of international capital mobility could moderate the burden of the debt because foreign saving could supplement domestic resources such that the private capital stock need not diminish. Suppose, for example, that as interest rates tended to rise in response to the increased expenditures, foreign capital (or foreign saving) was attracted in sufficient volume to keep domestic interest rates from rising.[9] This would keep the domestic capital stock unchanged. Would this mean that there was no burden from a national debt? Unfortunately, this is not the case. While it is true that the private capital stock inherited by future generations will remain unchanged, a portion of it will now be owned by foreigners. And the rewards from that capital will not flow to Americans, but will have to be transferred abroad. The effect on the level of output enjoyed by Americans (i.e., their standard of living) will be about the same as if the private capital stock was, in fact, diminished. It will be lower.

Thus, having foreigners supply some or all of the resources for the war effort, as in this example, will not reduce the burden of the debt. Future generations will still have a lower level of income available to them.

Would Financing the Deficit by Issuing Money Eliminate the Burden?

In the preceding discussion, the budget deficit was financed by issuing interest-bearing debt or bonds. The government, however, has available another means for financing its budget deficit. Rather than borrowing the wherewithal it could simply print money (currency) and pay its bills.[10] Might not this method of finance reduce or eliminate the burden the national debt places on future generations? While the simple answer is basically yes, the explanation is more complicated.

Financing a budget deficit in a fully employed economy by issuing money is inflationary. And inflation is a form of taxation. It is tax on the existing stock of money held by the public in the sense that it reduces the purchasing power of that money. It is by reducing the wealth and purchasing power of the private sector that inflation enables the government to obtain the additional resources to finance the war. Inflation (taxation) thus crowds out private spending, some of which may be spending on capital goods. The majority of that spending, however, is likely to be on current consumption. Because it is, the burden of these additional government expenditures, used in the example above, are almost exclusively borne by the current generation.

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[9] It should be recalled that foreign capital or saving comes to a country in the form of a trade deficit. It is the trade deficit or excess of imports over exports, that allows a country to use more goods and services than it produces. It is this excess that makes it possible, in this example, to use resources for war and, at the same time, keep the capital stock from falling.

[10] This was the principal means used by the Continental Congress to finance the American Revolution. The Confederacy used this means heavily in the American Civil War. It was used to a lesser degree by the Union government.

The private capital stock inherited by future generations is unlikely to be diminished and, hence, they will not suffer much of a decrease in their standard of living. Thus, financing a budget deficit by substituting non-interest-bearing debt (money) for interest-bearing debt (bonds) does not eliminate the burden of the debt; it largely shifts the main burden from future generations to the present generation.[11]

Do All Budget Deficits That Increase the National Debt Impose a Burden?

The preceding analysis is framed in terms of a fully employed economy that experiences an increase in aggregate demand due to an increase in government expenditures. This increase in demand requires an increase in real interest rates to decrease or crowd out private sector spending. Yet, there are circumstances under which a government budget deficit can arise or increase with little or no crowding out.

Suppose, for example, that the United States economy is in a recession and either expenditures are increased or taxes cut in an effort to "jump start" an expansion. It is possible in these circumstances for a budget deficit to grow without increasing interest rates. The reason being that the increase in income generated by the increase in demand generates additional saving for financing the deficit. The additional resources represented by the saving make it possible to maintain an undiminished private capital stock in the face of a rising budget deficit.[12] [13]

The Role of Interest Payments in the Traditional View

The accumulation of a national debt means that the government budget will contain as an expenditure item the interest payable on that debt. Does this impose a burden on future generations whose taxes will be used for debt service? In the traditional view, the answer depends on whether the debt is internally or externally held. For an internally held debt, the payment of interest is an income transfer from taxpayer to bond holder. In the simple case, if they are the same person, they are left

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[11] Another way of expressing what is occurring is to say that as inflation erodes the real value of the public's money holdings, it must refrain from using income for consumption in an effort to restore it's real money balances. This reduced level of consumption is then the burden of the debt and it is a burden borne by the current generation.

[12] Similarly, a budget deficit that rises as an economy goes into a downturn is unlikely to "crowd out" private investment since it will not force up interest rates. The most that can be said is that the deficit may keep interest rates from falling as much as they would otherwise. In that sense, the deficit reduces the hypothetical capital stock available to future generations.

[13] This part of the traditional view on debt burden seems to be incomplete or based on the implicit assumption that a national debt accumulated in periods when the economy is operating at less than full employment is retired during periods when the economy is operating at full employment. If this is not the case, and the country faces a budget deficit even at full employment, it is faced with the prospect of an ever-growing national debt. A case can be made that this may be an unsustainable fiscal regime over the longer run.

neither poorer nor richer. If they are not the same person, then while the taxpayer is left with less income, the bond owner has a larger income. As a group, however, they are neither richer nor poorer by the payment of interest. The payment of interest is not an additional burden of an internally held debt. That burden, as noted above, is the lower level of output (income) enjoyed by future generations who inherit a reduced private capital stock.

When the national debt is externally held, the payment of interest abroad is a transfer of income from Americans to foreigners. This is not a separate burden from the national debt, however. As noted above, when a national debt is sold abroad, the private capital stock passed on to future generations need not be diminished. But a portion of that capital stock will be foreign owned and a portion of the income generated by that capital will accrue to foreigners. This is the interest or, more properly, debt service paid to them, and it reduces the level of income that accrues to Americans. Thus, the payment of interest to foreigners is how the burden of an externally held national debt is shifted forward to future generations of Americans.

A National Debt and National Interest Rates

It might be thought that a large national debt would have an effect on market interest rates since if the debt is short term, the government must be in financial markets more or less continuously as the debt rolls over frequently. Such is not the case. The rate of interest that prevails in a country over time is determined by saving and investment and these are what economists call **flows**. The national debt is what they call a **stock**. And it is the flows that govern the real rate of interest. The refinancing of the national debt should not alter the flows. Essentially, refinancing involves replacing maturing securities with ones that come due in the future. Since this makes no new net claim on the nation's saving, it should have no effect on interest rates. If this were not the case, we should observe real national interest rates fluctuating with the size of a nation's national debt. This pattern is not to be found consistently in the data.

There are historical examples in which countries have had difficulties in rolling over their maturing interest-bearing debts. Often these episodes have been attributed to a lack of confidence in the governments in question. When these episodes have occurred, they have often resulted in the monetization of the maturing debt with the result being serious inflation and rising market interest rates as the market rates come to embody expectations of inflation.

The Retirement of the National Debt

The fiscal position of the federal government has moved from substantial budget deficits to small and growing surpluses. Beginning in FY98, these surpluses have been used to retire the national debt. In fact, at the end of 1999, debt held by the public was some $138 billion below its 1997 peak. The prospects of a continuing and growing series of surpluses over the coming fiscal years are promising. If current projections made by CBO hold, the United States faces the prospect that the federal

debt held by the public that is available for redemption could be retired by 2009.[14] What are the effects of this retirement on the U.S. economy?

In the traditional model, the effect on the economy from retiring an internally held debt is just the reverse of what would happen if the national debt were increased. The budget surpluses augment the national pool of saving, a pool contributed to by the business and household sectors. An increase in the fraction of GDP that is saved leads to lower interest rates. This encourages (or **"crowds in"**) interest-sensitive spending. From the previous discussion, this is business and household spending on capital goods. Thus, the budget surpluses increase the capital stock of the country and, overtime, this raises the level of real income and the material well-being of Americans. This, then, is the benefit that comes from reducing the national debt. It is a benefit that comes from budget surpluses and it largely benefits future generations.[15]

In a broader framework in which the U.S. economy is linked to foreign economies through trade and capital flows, the interaction of budget surpluses, retirement of the national debt, and its effect on the U.S. economy, is more complex. Retiring debt that is foreign owned relieves the U.S. from having to pay interest to foreigners. This raises the fraction of U.S. GDP that is available to Americans and this benefits the current generation as well as those alive in the future. In addition, since the higher saving rate leads to lower interest rates in the United States, some of that additional saving is likely to flow abroad augmenting the capital stock of foreign countries. This, in turn, increases the claims of Americans on foreign output enhancing their material well-being about the same as would have occurred if those resources had been used to augment the domestic capital stock.[16]

Summary

The current consensus view among economists is that the source of the burden associated with a national debt is the government budget deficit that gives rise to the

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[14] Not all the publicly held debt can *necessarily* be redeemed by 2009 since some portion consists of 30-year bonds that are not slated to mature until after 2010 and that cannot be called by the Treasury. The public may not surrender all of these securities even at very high prices.

[15] It was noted above that in the traditional view, the interest paid on an internally held debt is regarded as an income transfer and not as a burden. When an internally held debt is retired, the interest expenses of the government fall. If the taxes used to pay these expanses is not reduced through a tax cut, but is used instead to purchase goods and services, a burden is placed on current taxpayers. Thus, a case can be made that some of the decline in the interest expenses in the federal budget from debt retirement should be matched by a tax cut. This argument does not apply to the portion of the interest expenses that are used to service the foreign held component of the national debt.

[16] For an additional discussion of the effects of budget surpluses and the implications of alternative uses for them, see CRS Report 98-346E. *Budget Surpluses: Economic and Budget Effects of Using Them for Debt Repayment, Tax Cuts or Spending* by William A. Cox. March 17,1999.

debt. In a fully employed economy, the deficit "crowds out" private sector spending, especially spending on capital goods. Thus, a smaller private capital stock and a lower level of output are passed along to future generations and it is this lower level of output that is the ultimate burden of the national debt. And, it is a burden that is largely shifted forwarded to future generations. Thus, according to the consensus view, the burden of a national debt is borne by future generations.

Should the debt be sold abroad, the burden is still the same since a portion of the output from the unchanged size of the private capital stock will accrue to foreigners.

When the national debt is retired through budget surpluses, the effect on the economy is the reverse of debt increases. Future generations acquire a larger capital stock (or a larger American owned capital stock) and a higher level of output (or increased material well-being).

Appendix A: Statistical Appendix

Federal Outlays, Receipts and Deficits/Surpluses FY1980-FY2000 and Projections through FY2004

Fiscal Year	Outlays		Receipts		Deficit or Surplus	
	$ Billions	% of GDP	$ Billions	% of GDP	$ Billions	% of GDP
2004 (proj.)	2,041.1	17.7	2236.1	19.4	195.8	1.7
2003 (proj.)	1,962.9	17.9	2,147.5	19.6	184.6	1.7
2002 (proj.)	1,895.3	18.0	2,081.2	19.8	185.9	1.8
2001 (proj.)	1,835.0	18.3	2,019.8	20.1	184.0	1.8
2000 (proj.)	1,789.6	18.7	1,956.3	20.4	166.7	1.7
1999	1,703.0	18.7	1827.5	20.4	124.4	1.4
1998	1,652.6	19.1	1,721.8	19.9	69.2	0.8
1997	1,601.3	19.6	1,579.3	19.3	-22.0	-0.3
1996	1,560.6	20.3	1,453.1	18.9	-107.5	-1.4
1995	1,515.8	20.7	1,351.8	18.5	-164.0	-2.2
1994	1,461.9	21.0	1,258.6	18.1	-203.3	-2.9
1993	1,409.5	21.5	1,154.4	17.6	-255.1	-3.9
1992	1,381.7	22.2	1,091.3	17.5	-290.4	-4.7
1991	1,324.4	22.3	1,055.0	17.8	-269.4	-4.5
1990	1,253.2	21.8	1,032.0	18.0	-221.2	-3.9
1989	1,143.7	21.2	991.2	18.3	-152.5	-2.8
1988	1,064.5	21.2	909.3	18.1	-155.2	-3.1
1987	1,004.1	21.6	854.4	18.4	-149.8	-3.2
1986	990.5	22.5	769.2	17.5	-221.2	-5.0
1985	946.4	22.9	734.1	17.7	-212.3	-5.1
1984	851.9	22.1	666.5	17.3	-185.4	-4.8
1983	808.4	23.5	600.6	17.4	-207.8	-6.0
1982	745.8	23.1	617.8	19.1	-128.0	-4.0
1981	678.2	22.2	599.3	19.6	-79.0	-2.6
1980	590.9	21.6	517.1	18.9	-73.8	-2.7

Sources: For historical data see Office of Management and Budget, *Budget of the United States Government: Fiscal Year 2001— Historical Tables*, Washington, Feb. 2000, tables 1.1 and 1.2.

Note: Projections do not take account of legislation or of economic developments since mid-1999.

Statistical Appendix. Federal Debt and Interest Outlays FY1980-FY2000 and Projections through FY2004

Fiscal Year	Federal Debt				Net Interest Outlays		
	Gross Debt		Debt Held by the Public				
	$ Billions	% of GDP	$ Billions	% of GDP	$ Billions	% of Budget Outlays	% of GDP
2004 (proj.)	6,033.6	52.5	2,780.7	24.2	177.5	8.7	1.5
2003 (proj.)	5,946.8	54.1	2,963.2	27.0	189.3	9.6	1.7
2002 (proj)	5,855.0	55.7	3,133.7	29.8	198.6	10.5	1.9
2001 (proj.)	5,769.0	57.5	3,305.0	32.9	208.3	11.4	2.1
2000 (proj.)	5,686.3	59.4	3,475.9	36.3	220.3	12.3	2.3
1999	5,606.5	61.5	3,632.9	39.9	229.7	13.5	2.5
1998	5,478.7	63.4	3,721.6	43.1	241.2	14.6	2.8
1997	5,369.7	65.6	3,772.8	46.1	244.0	15.2	3.1
1996	5,181.9	67.3	3,734.5	48.5	241.1	15.4	3.2
1995	4,921.0	67.2	3,604.8	49.2	232.2	15.3	3.2
1994	4,643.7	66.8	3,433.4	49.4	203.0	13.9	3.0
1993	4,351.4	66.3	3,248.8	49.5	198.8	14.1	3.1
1992	4,002.1	64.3	3,000.1	48.2	199.4	14.4	3.2
1991	3,598.5	60.7	2,689.3	45.4	194.5	14.7	3.3
1990	3,206.6	55.9	2,411.8	42.0	184.2	14.7	3.2
1989	2,868.0	53.0	2,191.0	40.5	169.3	14.8	3.2
1988	2,601.3	51.9	2,051.8	40.9	151.8	14.3	3.1
1987	2,346.1	50.4	1,889.9	40.6	138.7	13.8	3.0
1986	2,120.6	48.2	1,740.8	39.6	136.0	13.7	3.1
1985	1,817.5	43.9	1,507.4	36.4	129.5	13.7	3.2
1984	1,564.7	40.7	1,307.0	34.0	111.1	13.0	2.9
1983	1,371.7	39.9	1,137.3	33.0	89.8	11.1	2.6
1982	1,137.3	35.2	924.6	28.6	85.0	11.4	2.6
1981	994.8	32.5	789.4	25.8	68.8	10.1	2.3
1980	909.1	33.3	711.9	26.1	52.5	8.9	1.9

Sources: For historical data see *Budget of the United States Government: Fiscal Year 2001—Historical Tables*, Washington, February 2000, table 7.1 and table 3.1.

Appendix B: Selective Views on the Burden of a National Debt

While economists have long recognized that a national debt imposes an inescapable burden on a nation, they have argued about who bears this burden.[17] In particular, whether the burden is borne by the generation that incurred the debt or whether it is shifted forward to a future generation or, in the language of the time, whether it is a "burden or mortgage on our children." This issue acquired new urgency when the view took hold in the economics profession that mature market economies might be incapable of generating sustained periods of more or less full employment without a continuous government budget deficit. If this were the case, one could expect the national debt to grow continuously. And if that debt were a burden on future generations, it would mean that the present generation would enjoy employment only by shifting a burden to future generations.

The "We Owe It To Ourselves" View

As a result of the concern over whether the enjoyment of full employment by the current generation would shift a burden to the future, it became an accepted view during the 1930s, 40s, and 50s, that an *internally held* national debt would impose a burden only on the generation present when it was contracted and would impose no burden on future generations because we "owe the debt to ourselves." The words of Paul Samuelson best express the view that the current generation bears the burden of deficit finance. Drawing on wartime experience, he wrote: "*To fight a war now, we must hurl present-day munitions at the enemy; not dollar bills, and not future goods and services."* Thus, the alternative use of these resources in the private sector constituted the burden of the national debt and it was a burden borne by the generation that, in this case, fought the war.

That subsequent debt service imposed no burden on future generations can be clearly seen in the simple case where the owners of government bonds, the evidence of the national debt, were also taxpayers. Servicing the government debt would mean taking money from one pocket and putting it into the other. In other words, this is a mere income transfer. It is not a burden. Since future generations would inherit both the bonds and the tax liabilities needed to service the bonds, no burden would be shifted to the future. In a more complex case in which the bond owners and taxpayers were not the same people, the existence of a national debt would imply some income redistribution from the latter to the former. However, this would not be a burden for the society as a whole because there would be no loss of resources for

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[17] For a more comprehensive review of the burden of a national debt, see *Public Debt & Future Generations.* Edited by James M. Ferguson. Chapel Hill: The University of North Carolina Press (1964) and Holcombe, Randall, Jackson, John D., and Zardkoohi, Asghar. "The National Debt Controversy." *Kyklos.* 34 (1981): 186-202.

the group as a whole to use.[18] Thus, the burden of an internally held debt, according to this view, is borne by the generation alive when the debt is contracted. And the burden consists of the alternative private sector uses of the resources that are withdrawn for use by the public sector.[19]

Should the national debt be owned by foreigners, this view argued that it would constitute a burden primarily on future generations. The current generation, by borrowing resources from abroad, would have more goods and services to consume than it produced. It thereby gains by incurring a foreign debt. To service this debt a portion of future national output would have to be transferred abroad thereby reducing the income of future generations who, the argument states, would have fewer goods and services to use than it produced. Thus, in the case of an external debt, we would not "owe it to ourselves" but to foreigners. And this was the important distinction as far as who bears the burden was concerned.

The Buchanan View

Prof. James Buchanan, a Nobel Prize winner in the 1980s, attacked the then orthodox view of burden of the debt in his popular text book on public finance first published in 1958.[20] Buchanan's argument is that the burden of an internally held national debt is shifted forwarded to future generations. It is not borne by the generation who contracted the debt. His argument is that when individuals buy government interest-bearing debt, they are making a voluntary decision to give up the current use of resources for a larger future income (larger by the amount of interest they receive on their now larger asset holdings)**.** Since this is a voluntary decision, no burden is imposed on the purchaser (i.e., the generation present when the debt is contracted). In fact, since the purchase would not have been made had a superior alternative been available, the purchaser is actually better off than had an alternative use been made of that income. However, subsequent generations of taxpayers must surrender to the bond holders the wherewithal for debt service. And this necessity is forced on them. In this sense, it is the future generations who will bear the burden of

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[18] Notice that this argument neglects the fact that the budget deficit that gave rise to the debt could have crowded out private investment thereby reducing the capital stock inherited by future generations and the lower level of income that this reduction implies. It may well be that this view was substantially influenced by economic conditions during the depressed 1930s when budget deficits were unlikely to have crowded out private investment. It should also be noted that this and other arguments about the burden of a national debt abstracted from the possibility that the taxes to service the debt may have far reaching consequences for the incentives to work, save, invest, and take risks, all of which are important in market economies and that affect the long run level of output.

[19] This view of burden seems to imply that the resources withdrawn for use by the government comes at the expense of private sector consumption. For if private sector investment were curtailed, then some of the burden will be shifted to the future as suggested by the **crowding out** view discussed above. It should be noted that this view of burden was formulated before economists had developed growth models. Once growth models were developed, they forced economists to think differently about debt burden.

[20] *Public Principles of Public Debt.* Homewood, IL: Richard D. Irwin (1958).

an internally held debt and the burden is the taxes they must pay for debt service. This is not a voluntary decision, but one forced on them by the decisions of an earlier generation. While Buchanan's view was subject to criticism by some economists, he was soon to get major support from others.[21]

The Bowen, Davis, and Kopf View

Acknowledging that Buchanan's view had stimulated their collective thinking, Professors Bowen, Davis, and Kopf (hereafter BDK) came up with an argument for why an internally held debt imposes a burden on future generations.[22] BDK define burden in terms of the **lifetime** consumption of a generation (as opposed to the resources that must be given up **now** to, let us say, fight a war). The generation whose lifetime consumption is reduced is, according to BDK, the generation burdened by a national debt. With this in mind, they argue that the generation that contracts the national debt need not be burdened by it so long as it does not pay the debt off. This is so, because while that generation must decrease its consumption to buy the debt (even if they are forced to do so), it can always sell it to the next generation before its members die and enjoy the added consumption it had to forego when it purchased the debt. This process can go on indefinitely until the debt is retired.[23] The generation that retires the debt, however, has no additional consumption to offset the consumption it gave up when it purchased the debt from the generation before it. Thus, BDK share in common with Buchanan a belief that the national debt is a

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[21] Prof. James Tobin was an important critic of Buchanan. He was concerned with Buchanan's view of burden. If a person voluntarily does something, it is no burden to that person, according to Buchanan. This suggests to Tobin that a person who voluntarily purchases a good on which an excise tax is levied incurs no tax burden. Yet, there is a whole literature in public finance on the "incidence and effects" of taxes that Buchanan's notion of burden seems to throws away. Perhaps, in reference to the national debt, it would be more appropriate and less troublesome to ask "who bears the incidence of the debt" rather than the burden of the debt.

[22] "The Public Debt: A Burden on Future Generations?" *American Economic Review*, 50 (September 1960): 701-06 and "The Distribution of the Debt Burden: A Reply." *American Economic Review* 51 (March 1961): 141-43.

[23] There is, however, the question of the time distribution of that consumption. Consumption is given up early in the life of the current generation to be recouped at a later period when the debt is sold to the next generation. But consumption at a later date is unlikely to be of equal value to the consumption given up when the bonds are purchased. Because it is not, individuals must be rewarded for postponing consumption until later. And this is the role of interest in the BDK model. It is the reward paid to bond holders for postponing current consumption until later. The present discounted value of those interest payments and the principal, should be equal in value to the consumption that could be enjoyed today if the bonds were not purchased. From that perspective, the lifetime consumption of the current generation is not reduced. However, paying interest involves having to pay taxes, and taxes reduce the lifetime ability of any generations to consume. Thus, on balance, debt financing reduces the net lifetime consumption of every generation which means that part of the burden of debt is spread across all generations including the generation present when the debt was contracted.

"burden on our children." It is they who must ultimately retire the debt and, with retirement, undergo a permanent reduction in their consumption.[24]

The Barro View

The most recent, innovative, and serious challenge to the conventional view of the burden of a national debt comes from Prof. Robert Barro. As noted in the body of this report, crowding out would not occur and the burden would not be shifted forward to future generations if the current generation would only save an additional amount of resources to match the increased demand for resources represented by the additional government expenditures that are financed by issuing interest-bearing debt. Barro has an ingenious argument for why such behavior could be forthcoming. Suppose, he says, that individuals live forever and that they have as a goal the maximization of consumption over time. To attain this goal, they have to be concerned about the private capital stock for it is an important determinate of income and income governs consumption. As in the standard macroeconomic model, the saving behavior of the public governs the resources available for capital goods purposes. How much of their income they save, and, hence, private investment, will depend on how they value current as opposed to future consumption.

If individuals live forever, Barro argues, they will be indifferent between the government using taxes or the sale of bonds to finance, let us say, additional expenditures related to war. If the additional expenditures are financed through an additional tax, the public, in an effort to keep the private capital stock (the key to its goal of maximizing consumption) unchanged, will reduce current consumption by the amount of the tax. As a result, the burden of the war-related expenditures will be felt when they are incurred.[25]

Alternatively, the government could have chosen to finance the additional expenditures through the sale of bonds or interest-bearing debt. Had this option been chosen, the public would have behaved in the same way. In order to keep the private capital stock at the optimum level over time, it would have to reduce its consumption and save a higher fraction of its income. This additional saving would then be used to buy the bonds and provide the resources to the government for the war.

It might be thought that the necessity to pay interest on the bonds over time (and, perhaps, provide for their redemption) would, by requiring additional taxes, shift a burden forward. This is not the case, for the taxpayer and the bondholder are the same people. Money is simply taken from one pocket as taxes and put back into the other pocket as interest. This is no additional burden. To the extent that the taxpayer

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[24] BDK were careful to remind the reader that there is nothing inherently undesirable with debt financing of government. For example, if such government spending was for capital goods that benefitted future generations, a case could be made that they should be burdened by their cost (or a sort of pay-as-you-use system).

[25] If individuals do not live forever, and it will be shown later that this isn't crucial to Barro's argument, it could be said that the burden of the war expenditures were felt by the generation alive when they were incurred.

and bondholder are different people, some income redistribution could be expected. Thus, if individuals live forever, they would be indifferent between financing these added expenditures through a tax increase or the sale of bonds.[26] And, the burden of the debt is felt in terms of reduced consumption. It is a burden borne at the time the additional expenditures are made.

Barro must deal with the fact that individuals do not live forever. To address this problem, he asks: are there circumstances under which they would behave as if they had eternal life? He argues that this behavior would be forthcoming if individuals treat the well being of their children on a par with their own. Since their children would behave similarly, and so on, individuals in the current generation would behave as if they lived forever. If individuals behaved in the way Barro argues, the conventional argument about the burden of a national debt, is likely to be wrong. Debt financed government expenditures will not crowd out the private capital stock because it will be offset by an equal amount of private sector saving.[27] This behavior is designed to ensure that future generations do not inherit a smaller private capital stock and, hence, a lower level of output and suboptimal consumption. Thus, the burden of the national debt is not shifted to them as the convention view argues.[28]

The attack on Barro's view has been both theoretical and empirical. On the theoretical side, it is argued that individuals for a number of reasons may be reluctant to equate the well-being of their children on a par with their own (this presumes that the individuals under scrutiny have children).[29] On the empirical side, the saving behavior of the private sector does not correlated well with the saving/dis-saving behavior of the public sector. The Barro view implies that this behavior should be highly correlated: on a one-to-one basis. Only in this way is the private capital stock passed on to future generations rendered immune to the public finances of government.

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[26] This taxpayer indifference between bond or tax financed government expenditures has been attributed to a founder of modern political economy, David Ricardo. It has been shown that this so-called Ricardian Equivalence is not the true view of Ricardo. On the contrary, Ricardo argued that the taxpayers would not be indifferent, but would generally prefer to finance such expenditures by selling bonds rather than paying additional taxes.

[27] Technically speaking, the current generation need not save a precisely offsetting sum from current income. This is because the current generation can always leave a bequest to the next generation.

[28] Barro further argues that if the current generation wanted to ensure that their children inherited a smaller private capital stock, they have a simple means to do so: they could save a smaller portion of their disposable income. They don't need a government budget deficit for that purpose. Thus, in the presence of a budget deficit, they are, according to Barro, likely to offset it with a higher saving rate. The opposite is supposed to occur when it is faced with a budget surplus.

[29] For a more complete theoretical critique of Barro, see Tobin, James. *Asset Accumulation and Economic Activity (Chapter III)*. Chicago: University of Chicago Press (1980): 49-96.

Summary

The purpose of this appendix has been to provide a flavor of the various arguments advanced by economists about the burden of the public debt, the nature of that burden, and who bears that burden. It has basically been a debate about who bears the burden. According to the various views, the burden, depending on how it is defined, can be borne by the generation that contracted the debt or shifted forward to future generations. The arguments summarized in this appendix are all concerned with an internally held debt. It is recognized that an externally held debt must be treated differently.