At the end of 1999 the federal debt held by the public amounted to $3,633 billion, or about $15,000 for every man, woman, and child in the population. We will be hearing a lot of big numbers like that during the presidential election campaign, because Mr. Gore has said that if he is elected a principal goal of his administration would be the reduction of the debt, all the way to zero. Mr. Bush, characteristically, hasn't said much about the debt. The Republican members of Congress have spoken favorably of debt reduction, but his and their preference for large-scale tax relief must mean that the fate of the public debt is not their highest priority. Tax reduction and debt reduction are at odds arithmetically; they compete as alternative uses of any given budget surplus. And, as will be seen, they imply quite different priorities about the right way for the economy to use its productive capacity.¹

My goal here is to describe how the public debt arises and evolves, and how and why its size matters for the functioning of the national economy. That will not tell you the correct policy for here and now or for next year, but it's a start.

1.

Every year the federal government makes expenditures. Some of them are specified in detail in the budget, others are determined by legislated formula, although the exact amount spent depends on the number of people who retire, get sick, or become unemployed, and on many other contingencies. The government also collects tax revenues. Again only a formula is legislated in the form of tax rates.
The exact amount collected is always uncertain because it depends on economic events: wages and profits earned, goods imported, airline tickets bought, for example. (There are other, more complicated, aspects of budgetary finance that I pass over here.)

Suppose that outlays exceed revenues; there is then a budget deficit. The Treasury has to pay its bills. It could run down its bank account, like anyone else, but that wouldn't cover much of a deficit or last very long. The Treasury then has two options. One is loosely described as "printing money." The process is actually more complicated than that, but in the end the deficit is financed by an increase in the stock of money. The other way is to borrow the necessary funds by selling bonds to the public. The Treasury pays interest regularly and then, when bonds issued in the past come due, the Treasury has to deliver the face value; it usually gets the funds by selling new bonds in roughly the same amount, often to the very holders of the maturing debt. So the debt rises when there is a series of budget deficits. When there is a series of budget surpluses the debt will fall; the Treasury can use its spare cash either to buy back outstanding bonds in the market or to pay off the principal of maturing bonds without issuing new ones.

The diagram on page 8 traces the course of the debt from 1940 to the present. It reports the size of the debt in relation to GDP, not in billions of dollars. This way of scaling the size of the debt accomplishes two purposes. It allows for the size of the economy; a debt that would be trivial for the US would swamp Costa Rica. And it roughly corrects for the effects of inflation on the dollar magnitude of the debt. (Inflation matters a lot to the holders of bonds, any bonds; I will say something about that in a moment.)

Historically, most Treasury debt has arisen in the deficit financing of wars. World War II drove the debt from more than 40 percent of GDP to more than 110 percent of GDP in half a dozen years. The ratio of debt to GDP then fell more or less smoothly to just under 25 percent in the mid-1970s, climbed back to 50 percent as a result of

1 The gross federal debt was $5,606 billion; the extra two trillion dollars were held inside the federal government, in various trust funds. These transactions between different pockets of the same government are significant because they express intentions about future spending. But the economically important quantity is the debt held by individuals and agencies, domestic and foreign, outside the federal government itself. I will generally omit the phrase "held by the public," but it should be understood. (back)
the Reagan deficits, has been falling since the mid-1990s, and is projected to keep falling at least for a while. Keep in mind that the ratio of debt to GDP can fall even while smallish deficits keep the debt itself rising, as long as it rises more slowly than the GDP.

For comparison, general government debt in France, Germany, and Spain has risen in the 1990s from 40 to 50 percent of GDP to 60 to 70 percent of GDP. In Italy the corresponding figure reached about 120 percent of GDP in the mid-1990s, and is now about 115 percent and falling slowly, in response to requirements imposed by the European Monetary Union.

2.

The individual bondholder has willingly purchased a Treasury bond. The Treasury does not force its bonds upon the market. It pays whatever interest rate is required to tempt buyers. The transaction is an exchange of cash for an interest-bearing asset of equal market value. It leaves the wealth of the purchaser unchanged.

Early in July of this year, thirty-year Treasury bonds yielded an annual return of 5.88 percent. (The yield on ten-year and three-year Treasuries was slightly higher. This is unusual; the standard explanation is that bond-buyers expected long-term bonds to fall in price, and were holding off for that reason.) At the same time, high-grade corporate bonds were yielding 7.68 percent. Some people and institutions preferred to accept a lower interest rate in order to avoid facing even a small probability of default on payments of interest or principal.

If some bondholders are prepared to forego 2 percent a year in interest in order to achieve protection against risk, evidently Treasury
bonds fill a significant niche in the market. If the debt were paid off altogether, those bondholders would find no suitable asset available to them. In fact, as Treasury debt merely becomes scarcer, one might expect the interest-rate differential to widen; only the most risk-averse savers would bid for the remaining government bonds, and they would be paying for the privilege by accepting a wider spread. Blithe talk about a debt-free economy has its costs. Of course the private financial markets would try to piece together some low-risk assets that could satisfactorily replace Treasury bonds in private portfolios. Thanks to ingenious financial engineering it has been possible to create highly risky securities for those who like them. Without the powers of the Treasury to rely on, getting rid of risk might be harder, but you never can tell.

So far I have been discussing default risk. Even holders of Treasury bonds are exposed to the same inflation risk as the holders of any bonds. Principal and interest are fixed in dollars, whose real value can be eroded by faster-than-expected inflation. A government can sharply reduce the burden of making payments of interest and principal by allowing or encouraging inflation; it may then pay off its bondholders in near-worthless currency. Some governments have succumbed to this temptation. It seems unlikely that any American government soon would deliberately inflate away its debt; the political costs would outweigh the benefits. The relatively low interest rate on long-term bonds suggests that the market does not expect it.²

Most of the debt owed by the US Treasury is owed to American families, firms, foundations, and other institutions. It is "internal" debt. The rest—currently about 40 percent—is payable to foreigners, including foreign

² The US Treasury now offers indexed bonds: bonds whose payments are adjusted to reflect intervening changes in the Consumer Price Index, so that the owner is fully protected against inflation. These bonds are not as popular as one might expect, but that may just reflect their unfamiliarity.
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?governments and financial institutions. It is "external" debt. By historical standards this is a very high proportion. Ten years ago, only 20 percent of the debt was external, and longer ago even less. Foreigners have been increasingly attracted to the combination of yield and security offered by Treasury bonds.

In an obvious sense, internal debt is not a direct burden on US society. In a famous phrase, we owe it to ourselves. Current payments of interest, for example, can be regarded as transfers from taxpayers to bondholders. Those are different people, statistically speaking, but the transfer stays entirely within the US.

In a subtle sense, however, even an internal debt imposes a net current cost on the country as a whole. The cash to make those interest payments has to be raised by taxation, sooner or later. Practically all taxes are, to a varying extent, what economists call "distortionary." Collecting them induces tax-avoidance behavior that is rational and legal, but diminishes the efficiency of the economy as a whole. Here is a simple example. Suppose my productivity as an electrician is enough to justify a wage of $32 an hour. But if I work a full year, I am in the 25 percent bracket for combined income and payroll taxes so I net $24 an hour. As a do-it-yourself carpenter and handyman in my own basement I am worth only $26 an hour—I would have to pay that much to get the job done by someone else—but it is tax-free. If I work an hour less at my electrician's job and an hour more at home, I gain an extra $2, but the economy loses $6 (the difference between the $32 I produce as an electrician and the $26 I produce as a do-it-yourselfer). So part of the cost of the public debt is the loss in efficiency that comes with collecting enough taxes to cover interest payments.

In 1999 the federal government paid $263 billion in interest, 15 percent of all federal spending, and just under 3 percent of GDP. Estimates of the loss in efficiency associated with taxation contain a healthy dose of conjecture; I have seen numbers as high as 50 cents
for every dollar collected. Even $130 billion a year will not erode the foundations of the Republic but it is, in electionese, $500 each year for every man, woman, and child in the country.

External debt, on the other hand, is a direct burden on the nation as a whole. Foreigners buy US Treasury bonds because they find them a desirable investment. Ongoing interest payments (and the return of principal at maturity) then give those foreigners a claim on goods and services produced in the US, or the payments can be used to buy real property in the US. Americans as a whole must pay interest and principal on the external debt. These transactions involve conversions from one currency into another, and so they are more complicated than simple domestic transactions. A Dutch buyer contemplating a US Treasury bond will find it less attractive if there is a good chance that the dollar might depreciate against the guilder during the life of the bond. But most of the US public debt is internal anyway, so we need not be overly concerned about external debt.

The recent strength of the dollar has undoubtedly contributed to the attractiveness of Treasury bonds to foreigners. If the dollar were to depreciate, or even to look as if it were about to depreciate, many foreigners—who want their proceeds in their own currency—would sell off all or part of what they hold until bond prices had fallen enough to make them a good buy, even with depreciation expected.

I have already mentioned one constructive role for public debt. Some owners of wealth seriously want the sort of safe asset that might be hard to provide in any other way. A more important consideration is that debt arises or increases whenever the federal budget is in deficit; so adding to the debt is constructive whenever running a deficit is constructive. There are such times.

Recessions are characterized by relatively high unemployment and relatively low use of industrial
capacity. They occur when private and public spending together are too low to use all of the economy's current capacity to produce. Why should that ever happen in a market economy? Economists have analyzed and debated that question for at least two hundred years. Probably the right answer changes as the nature of economic life changes. Today there is still debate at the edges of the issue, but also a lot of common ground. Fortunately, in order to understand the question of the debt, we do not have to be sure about the causes of recession. The important thing is to remember that it happens.

When recessions happen, deficits happen. Unemployment and excess capacity mean depressed production and sales, low earnings and weak profits, and therefore low tax revenues. On the other side of the federal budget, outlays for unemployment insurance, public assistance, and Social Security all tend to be higher in recessions. Attempts to eliminate the resulting deficit, by increasing tax rates and reducing spending, only make matters worse. Recessions reflect a shortfall in private and public spending; doing things that will only cause further contraction of total spending is short-sighted and worse.

4.

The current level of Treasury debt has come to be what it is as a result mainly of deficits incurred in financing wars and getting through recessions. There is no reason to suppose that this legacy of the accidents of history in any sense amounts to exactly the "right" amount of public debt for our economy to have. How might one consider the question whether it would be a good thing to have less of it (or more, for that matter)? That question is especially urgent right now. The federal budget is in surplus, and the surplus is projected to persist and to grow. It has to be disposed of one way or another,
through some mixture of lower taxes, higher spending, and simply buying up or paying off outstanding bonds. (There is also the possibility that the projected surpluses will evaporate if tax revenues fall and spending rises. The forecasts are far from exact; indeed they are barely forecasts at all. I will come to that later.)

Suppose the Treasury uses a billion dollars of budget surplus to repurchase some outstanding bonds, including perhaps some maturing ones. What are the likely consequences? Some former bondholders are now holding cash instead of safe bonds paying interest at 6 percent a year. (The cash comes from current tax receipts, of course.) The retired bonds had been part of someone’s accumulated savings. The total of those savings is unchanged by this transaction, but the private sector’s portfolio now contains a billion more in bank deposits and a billion less in six-percent bonds than it did yesterday. The natural presumption is that the former bondholders will want to re-acquire some earning assets. They were not eager to hold cash yesterday, so why should they be happy with a billion more of it today?³

Most of the owners of the retired bonds will look around for some other securities to buy. The available stock of Treasury bonds is smaller than it was, so many will have to end up with corporate securities. They can buy Treasuries from some other bond owners, but then those sellers will have the surplus cash. In the aggregate, the demand for corporate securities will increase. Since these people were owners of Treasury bonds, and presumably seekers after safety, they are more likely to look for bonds than equities, but there could easily be some diversion of cash into equity markets.³

We have now reached the heart of the matter. Reduction of the public debt will make more capital...

³ The total supply of bonds in the market will be a bit smaller. Bond prices might therefore rise by a trifle, which is to say that interest rates might fall by a trifle. Some savers, who had been just about indifferent between the convenience of holding money in the bank and the higher returns from bonds, might now hold a bit more in cash. This is probably quantitatively de minimis, but entertaining such thoughts is how economists have their fun. (back)

⁴ Some of the cash might be spent on bonds issued by foreign governments or corporations. That case is left as an exercise for the reader. (back)
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available to private business. Most of the funds previously tied up in Treasuries will add to the demand for corporate securities. Interest rates will fall some, and equity prices may rise. Some potentially productive investments that had been held back by the old, slightly higher, level of interest rates will now be more valuable. Some businesses will take advantage of lower interest rates to finance productive investments that would not otherwise have been profitable.

Another way to put this is to observe that Treasury bonds displace corporate securities in the private sector's aggregate portfolio. Paying off part of the public debt makes more room for corporate debt and equity. The differential in interest rates will adjust to accommodate the new supply situation, with fewer Treasury bonds available. Individual bondholders may hardly notice the change. For society as a whole, however, there is a major difference. Corporate securities are a claim to some of the income generated by real, productive capital. Treasury bonds are not; they are a claim against taxpayers. Treasury bonds represent wealth to the individual owner, but not to the nation as a whole. The real—including intellectual—capital underlying corporate stocks and bonds is part of national wealth, though obviously not share-and-share-alike.

There is yet another helpful way to see the same point. When the federal government finances a budget deficit by borrowing in the bond market, it absorbs private saving. The bonds provide a home for private saving, and they are priced so that savers will buy them. In a recession that is a good thing. To say that combined private and public spending on goods and services is too small to use the economy's capacity fully is to say that private and public saving is too large. The budget deficits that add to the public debt have the beneficial effect of offsetting temporarily excessive private saving by negative saving on the part of the government. (Expansionary monetary policy may be an alternative way to go, but that is another long story.)

In contrast, tax reduction—especially income tax reduction—fattens
the disposable income of households. Most of it flows into consumption; only a small fraction is saved. The choice between debt reduction and tax reduction as ways of disposing of a budget surplus is mainly a choice between adding to investment and adding to consumption, between provision for the future and enjoyment today. Higher consumption spending would itself generate some additional investment, especially if it narrowed the margin of excess capacity perceptibly. But this indirect effect is likely to be small, all the more so because it would have to work against a tendency for interest rates to rise in the absence of a budget surplus.

The story is rather different in a recession. There are still many ways to run a deficit. Reduction of income taxes or increased transfer payments (e.g., for Social Security) generally promote private consumption—by different groups of people—at a time when higher consumption will help absorb unemployment and unused capacity. It may thus also stimulate some capital spending, but probably not much in recession conditions. Spending on public investment—like transportation and communication infrastructure, schools, urban amenities—are a direct way of adding to the nation's stock of real capital. Even that probably generates very little additional private capital formation so long as there is unused national economic capacity.

In good times the encouragement to private investment that comes with debt reduction is generally desirable. But there is nothing automatic about the scenario that leads from budget surpluses to debt reduction to lower interest rates to more private investment in modern equipment, research and development, and productive facilities generally. Success depends on continued prosperity and confidence. If business and the consuming public turn generally pessimistic—for good reasons or bad—interest rates may fall with little response by way
of investment. Under the same circumstances, savers may be content to hold fewer securities and more money. Something like that has been happening in Japan, with disastrous results. In the US, however, right now it looks like a very favorable time for the process linking debt reduction to private investment to work well.\(^5\)

5.

Right now is also a time when the US has an urgent need for a buildup of productive capital, to help provide for an aging population. Demography tells us that in coming decades we—and other industrial countries—will have fewer people of working age relative to the size of the whole population that needs to be fed, clothed, and otherwise provided with goods and services. At any given level of productivity, therefore, the standard of living will have to be lower than it could be with a more favorable age structure.

There are direct ways of dealing with this challenge: participation by more people in the labor force, longer working lives, immigration. Another partial solution is a drive for higher productivity, so that a smaller number of workers can support the rest of the population in the style to which it is accustomed. But the only route to higher
productivity—apart from dumb luck—is through increased investment in the broadest sense, to include up-to-date equipment, better trained workers, and a flow of technological innovations. Those budget surpluses are timely, because increased investment is just what a successful program of debt reduction can hope to accomplish if all goes well.

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Mr. Gore is right. Paying down public debt is indeed constructive policy at this time, under these circumstances. It will help to provide a better standard of living in the future when there may otherwise be difficulties. It is a policy worth pursuing.

Aiming to get the debt down to zero at some even loosely specified date is not constructive, however. There are just two things wrong with it: zero is probably not the right number, and the date at which any target can be hit is intrinsically uncertain.

I have already mentioned one reason why complete elimination of public debt might be inappropriate: there is a demand for bonds free of default risk, and we do not know of any more efficient way of providing them than a Treasury guarantee. Besides, there is nothing special about zero. If we are keen to reach zero, why not a negative debt? The Treasury could find ways of lending to the private sector, through an agency that reduced political interference to negligibility. (Something very like that would happen if the Social Security trust fund were to be partially invested in equities.) Finally, there is no powerful reason why the Treasury should not sell bonds to finance productive public investment—for example education or an improved transport system—when the return on such investments is high. The right approach is to weigh the relative urgency of additional private consumption (at various levels of income), private investment, and public investment, and to allocate the surplus accordingly to income tax reduction, debt reduction (and tax incentives), and public spending.

How much surplus will there be? That is fundamentally uncertain, and more uncertain the further ahead we have to look. In the first place, there will be booms and recessions, and the surplus will wax and wane. Least of all should the government try to preserve the surplus when it is eroded by recession. The fact that tax revenues fall and entitlement outlays rise in recessions (and vice versa in booms) is a useful buffer that helps limit the amplitude of business cycles.

In the second place, future surpluses depend on future decisions about federal spending that can not be foretold. You can already see the maneuvering in Congress today, as somebody's favorite special interest is
promoted, to have programs paid for out of the surplus. If this debate were carried on with a semblance of rationality, it would be just the process of weighing alternative uses of the surplus that I mentioned earlier. Somehow it doesn't register that way but, as Jimmy Durante would put it, them's the conditions that prevail.

It is not always realized that the estimates of future budget surpluses put out by the Congressional Budget Office are, as the CBO makes clear, not "forecasts" but mechanical projections. The CBO makes a genuine forecast of economic conditions only two years ahead. These are then extended out to ten years by a deliberately smooth mechanical procedure. The estimates of tax revenues and entitlement spending that are derived from this process are labeled "forecasts" for the first two years and "projections" thereafter. No one really expects those eight years to go by without large or small fluctuations.

These days the CBO projects future discretionary federal spending under three different assumptions: that it grows at the rate of inflation after 2000; that it is frozen at the level enacted in 2000; and that it equals the CBO's estimates of various statutory limits on spending through 2002 and grows at the rate of inflation thereafter. Those are sensible baselines, but again nobody expects political life actually to play out that way. The baseline projections probably underestimate future spending for specific purposes (like Medicare), and they do not take account of the growth of the economy and its need for public services.

Currently (as of July), CBO projects the budget surplus to grow smoothly to 4.4 percent, 6.0 percent, or 5.5 percent of GDP in 2010, on the three assumptions about spending just mentioned. In all three cases, the public debt falls smoothly from 35 percent of GDP in 2000 to 5.4 percent in 2010. But these estimates are based on an economic projection that has real GDP growing by 2.6 to 2.9 percent in every year from 2002 to 2010, consumer prices growing by 2.5 percent in every year between 2002 and 2010, the ten-year Treasury interest rate constant at 5.7 percent in every year from 2004 and 2010. These are
projections, not forecasts.

CBO's practices are reasonable. What is unreasonable is to treat them, or their latest version, as dependable forecasts on which to hang a commitment to a target level of public debt at a target date in the future.

6.

Today's debt is the result of past actions and events, good and bad. Reducing it by spending budget surpluses is a deliberate current action, a decision to convert net public saving into additional financing of private investment rather than into more resources for current private consumption. The contrast between private investment and private consumption can be put even more sharply: a burst of consumer spending in today's prosperous economy would almost certainly threaten to create strong inflationary pressure. The Federal Reserve, which is already properly nervous, would surely raise interest rates; investment spending would then fall, and of course even more so if monetary tightening precipitated a recession.

Paying down debt might have the further advantage of making government decisions less vulnerable to the whims of financial operators. With the current level of public debt, it is easy to imagine financial investors selling Treasury bonds, thus raising interest rates, if the economy is growing faster than they believe is warranted. The higher rates would subdue the economy, even if more expert opinion thinks faster economic growth entirely appropriate. With less public debt, erratic or poorly informed investors will have less influence—an outcome that could be of no small benefit to the economy.