kinds of taxes: Income taxes (on income from work, income from capital), payroll taxes (only on income from work, mainly to finance social security), corporate taxes, excise taxes.

The federal budget

Government debt is the amount government owes to others who have lent it money. It is a stock at any given point in time. (Interest payments are a flow).

Deficit (surplus) is the amount by which spending exceeds income (income exceeds spending) in a given year. It is a flow. If at each deadline, the government pays the interest due on its debt, then the stock of debt equals the sum of all previous deficits since the government has been in existence.

Budget deficit in recent years.

from end of WWII until late 1960s, budget was approximately balanced. From late 1960s to 1992, rise in government expenditures (due to introduction and expansion of large social insurance programs) unmatched by rising taxes.

There was a series of tax reductions in this period, especially tax cuts in early 1980s. Gov spending rose from 17.2% of GDP to 23.1% in 1982, but tax revenue remained at ca. 18% of GDP. A large deficit persisted through 1980s. At end of 1990s, spending fell to under 20% of GDP, reduced military spending, slowing of previously rapid growth of medical costs (these affect gov spending through public health insurance programs).

In 1993 a tax increase on highest income groups was implemented - caused tax revenue to rise. Also, a rise in asset (stock, housing) values relative to GDP - led to large increase in revenue from capital income taxes. Early 2000s - a recession, growing medical costs, slow earnings growth. Caused tax revenue to fall below 17% of GDP. While spending rose back to 20% of GDP in 2005. 2004 budget deficit was 3.6% of GDP (413 billion) - largest deficit since 1993. By 2005 the deficit had been reduced to 2.6% of GDP (318 billion).

The Budget Process

President submits budget to Congress by 1st Monday in February. Budget details administration’s funding priorities. Then, House and Senate decide on that year’s Congressional Budget Resolution. This describes budget activities for next fiscal year and at least 5 years in future.

The Congressional Budget Resolution must be done by April 15. The resolution does not need President’s signature. But House and Senate must agree to it before starting legislative processing of budget.

There are two types of federal spending:
Entitlement spending - funding levels set automatically by rules made by Congress and number of eligible recipients. Examples: Social Security, Medicare (health insurance for elderly). Everyone eligible for benefits under entitlement programs receives these benefits. All US citizens 65 and over who have worked for at least 10 years are eligible for coverage of hospital expenditures through Medicare.

Discretionary spending - the amount of discretionary spending is determined by appropriation levels set annually by Congress. For example spending on highways, national defense. Unlike spending on entitlement programs, discretionary spending is optional from the point of view of Congress.

Congress’s yearly budget resolution contains what level of discretionary spending there will be, projections of deficit, changes to entitlement programs and tax policy. The budget process sets only discretionary, not entitlement spending. The level of entitlement spending is set through laws, not through the budget process.

For example, the negotiation going on now over a health policy, or the creation of Medicare and Medicaid, were entitlement programs, created by law. The budget process ends up with a law too but it is a budget law - viewed as temporary, whereas entitlement programs are viewed as longer-term. Each entitlement has its own set of Congressional committees.

Previous efforts to control deficit

Due to a deficit existing most of the time, Congress has tried to enact provisions that prevent gov from spending too much beyond its means. 1985 - Balanced Budget and Emergency Control Act (Gramm-Rudman-Hollings Deficit Reduction Act) was signed by President Reagan (GRH). GRH set annual mandatory targets for federal deficit - it should be 180 billion in 1986, decrease in 36 billion increments each successive year. Included trigger provision - automatic spending cuts once budget deficit started to miss target. But the gov got around these automatic triggers: For example, seeing that the target for 1988 would not be met, the gov reset deficit targets leaving a longer period before budget balance.

Then Budget Enforcement Act (BEA) was passed in 1990. This act tried to control government growth instead of targeting specific deficit levels. BEA set low caps on discretionary spending. Created pay-as-you-go process (PAYGO) - prohibited policy changes from increasing the estimated deficit in any year in the next six years. BEA seems to have contributed to change from deficit to surplus. But in early 2000s gov avoided BEA caps on spending by loophole that allowed for emergency spending. The money was used for gov payments to farmers, bailout package for airline industry, wars in Iraq and Afghanistan. From 1998 to 2005 discretionary spending grew by over 8% per year in real terms, reaching $969 billion in 2005.

At State level
State govs almost always in balance. All states except Vermont have a balanced budget requirement (BBR), adopted by many after banking crises of 1840s induced by deficit. Some states have ex-post, some have ex-ante BBRs. Ex post means that the budget must be balanced by end of fiscal year. Ex ante means that proposal must already be budget-balanced.

Alternative approaches to budget measurement.

Real vs nominal - inflation has beneficial effects for the government as a debt holder.

Government debt and deficits are usually stated in nominal values. An alternative idea would be to state them in real values of some base year. Nominal prices - price is stated in terms of today’s dollars. By spending $1 for a good, one gives up $1 worth of spending on other goods today.

Real prices are stated in terms of dollars in some base year. Consumer Price Index (CPI) used to measure inflation. The CPI is an index that shows the change over time of the cost of purchasing a typical bundle of goods. From 1982 to 2005 the CPI rose by 102%, meaning that the price of an ”average” good more than doubled in that time period. Or, the price of a ”typical” bundle of goods more than doubled. Thus if the CPI is set to equal 1 in 1982, it equalled 2.02 in 2005.

An average good that cost $1 in 1982 would cost $2.02 = 1 × CPI_{2005} in 2005. An average good that cost $3 in 2005 (say, a cup of coffee) would have cost $3/CPI_{2005} = 1.485 (To find the average inflation rate per year, find x such that $(1 + x)^23 = 2.02$. About 3% per year). A good whose price rose by less than 102% would have a falling real price, as the cost of that good relative to other goods in the economy was less in 2005 than in 1982. Similarly, a good whose price rose by more than 102% would have a rising real price. The price of a typical bundle of medical care rose by 312% from 1982 to 2005. So the cost of medical care in real terms rose by 312-102 = 210%. Individuals had to forgo 210% more consumption of other goods to buy medical care in 2005 than in 1982.

The advantage of using real prices is that amounts of money can be compared across years. Due to inflation, the value of the dollar tends to fall over time. Thus a deficit of $300 billion in 2003 is not necessarily worse in real terms than a deficit of $250 billion in 1980.

Another effect of inflation that must be taken into account is that it typically reduces the burden of national debt: Debt and interest on debt must be paid in nominal US dollars for the United States (though some other countries hold debt in non-domestic currencies). Thus when the value of the dollar falls, the nation needs to forgo less from paying interest on the debt or part of the debt itself.

An example using Skittles. Suppose you owe the bank $100 in interest per year
on student loans, and you spend all your money on Skittles. Skittles cost $1 per bag. So if you pay the bank $100 interest each year, you forgo 100 bags of Skittles each year.

Suppose the price level doubles for all goods (but interest payments stay the same). When you pay the bank $100 dollars in interest you are forgoing only 50 bags of Skittles. The cost of your interest payments has fallen by half in real terms. From the point of view of the bank, the increase in price level is bad, because they used to be able to buy 100 bags of Skittles with your interest payment and now can buy only 50.

The same logic applies to the national debt. When price levels rise, the country forgoes less consumption to pay the national debt. Interest payments are in nominal dollars in general, so they are worth less at a higher price level. (There are government bonds that are indexed to inflation - they pay a real, rather than nominal, interest rate). Why don’t more people buy the bonds that are indexed against inflation? It is something of a puzzle - the government charges a small premium for them to be indexed against inflation. Perhaps people are worried that inflation would drop below a certain value that would make a non-indexed bond more profitable.

Standardized deficit

Recognizes difference between short-run factors that affect the government’s deficit and long-term trends in the gov’s fiscal position. Computed by the CBO in two steps: First, finds the impact of the business cycle on the deficit (This is the cyclically adjusted budget deficit). When there is a recession, tax receipts fall due to decline in personal and corporate income, while gov spending due to unemployment insurance, Medicaid and welfare rises. These increase the deficit in the short run. But in the long run, as periods of boom and recession balance each other out, the short-run increase in deficit should be balanced out by a later decrease in deficit due to the economy moving in the opposite direction.

The cyclically adjusted budget deficit estimates how much of the deficit is due to the business cycle. For example in 2003, the CBO computed a baseline budget deficit of 375 billion, of which 70 billion was due to a slow economy. Thus the cyclically adjusted deficit was 305 billion. In 2000, the baseline budget surplus was 236 billion, of which 93 billion was due to the economy growing quickly. The cyclically adjusted surplus was only 143 billion.

The second step is to take into account other short-run factors in the cyclically adjusted budget deficit. Other short-run factors include changes in the inflation component of net interest payments, legislative changes in the timing of revenues and expenditures, and fluctuations in tax collections due to short-run factors. In 1998 the cyclically adjusted budget surplus was 35 billion. The CBO found that 67 billion of revenue came from temporary effects like the increase in capital gains revenue. This increase in revenue was determined to be a temporary response of stock sales to a rapidly rising stock market. The standardized
budget deficit was thus 32 billion. This number was considered to be a better measure of the government’s long-run fiscal health.

Cash vs Capital accounting

Suppose gov borrows 2 million and spends on 2 activities. First, spends 1 million on birthday party for president. Then, spends 1 million to buy new office building for government executives. In gov budget report, both of these count identically - deficit 2 million bigger without rise in taxes.

But there is a difference between these expenditures. Money spent on birthday party is gone, but building is a capital asset (investment with value for the future)- it can be sold.

Gov uses cash accounting - measures difference between current spending and current expenditures, without making a distinction as to what money was spent on. Capital accounting, on the other hand, takes into account change in value of gov’s net asset holdings. If it used capital accounting, gov would count investment expenditures (like purchases of assets) separately from current consumption expenditures (like transfers to unemployed). Within the capital account, gov would subtract investment expenditures and add value of asset purchased. For example if the building built with the second 1 million has a market value of 1 million, the government’s capital account would not change as it would have just shifted its assets from 1 million in cash to 1 million in buildings.

Using capital accounting may lead to different conclusions about the deficit than cash accounting: For instance in 1997, Clinton administration proposed balanced budget - first time in 28 years. But $36 billion of revenues used to balance the budget came from sale of broadband spectrum licences (a one-time sale). These licences were an asset which could have made money for the gov (by renting licences out) if they had kept them.

Problems with Capital budgeting:

Hard to distinguish transfers from investment spending. Ex: Is a missile a capital investment or current expenditure (depending on whether it is used or not, or can be resold)? How to measure the value of investment in children’s education? Thus, it may be easier for politicians to misrepresent the budget using a capital budget. New Zealand and UK use capital budgeting; Sweden, Denmark and Netherlands had it, but changed to cash accounting. They thought it caused to much political focus on capital investment.

Static vs dynamic scoring

Static scoring does not take into account the fact that government policy affects the size of the economy. Dynamic scoring does. Example: In 1993, the income tax rate on highest incomes increased. The reported incomes in those top brackets decreased in that first year. This was because some people did not work as much, mostly people delayed receiving income. (Later years’ incomes rose by a lot). With static scoring, one would not take into account this reaction to the
rise in income taxes. With dynamic scoring, such an effect might be predicted and used in the computation of future tax revenue.

But clearly it is very difficult to assess the effect on the economy of a particular government policy, such as a rise in taxes.

Section 4.3. The Meaning of Current debts and deficits in the long-run.

Consider two new policies implemented by the government: a transfer of 1 million to poor people this year, and a transfer of 1 million to the poor next year. For this year’s budget deficit, first policy costs 1 million and second policy costs nothing. But latter policy is almost as expensive - only cheaper because promise is in the future. This is called implicit obligation.

To discuss the cost of future obligations, we need the concept of present discounted value (PDV). If I ask to borrow 1000 from you and pay back 1000 next year you should refuse (even forgetting about inflation). This is because you could alternatively put the money in the bank and earn interest on it.

To compare the value of money in different periods (for instance now versus future), compare the present discounted values. To calculate the PDV, one must discount payments in each future period by the interest rate that could be earned from the present to that period. If the interest rate is constant at \( r \) and the payment in future periods is \( F_1, F_2, F_3, \ldots \) the present discounted value of this stream of payments is \( PDV = \frac{F_1}{1+r} + \frac{F_2}{(1+r)^2} + \frac{F_3}{(1+r)^3} + \ldots \). If the payment is the same \( F \) in every period and the interest rate is constant \( r \), then \( PDV = \frac{F}{r} \). Because if you start with \( F \) dollars at the constant interest rate \( r \), and leave them and the interest they accrue in the bank for \( n \) periods, you get \( F(1+r)(1+r)...(1+r) = F(1+r)^n \) dollars. So the PDV of \( F(1+r)^n \) dollars in period \( n \) is \( F = \frac{F(1+r)^n}{(1+r)^n} \). Thus, the PDV of \( x \) dollars in period \( n \), from the point of view of period 0, is \( \frac{x}{(1+r)^n} \).

Why current labels may be meaningless

Usually policy debates are about how much this year’s spending exceeds this year’s revenues. But because of the existence of implicit obligations in future, there is a problem with these debates.

Illustration: Suppose gov offers you deal at age 20: when you retire, gov will pay you $1 less in SS benefits. Gov will reduce payroll tax due today by 8.7c, the PDV of that future dollar. If the gov has perfect foresight about the interest rate, this policy has no impact in terms of gov’s net obligations throughout time. But using current labels, policy increases the deficit by 8.7c. Current deficit will rise. There will be a higher national debt until the payroll tax reduction is repaid through lower benefits.

Consider another alternative: gov will pay you $1 less in Social Security in the future; in return it will reduce your payroll tax today by half of the PDV of the $1. If PDV of $1 in 50 years is 8.7c, gov reduces payroll tax by 4.35c. In PDV terms, the gov wins from this proposal, but in current labels terms, it is cutting
taxes without lowering expenditures. So from this viewpoint deficit and debt are rising. Thus it useful to know both ways of accounting. If you are interested in how much the gov needs to borrow to finance current expenditures, you need to know the deficit in terms of current accounting. If you want to know the long-term viability of a policy you need to know the long-term deficit.

[What difference does it make if you count the deficit for 10 years ahead, 20 or 200 years ahead? It wouldn’t make a difference if people had perfect foresight. But nobody has perfect foresight and people differ in their degree of foresight. Some people, when they see a gov deficit now, foresee either a lower benefit or a higher tax in the future; they adjust by saving more now. Other people are myopic and do not make the adjustment. If short-term accounting is used, the tax change will cause an increase in the deficit.]

The fact that gov is running (supposedly) a higher deficit may cause observers of gov budget to vote them out of office, or save more in precaution. But if long-term accounting was used, this deficit would not be there.

Examples of differences between short-term accounting and long-term accounting: 1. Expected public health care and health insurance payments are higher than projected taxes to cover them. This is included in projections about Medicare/caid expenses, but not included in CBO budgets (they predict only over the next ten years. 2. Bush administration and Congress enacted tax cuts that are temporary (set to expire). They did that to make it look as if they were not raising the deficit by so much.

The government considers a lot of different policies that can shift expenditures across time in different ways.

Alternative measures of long-run Government budgets.

An idea is to measure the intertemporal budget constraint of the government. Generational accounting uses this idea: It is supposed to find the effects of gov’s policies on different generations of taxpayers. It assumes that budget is eventually brought into long-run balance. Then the intertemporal budget constraint is:

$$PDV \text{ of remaining tax payments of existing generations} + PDV \text{ of tax payments of future generations} = PDV \text{ of all future gov consumption} + \text{current gov consumption}.$$}

For this, they are first looking at people alive at the present time. (From age zero up to the oldest), then at future generations.

This budget constraint sets PDV of all future inflows to gov (tax payments from future and existing generations) equal to current level of gov debt (which must eventually be paid) plus PDV of all future gov consumption (which must be paid).

This is supposed to answer the question of how much each generation of
taxpayers that is alive now and each future generation benefits on net from the
gov’s spending and tax policies, assuming that the budget is eventually brought
into long-run balance. What pattern of taxes is required over the future to meet
this budget constraint?

To get the lifetime net tax rate of, say current newborns, divide the lifetime net
tax payments by projected labor earnings to get 22.8%.

The results from the calculations include the following: Males 60 and older have
a negative net tax - will receive more in gov benefits than they will pay in taxes.
For males below 60, net tax payment is positive- they will receive less from gov
than they pay in taxes. The net tax payments are smaller for women at all
ages: Women tend to earn less over lifetime than men, and women tend to live
longer so receive more SS and Medicare benefits.

Generational imbalance: Extent to which those not yet born will pay more
in taxes than those alive today. US has one of largest generational imbalances
(Japan and Netherlands higher). Thailand is overbalanced - current generations
pay more taxes than future ones.

Why is government indebtedness a problem?

In the past it has been a serious problem in smaller countries, where they have
defaulted on debt. Then, in order to get loans they had to give up sovereignty
over their expenditures to international banks and the IMF (International Mon-
etary Fund). This happened to Argentina and to several African countries.

Indebtedness of the American government has not been a major problem until
now. Most of the debt has been to rich Americans in the past, who would not
"pull the plug" on the government. Now, China, Japan, OPEC countries and
Russia own about $2 trillion in US debt (the total debt is ca. $10 trillion).
Much of these loans are short-term loans. If many of them decided not to buy
new debt issues, the interest rates could increase enormously. China is now
threatening to do this, because they believe that the US is getting dangerously
in debt - worried about the value of the dollar when they own large amounts of
dollars.

Debt is issued in the form of government bonds. So the holder of the bonds
"owns" a lot of US dollars. Therefore wants to have them valued highly. If the
value of US dollars is expected to fall, may not want to buy more bonds.

Chapter 4.4

Why do we care about the gov’s fiscal position? besides what we mentioned
before, there are 2 reasons: Efficiency and intergenerational equity.

A reason why it’s good to have a deficit: One reason we care about budget
deficits involves short-run stabilization issues: limiting upward and downward
extremes of business cycle. Stabilization is done using two methods - automatic
stabilization are policies that automatically cut taxes or increase spending in
a downturn, automatically raise taxes or lower spending in an upturn. Unemployment insurance program increases transfers to people when they have lost jobs - there will be more transfers in a downturn.

Discretionary stabilization might be a tax cut during a recession - something decided on by gov to offset a specific instance of economy down or upturn.

Savings and economic growth.

One of the problems with having a large government deficit is that government borrowing might ”crowd out” private firms’ borrowing. Let us discuss how that happens and why that might be bad for the economy.

The idea is that when government has a large demand for savings, it causes the savings supply to decrease. This reduces the equilibrium gross investment in capital of private firms.

If government borrowing is for financing of investment (for example education, infrastructure), this won’t necessarily decrease future consumption, and might even raise it. But if government borrowing is for present consumption (such as for tax reductions), then the crowding out will cause future consumption to decrease.

As more capital enters the economy, workers as a whole become more productive. Because the additional productivity of an additional worker-hour increases when the worker is paired efficiently with more capital. Thus per capita GDP tends to rise when more capital enters the economy.

International capital markets. Suppose pool of savings is unlimited and unaffected by interest rates (nearly perfectly elastic). In that case even small rises in interest rates bring out additional savings. Then federal deficits would cause only small interest rate rises, and there would be little crowding out.

This happens if perfectly integrated international capital markets. US gov deficit is large compared to US pool of savings, but small compared to world savings. More than 1/3 of gov debt held by foreigners holding US gov bonds.

Literature has concluded that there is integration of international capital markets but not perfect. Supply of capital not perfectly elastic → gov deficit could crowd out private savings.

Ricardian equivalence

This idea proposes that the government deficit is not that important for the level of savings. Much of savings meant to finance bequests (inheritances). Consider an individual who has enough savings plus expected lifetime income to finance lifetime expenditures. Any additional income to that will be saved for bequest.

Suppose gov borrows more today to finance spending. The individual knows that gov will have to raise taxes or cut spending sometime in future - increases saving to leave to children. Thus extra borrowing by gov is offset by extra saving by such individuals. But there has not been much empirical evidence
that supports this hypothesis.

Expectations

In the graph, only a two-period world is considered where savings made today receive interest payments that are spent tomorrow. But in reality businesses and individuals think many years ahead. There are different interest rates for short-term (such as 30-day) and long-term (e.g. ten-year). Short-term interest rates reflect current economic environment; long-term reflect expectations about future as well. Gov has surplus now → people expect it to be spent or taxes lowered in future → total demand for savings reduced and lower short-term interest rates (WHY? Government doesn’t need to borrow so savings are available for other uses and interest rates are lower.)

If gov expected to have deficit starting next year, upward pressure put on long-term interest rates. (WHY? More demand for saving in the future when gov must borrow more.) Businesses usually make long-term capital investments, so they care more about long-term interest rates.