Chapter 4

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GOVERNMENT BUDGETING

**Debt:** The amount a government owes to those who have loaned it money (individuals, firms, or foreign governments). Debt is a stock.

**Deficit:** The amount by which a government’s spending exceeds its revenues in a given year. A negative deficit is called a surplus. Deficit is a flow.

Evolution of debt from year to year:

\[ Debt_{t+1} = Debt_t \cdot (1 + r_t) + Deficit_t \]

with \( r_t \) interest paid on government debt

In 2012: US (consolidated) Federal debt is 70% of GDP, US deficit is 7% of GDP (both increased dramatically with the recent great recession).
Government Budgeting

The Budget Deficit in Recent Years

**FIGURE 4-1**

Federal Taxes, Spending, and the Deficit Through Time in the United States

- Federal government spending rose fairly steadily from 1965 through the mid-1980s, but tax revenues did not keep pace, leading to a large deficit. This deficit was eroded and turned to a surplus in the 1990s, but by 2001 the United States was back in deficit again.
THE US FEDERAL PROCESS

Taxes and spending are decided by congress and the president

New law requires majority vote both in House and in Senate along with President’s signature (veto power)

In recent years, Senate vote requires 60/100 super-majority (due to filibuster)

Two forms of spending:

Entitlement spending: Mandatory funds for programs for which funding levels are automatically set by the number of eligible recipients, not the discretion of Congress (ex: medicare, social security)

Discretionary spending: Optional spending set by appropriation levels each year, at Congress’s discretion.
Government Budgeting

APPLICATION

Efforts to Control the Deficit

- Failure to meet deficit targets under Reagan led to the 1990 adoption of the Budget Enforcement Act (BEA): rather than trying to target a deficit level, the BEA simply aimed to restrain government growth.
  - It created the pay-as-you-go process (PAYGO) for revenues and entitlements, which prohibited any policy changes from increasing the estimated deficit in any year in the next six-year period. If deficits increase, the President must issue a sequestration requirement, which reduces direct spending by a fixed percentage.

PAYGO expired on September 30, 2002. President Bush proposed its renewal after the adoption of a 2004 budget resolution containing proposed tax cuts and spending increases, but it remained unrenewed. President Obama has publically supported a new PAYGO law, despite the fact that his proposed budget would increase deficits to almost $2 trillion in the near term.
BUDGET POLICIES AND DEFICITS AT THE STATE LEVEL

Balanced budget requirement (BBR): A law forcing a given government to balance its budget each year (spending = revenue).

ex-post BBR: A law forcing a given government to balance its budget by the end of each fiscal year.

ex-ante BBR: A law forcing either the governor to submit a balanced budget or the legislature to pass a balanced budget at the start of each fiscal year, or both (easier to evade with rosy predictions)

California has ex-ante BBR: recession lowered tax revenue and forced cuts in government spending (plans to have rainy fund)
STATIC VS. DYNAMIC SCORING

Static scoring: A method used by budget modelers that assumes that government policy changes only the distribution of total resources, not the amount of total resources.

Dynamic scoring: A method used by budget modelers that attempts to model the effect of government policy on both the distribution of total resources and the amount of total resources.

Example: tax increases on the rich, static scoring assumes no effect on GDP while dynamic scoring incorporates effects on growth

Static scoring is safest in the absence of good empirical estimates of growth effects (dynamic scoring can be manipulated by politicians).
Implicit obligation: Financial obligations the government has to the future that are not recognized in the annual budgetary process.

Examples:

1) Medicare costs due to baby boom generation getting to age 65 (Medicare is govt provided health care to seniors 65+)

2) Social security benefits for baby boom generation (Social Security is govt provided retirement benefits to seniors)
**BACKGROUND: PRESENT DISCOUNTED VALUE**

**Present discounted value (PDV):** The value of each period's dollar amount in today's terms.

Mathematically, if the interest rate is $r$, and the payments in each future years are $F_1, F_2, \ldots$ and so on, then the PDV is computed as:

$$PDV = \frac{F_1}{(1+r)} + \frac{F_2}{(1+r)^2} + \frac{F_3}{(1+r)^3} + \ldots$$

If $F_1 = F_2 = \ldots = F$ then

$$PDV = \frac{F}{1+r} \left[ 1 + \frac{1}{(1+r)} + \frac{1}{(1+r)^2} + \ldots \right] = \frac{F}{1+r} \cdot \frac{1}{1 - \frac{1}{1+r}} = \frac{F}{r}$$

Paying $F$ in perpetuity is equivalent to paying $F/r$ upfront.
WHY CURRENT LABELS MAY BE MEANINGLESS

Policy debates have traditionally focused on the extent to which this year’s governmental spending exceeds this year’s governmental revenues.

The existence of implicit obligations in the future, however, suggests that these debates may be misplaced.

**Intertemporal budget constraint**: An equation relating the present discounted value of the government’s obligations to the present discounted value of its revenues.

\[
PDV \text{ of Remaining Tax Payments of Existing Generations} + \\
PDV \text{ of Tax Payments of Future Generations} = \\
PDV \text{ of All Future Gov't Consumption} + \text{Current Gov't Debt}
\]
ALTERNATIVE MEASURES OF LONG-RUN GOVERNMENT BUDGETS

Long-run Fiscal Imbalance

If the government continues with today’s policies, how much more will the government spend than it will collect in taxes over the entire future?

In 2003 alone, the government added roughly $20 trillion to the fiscal imbalance (due to tax cuts and medicare prescription drug benefit)

Each year, the fiscal imbalance grows by roughly 3–4%, as the nation accumulates interest obligations on the existing large implicit debt.
PROBLEMS WITH LONG-RUN FISCAL MEASURES

The fiscal imbalance calculations are fairly tenuous:

1) They depend critically on a wide variety of assumptions about future growth rates in costs and incomes, as well as assumptions about the interest rate used to discount future taxes and spending.

2) The calculations require potentially heroic assumptions about interest rates, costs, and incomes in the very distant future, they also assume that government policy remains unchanged.

3) The long-run imbalance measures only consider the pattern over time of transfer programs, and not of other investments and government policies

⇒ Makes most sense to consider a time window that is longer than 1 year but less than infinity. CBO makes budget projections over the next 10 years.
Chapter 4: Budget Analysis and Deficit Financing

4.3 Do Current Debts and Deficits Mean Anything? A Long-Run Perspective

What Does the U.S. Government Do?

**Figure 4-3**

Projected vs. Actual Surplus/Deficit • CBO projections of the budget surplus/deficit five years ahead have deviated significantly from the actual surplus/deficit, particularly during the high deficit years of the early 1990s and the high surplus years of the late 1990s and early twenty-first century.
4.3 Do Current Debts and Deficits Mean Anything? A Long-Run Perspective

APPLICATION

The Financial Shenanigans of 2001

- The tax reduction enacted in June 2001 was one of the largest tax cuts in our nation’s history.

- The tax cut consisted of an extraordinarily convoluted set of phase-ins and phaseouts of various tax cuts in order to comply with a congressional budget plan limiting the 11-year cost (through 2011) of the cuts to $1.35 trillion.

- The most extreme was an infamous sunset provision, by which all of the tax cuts suddenly disappear on December 31, 2010, thus reducing the 2011 cost of the tax cut to zero.

- The bill itself contained numerous tax cuts operating on erratic schedules.

- Many of the cuts would phase in over periods longer than in any prior American legislation, backloading most of the fiscal impact toward 2010.

Such convoluted scheduling allowed legislators to claim action had been taken on a wide range of issues, while delaying the fiscal consequences associated with these actions.
**SHORT-RUN EFFECTS OF THE GOVERNMENT ON THE MACROECONOMY**

**Short-run stabilization issues:** The role of the government in combating the peaks and troughs of the business cycle.

**Automatic stabilization:** Policies that automatically alter taxes or spending in response to economic fluctuations in order to offset changes in household consumption levels (unemployment insurance, progressive taxation, corporate profits tax)

**Discretionary stabilization:** Policy actions taken by the government in response to particular instances of an underperforming or overperforming economy. (Fiscal stimulus with Spring 2008 rebate checks, 2009-12 Obama stimulus)

⇒ Ability to run deficits in recessions is a great tool for short-run business cycle stabilization (but need to reduce debt during good times to keep ability to run deficits when needed)
LONG-RUN EFFECTS OF THE GOVERNMENT ON THE MACROECONOMY

Background: Savings and Economic Growth: The earliest economic growth models emphasized a central role for savings as an engine of growth, and this insight remains important for growth economics today.

More Capital, More Growth: As there is more capital in an economy, each worker is more productive, and total social product rises. A larger capital stock means more total output for any level of labor supply. Thus, the size of the capital stock might be a primary driver of growth.

Neo-classical aggregate production function:

\[ Y = F(K, L) = A \cdot K^\alpha L^{1-\alpha} \quad \text{with} \quad \alpha \approx 30\% \]
BACKGROUND: SAVINGS AND ECONOMIC GROWTH

**Interest rate:** The rate of return in the second period of investments made in the first period.

Save $S$ in period $t$, you get $(1 + r)S$ in period $t+1$

**Supply and Demand for capital:**

Supply of savings (from households) depends positively on $r$ (higher $r$ means bigger returns to savings)

Demand for capital (from firms) depends negatively on $r$ (firms invest only if return on investment is at least equal to $r$)

In a competitive capital market, the equilibrium amount of capital is determined by the intersection of these demand and supply curves.
Why Do We Care About the Government’s Fiscal Position?

Background: Savings and Economic Growth

More Savings, More Capital

**FIGURE 4-4**

Capital Market Equilibrium • The equilibrium in the capital market is determined by the interaction of the demand for capital by firms ($D_1$) and the supply of savings by individual savers ($S_1$). When the government demands more savings to finance its deficits, this lowers the supply of savings available to private capital markets to $S_2$, raising interest rates to $r_2$ and reducing capital accumulation to $K_2$. This reduction ultimately reduces economic growth.
THE FEDERAL BUDGET, INTEREST RATES, AND ECONOMIC GROWTH

The simple supply and demand framework is complicated by introducing the federal government into the market.

If there is a federal deficit, and the government must borrow to finance the difference between its revenues and its expenditures. The key concern about federal deficits is that the federal government’s borrowing might compete with the borrowing of private firms.

If a fixed supply of savings is used to finance both the capital of private firms and the borrowing of the government, then the government’s borrowing may crowd out the borrowing of the private sector and lead to a lower level of capital accumulation.

In reality, there are a number of complications of how government financing affects interest rates and growth.
INTERNATIONAL CAPITAL MARKETS

There is a large body of economics literature that has investigated the integration of international capital markets.

It has generally concluded that while integration is present (and perhaps growing), it is far from perfect.

As a result, the supply of capital to the United States may not be perfectly elastic, and government deficits could crowd out private savings.
RICARDIAN EQUIVALENCE

A popular alternative model of savings determination was developed by macroeconomist Robert Barro in the 1970s. People save rationally and there are intergenerational links through bequests and inheritances.

So if government provides fiscal rebates today, people know that they will have to pay higher taxes in future years so they don’t spend the tax rebate and save it to pay future tax increases⇒fiscal rebates can’t have any impact.

If govt starts unfunded new spending program (like Medicare), I know that taxes will be higher on future generations, I save more to leave larger bequests to my kids so that they can pay the future taxes!

This model has received very little empirical support in the economics literature (individuals are not that rational)
THE FEDERAL BUDGET, INTEREST RATES, AND ECONOMIC GROWTH: EVIDENCE

Theory therefore tells us that higher deficits lead to higher interest rates and less capital investment, but it does not tell us how much higher and how much less.

Effects of deficits on interest rates depend on circumstances

In normal times, you would expect a positive effect of deficits on interest rates.

If recessions (like in the US since 2008), interest rate on govt debt is very low in spite of very large deficits (due to the “liquidity trap”)

The existing empirical literature on this question is somewhat inconclusive, although recent evidence suggests that projected long-term deficits do appear to be reflected to some extent in long-term interest rates.
CONCLUSION

The deficit has been a constant source of policy interest and political debate over the last decade, as the government has moved from severe deficit to large surplus and back to severe deficit again.

The existing deficit is quite large, but what is more worrisome than this cash flow deficit is the long-run implicit debt that is owed to the nation’s seniors through the Social Security and especially Medicare (as health care costs rise so fast)

⇒ US government will have to control health care costs down the road if it wants to get back on a sustainable path for tax revenue and spending