

11.15: Fiscal Policy, Investment, and Crowding Out

Learning Objectives

- Explain crowding out and its effect on physical capital investment
- Explain how economic growth is tied to investments in physical capital, human capital, and technology

Neoclassical economists believe we should focus attention on the long run (e.g. economic growth) and that the short run will take care of itself. We know that economic growth, defined as the percentage change in real GDP over time, comes about through increases in the quantity and quality of labor, physical capital, and technology—all set in an economic environment where firms and individuals can react to the incentives provided by well-functioning markets and flexible prices. In this section, we will examine how fiscal policy can affect these variables.

Government borrowing can reduce the financial capital available for private firms to invest in physical capital. However, government spending can also encourage certain elements of long-term growth, such as spending on roads or water systems, on education, or on research and development that creates new technology.

Crowding Out Physical Capital Investment

When government conducts an expansionary fiscal policy (i.e. increases in government spending or decreases in tax rate, it may run afoul of the **crowding out** effect. Expansionary fiscal policy means an increase in the budget deficit. The government is spending more money than it has in income. Where does government obtain the necessary funds to cover its increased deficit? The answer is borrowing.

A larger budget deficit will increase demand for financial capital. The supply of funds in financial markets is the sum of private saving, government saving, and net investment by foreigners into domestic financial markets. If private saving and net foreign investment remain the same, then less financial capital will be available for private investment in physical capital. When government borrowing soaks up available financial capital and leaves less for private investment in physical capital (i.e. increased budget deficit means a reduction in government saving), the result is crowding out.

The Interest Rate Connection

Let's look at the details of how crowding out occurs. A larger federal budget deficit requires increased government borrowing in financial markets. How will this affect interest rates in financial markets? In Figure 1, the original equilibrium (E_0) where the demand curve (D_0) for financial capital intersects with the supply curve (S_0) occurs at an interest rate of 5% and an equilibrium quantity equal to 20% of GDP. However, as the government budget deficit increases, the demand curve for financial capital shifts from D_0 to D_1 . The new equilibrium (E_1) occurs at an interest rate of 6% and an equilibrium quantity of 21% of GDP.

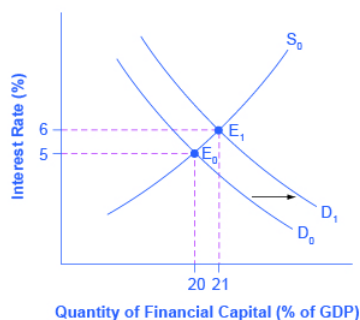


Figure 1. Budget Deficits and Interest Rates. In the financial market, an increase in government borrowing can shift the demand curve for financial capital to the right from D_0 to D_1 . As the equilibrium interest rate shifts from E_0 to E_1 , the interest rate rises from 5% to 6% in this example. The higher interest rate is one economic mechanism by which government borrowing can crowd out private investment.

Higher interest rates tend to reduce private investment in physical capital. The new factory that made sense when a company could borrow the necessary funding at 5%, no longer makes sense at an interest rate of 6%.

A key question then is how much crowding out occurs. The answer is it depends. Crowding out seems to occur less during recession since banks have savings to lend, but limited borrowers.

The degree of crowding out also depends on the amount of private saving and inflows of foreign financial investment. In the mid-1980s, for example, government budget deficits increased substantially without a corresponding drop off in private investment. In 2009, nonresidential private fixed investment dropped by \$300 billion from its previous level of \$1,941 billion in 2008, primarily because, during a recession, firms lack both the funds and the incentive to invest. Investment growth between 2009 and 2014 averaged approximately 5.9% to \$2,210.5 billion—only slightly above its 2008 level, according to the Bureau of Economic Analysis. During that same period, interest rates dropped from 3.94% to less than a quarter percent as the Federal Reserve took dramatic action to prevent a depression by increasing the money supply through lowering short-term interest rates. The crowding out of private investment due to government borrowing to finance expenditures appears to have been suspended during the Great Recession. However, as the economy improves and interest rates rise, government borrowing may potentially create pressure on interest rates.

Effects of Crowding Out

How does crowding out affect the path of the economy? If the purpose of expansionary fiscal policy was to stimulate GDP and employment (i.e. a Keynesian stimulus for the short-term), the extent to which crowding out occurs will limit the stimulus. If say a \$100 billion increase in government spending results in a \$50 billion decrease in private investment spending, then the net increase to total expenditure is \$50 billion instead of \$100 billion. Crowding out reduces the effects of a fiscal stimulus.

However, the long run effects, emphasized by neoclassical economists, are more serious. Recall that economic growth is caused by investment in physical capital. If crowding out causes a reduction in private investment, it also leads to a reduction in economic growth over the long term. This is another reason why neoclassicals favor business tax cuts over government spending increases since business tax cuts tend to stimulate private investment.

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Public Investment in Physical Capital

All government spending does not cause crowding out. Public infrastructure spending on physical capital can enhance private investment. Public infrastructure spending in investment in roads and bridges; water supply and sewers; seaports and airports; schools and hospitals; plants that generate electricity, like hydroelectric dams or windmills; telecommunications facilities; just to name a few. New highways (or other transportation networks) can raise the rate of return on private investment by making it easier to transport products to market. As a result, infrastructure investments can result in increased private investment too. Part of the reason for the booming U.S. economy during the 1960s may have been the completion of the interstate highway system.

In 2014, the U.S. federal government budget for Fiscal Year 2014 shows that the United States spent about \$92 billion on transportation, including highways, mass transit, and airports. Table 1 shows the federal government's total outlay for 2014 for major public physical capital investment in the United States. We have omitted physical capital related to the military or to residences where people live from this table, because the focus here is on public investments that have a direct effect on raising output in the private sector.

Table 1. Grants for Major Physical Capital Investment, 2014

Type of Public Physical Capital	Federal Outlays 2014 (\$ millions)
Transportation	\$91,915
Community and regional development	\$20,670
Natural resources and the environment	\$36,171
Education, training, employment, and social services	\$90,615
Other	\$37,282
Total	\$276,653

Public physical capital investment of this sort can increase the economy's output and productivity. An economy with reliable roads and electricity will be able to produce more. However, it is hard to quantify how much government investment in physical capital will benefit the economy, because government responds to political as well as economic incentives. When a firm makes an investment in physical capital, it is subject to the discipline of the market: if it does not receive a positive return on investment, the firm may lose money or even go out of business.

If a government decides to finance an investment in public physical capital with higher taxes or lower government spending in other areas, it need not worry that it is directly crowding out private investment. Indirectly however, higher household taxes could cut down on the level of private savings available and have a similar effect. If a government decides to finance an investment in public physical capital by borrowing, it may end up increasing the quantity of public physical capital at the cost of crowding out investment in private physical capital, which could be more beneficial to the economy.

Public Investment in Human Capital

In most countries, the government plays a large role in society's investment in human capital through the education system, both K12 and higher education. Education conveys positive externalities—while individuals gain from an education, so does society at large. Educated citizens are more thoughtful voters. A highly educated and skilled workforce contributes to a higher rate of economic growth. For the low-income nations of the world, additional investment in human capital seems likely to increase productivity and growth. Of course, spending more dollars on education is no guarantee that students will learn more. Despite significant increases over the last several decades in U.S. educational spending per pupil, standardized test scores like the SAT have failed to increase significantly. Still, in this day and age it's hard to argue that education isn't important.

Other government programs seek to increase human capital either before or after the K–12 education system. Programs for early childhood education, like the federal **Head Start program**, are directed at families where the parents may have limited educational and financial resources. Government also offers substantial support for universities and colleges. For example, in the United States about 60% of students take at least a few college or university classes beyond the high school level. In Germany and Japan, about half of all students take classes beyond the comparable high school level. In the countries of Latin America, only about one student in four takes classes beyond the high school level, and in the nations of sub-Saharan Africa, only about one student in 20.

Not all spending on educational human capital needs to happen through the government: many college students in the United States pay a substantial share of the cost of their education. If low-income countries of the world are going to experience a widespread increase in their education levels for grade-school children, government spending seems likely to play a substantial role. For the U.S. economy, and for other high-income countries, the primary focus at this time is more on how to get a bigger return from existing spending on education and how to improve the performance of the average high school graduate, rather than dramatic increases in education spending.

How Fiscal Policy Can Improve Technology

Research and development (R&D) efforts are the lifeblood of new technology. According to the National Science Foundation, federal outlays for research, development, and physical plant improvements to various governmental agencies have remained at an average of 8.8% of GDP. About one-fifth of U.S. R&D spending goes to defense and space-oriented research. Although defense-oriented R&D spending may sometimes produce consumer-oriented spinoffs, R&D that is aimed at producing new weapons is less likely to benefit the civilian economy than direct civilian R&D spending.

Fiscal policy can encourage R&D using either direct spending or tax policy. Government could spend more on the R&D that it carries out in government laboratories, as well as expanding federal R&D grants to universities and colleges, nonprofit organizations, and the private sector. By 2014, the federal share of R&D outlays totaled \$135.5 billion, or about 4% of the federal government's total budget outlays, according to data from the National Science Foundation. Fiscal policy can also support R&D through tax incentives, which allow firms to reduce their tax bill as they increase spending on research and development.

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Summary of Fiscal Policy, Investment, and Economic Growth

Investment in physical capital, human capital, and new technology is essential for long-term economic growth, as Table 2 summarizes. In a market-oriented economy, private firms will undertake most of the investment in physical capital, and fiscal

policy should seek to avoid a long series of outsized budget deficits that might crowd out such investment. We will see the effects of many growth-oriented policies very gradually over time, as students are better educated, we make physical capital investments, and man invents and implements new technologies.

Table 2. Investment Role of Public and Private Sector in a Market Economy

	Physical Capital	Human Capital	New Technology
Private Sector	New investment in property and equipment	On-the-job training	Research and development
Public Sector	Public infrastructure	Public education Job training	Research and development encouraged through private sector incentives and direct spending.

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These questions allow you to get as much practice as you need, as you can click the link at the top of the first question (“Try another version of these questions”) to get a new set of questions. Practice until you feel comfortable doing the questions.

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Learning Objectives

[glossary-page][glossary-term]crowding out:[/glossary-term]

[glossary-definition]federal spending and borrowing causes interest rates to rise and business investment to fall; crowding out can also be caused by federal tax cuts[/glossary-definition][glossary-term]Head Start program:[/glossary-term]

[glossary-definition]a program for early childhood education directed at families with limited educational and financial resources.[/glossary-definition][glossary-term]Infrastructure:[/glossary-term][glossary-definition]public investment in public and externality goods like roads and transportation features (e.g. airports, seaports), water supply and sewers, schools and hospitals.[/glossary-definition][glossary-page]

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