Sophia

Foreign Exchange

by Sophia Tutorial

WHAT'S COVERED

This tutorial will cover foreign exchange, focusing on how the government finances expansionary fiscal policy and how these budget deficits can affect the nation's currency, as well as interest rates.

Our discussion breaks down as follows:

1. Fiscal Policy Goals: Short-Term vs. Long-Term
2. Financing Expansionary Fiscal Policy: Deficits
3. Foreign Exchange
    a. Supply and Demand
4. Economic Impact of Deficits
    a. Foreign Exchange
    b. Interest Rates

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1. Fiscal Policy Goals: Short-Term vs. Long-Term

As a reminder, **fiscal policy** is typically policy set by a central government authority, whereby spending by the government is adjusted to stabilize economic activity.

We know that the government has two tools, spending and taxation, and fiscal policy focuses on the policies in these two areas. The government uses these two tools to stabilize our economy's movement through business cycles, to make sure that recessions aren't too severe and expansions aren't too rapid.

Now, there are short-term and long-term goals of fiscal policy.

In the short-term, the goals of fiscal policy are full employment and price stability. The government will use taxation and spending to stabilize the economy when either unemployment or inflation rises.

In the long term, though, the goal of fiscal policy is to ensure**economic growth**, which is the measure of change in real GDP over periods of time. It is usually expressed as a percent change in value of the sum of goods and services produced in a country's natural borders over a specified time interval.

BIG IDEA

Our short-term fiscal policy decisions can impact our long-term ability to achieve economic growth because of the short-term fiscal policy impact on our national debt.

TERMS TO KNOW

Fiscal Policy
Typically policy set by a central government authority, whereby spending by the government is adjusted to stabilize economic activity

Economic Growth
Measure of the change in real GDP over periods of time; percent change in value of the sum of goods and services produced in a country's natural borders over a specified time interval

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2. Financing Expansionary Fiscal Policy: Deficits

To increase demand and stimulate the economy in the short term, which is enacting expansionary policy, the government must spend more money than they collect in tax revenues.

Whenever expenditures are greater than tax revenue, this is known as a**deficit**, which are shortages that result from spending in excess of revenue.

To take on debt, our government must sell Treasury securities. We have an increasing reliance on foreigners to finance our debt--to buy these treasury securities.

In the past, Americans used to buy all the bonds necessary to finance programs, but now we are relying more heavily on other nations to finance our debt.

Generally, running a budget deficit doesn't necessarily have an immediate negative impact on our economy. Sometimes, it's quite necessary to get us out of a recession and make sure that we don't enter another Great Depression.

However, if a government runs deficits year after year, continually adding to their overall debt, there are some serious consequences:

1. Weaken the currency
2. Raise interest rates

Today we will discuss both of these, but for now, let's focus on the impact it has on our currency or foreign exchange.

TERM TO KNOW

Deficits
Shortages that result from spending in excess of revenue

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3. Foreign Exchange

Let's begin by reviewing what an exchange rate is so that we can fully understand how it is impacted. An exchange rate is when we express the value of one nation's currency relative to another nation's currency. Here is a real-world example.

IN CONTEXT

Suppose the exchange rate is such that one U.S. dollar can purchase 0.75 euros.

$1 U.S. Dollar = €.75 Euro

Now, suppose you want to purchase a German car that costs €40,000.

First, you would need to exchange or supply your U.S. dollars for euros. In this case, you'd actually be demanding euros.

How many U.S. dollars would you need? If you perform the calculation, you would need about $53,333 in U.S. dollars, since $1 can only purchase 3/4 of the other currency, which in this case is the euro.

€40,000 / .75 = $53,333

So, **foreign exchange** is the amount of a foreign currency obtained by exchanging a specified amount of domestic currency.

TERM TO KNOW

Foreign Exchange
The amount of a foreign currency obtained by exchanging a specified amount of domestic currency

3a. Supply and Demand

The prices of most things are determined by supply and demand in a market. The same notion applies to foreign exchange.
As the demand for any currency changes, its value will change.

As the demand for the currency increases, its value will tend to increase. If the demand falls, its value will tend to fall.

EXAMPLE If foreigners want to purchase American goods, they will be demanding our dollars to buy them, and it follows that our currency would appreciate or get stronger. If foreigners don't want to purchase American goods, the opposite will happen.

On the supply side, as the supply of a currency increases in the world, its value will tend to decrease.

EXAMPLE If Americans are purchasing a lot of foreign countries' goods, we will be supplying our dollars to the market to buy them, which could weaken our currency.

This, then, is how these foreign exchange rates are typically determined.

So, why does foreign exchange, or how strong or weak our currency is, matter? Well, it matters because it impacts how much Americans want to purchase foreign goods or imports. It also matters because it impacts how much foreigners want to purchase our goods or exports.

4. Economic Impact of Deficits

Without increasing taxes, we know that the government has to borrow money by selling Treasury securities to finance the increased government spending, and they have to take on debt to do this.

So, when the government borrows money to finance the expansionary policy needed, then in the future they will have to repay it somehow. They can either repay it with tax revenue or with new debt.

Typically, the new debt option is chosen, and the old debt is rolled over. Whenever we roll over our debt, at the very least, interest must be paid to service the debt.

4a. Foreign Exchange

Because of our increased reliance on foreigners to finance our debt, this can impact the strength of our currency.
If foreigners begin to worry that our government may not be able to repay, they will not want to lend money to our government.

Therefore, this would lower the demand for our currency, weakening it, as mentioned earlier, because as demand for something decreases, it tends to lower the price of it. This, then, is how deficits can weaken our currency.

4b. Interest Rates

Now let's take a look at the impact deficits can have on interest rates. To fully understand this process, let's first walk through how our debt is issued.

> **IN CONTEXT**
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> Suppose the government wants to fund a $1 billion program without raising taxes. The U.S. Treasury, then, has to sell IOUs, which they will have to repay later.
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> The IOU is in the form of a Treasury bond, bill, or note, and again, they need to sell $1 billion's worth of these.
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> So, let's assume that the Treasury sells a one-year Treasury bill with a face value of $1,000. Note, this is not necessarily how much the buyer will pay. The face value indicates that in one year, the government will owe the bondholder $1,000.
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> What the buyer or bondholder pays determines the rate of return on the bond. So, if the buyer pays $950, this is the price of the bond. The government is basically paying $50 to borrow $1,000.
>
> If the government is paying $50, this means that the bond has a 5% interest rate or yield, calculated by taking the $50 return divided by the $1,000 face value.

50 / 1,000 = .05, or 5%

Again, going back to buyers' willingness to loan a government money, if the price buyers are willing to pay falls--perhaps because they are worried about the investment--then the interest rate or that yield is going to rise.

Looking at **interest**, then, there are many components to its definition, the most basic one being the cost or price of money.

There is a difference between nominal and real interest, in that nominal interest is the prevailing rate, and real interest reflects the prevailing rate adjusted for inflation.

In this tutorial, though, we are focusing on this idea of interest as the return on investment, where the return varies based on the risk profile of the investment.

As foreigners see a government as being more risky, the interest that they will earn on that investment is going to have to rise, because it's riskier.

So, when bondholders or loaners are foreigners, then the interest rates can be impacted if they worry about a government's ability to repay.

As the confidence in government declines, that market price of the treasury bond falls, which raises the interest rate, providing a higher bond yield.

Then, the country has to pay higher interest rates to borrow money to roll over its debt. Investors tend to lose more confidence once they see that the rates are going up, and it can spiral out of control.

EXAMPLE This is exactly what happened in recent times in Greece. Their debt reached extremely high levels, and investors began worrying that they would not be able to repay. This forced Greece to pay higher yields to keep rolling over their debt, which led investors to worry even more. You can see how this can completely spiral out of control from there and raise interest rates.

BIG IDEA

Many politicians see no problem with short-term debt to finance expansionary policy, but the caution is that when deficits get too high for too many years, it can weaken the currency and raise interest rates.

TERM TO KNOW

Interest
The cost of money; nominal interest is the prevailing rate; real interest reflects the prevailing rate adjusted for inflation (real = nominal rate minus the inflation rate); return on investment where return varies based on the risk profile of the investment, time horizon, opportunity cost of a comparable risk-free investment, and inflation expectations

SUMMARY

We started today's tutorial will a review of **fiscal policy goals**, both **short-term** and **long-term**. We learned that the government has to **finance expansionary fiscal policy** by issuing debt, which can create **deficits**. We discussed **foreign exchange**, which is the amount of a foreign currency obtained by exchanging a specified amount of domestic currency, and how the concept of **supply and demand** applies to foreign exchange--that as the demand for any currency changes, its value will change. Lastly, we learned about the **economic impacts of deficits**, noting that while these deficits are taken on to expand the economy in the short run can actually weaken a currency (**foreign exchange**) and raise **interest rates**.

Source: Adapted from Sophia instructor Kate Eskra.

TERMS TO KNOW

Deficits
Shortages that result from spending in excess of revenue.

Economic Growth
Measure of the change in real GDP over periods of time; percent change in value of the sum of goods and services produced in a country's natural borders over a specified time interval.

Fiscal Policy
Typically policy set by a central government authority, whereby spending by the government is adjusted to stabilize economic activity.

Foreign Exchange
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Interest
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