

## Objectives for Chapter 10 The Circular Flow Model

At the end of Chapter 10, you will be able to answer the following:

1. Explain the **basic circular flow model**.
2. Define "**consumption**" and "**saving**"
3. Explain why Nominal Gross Domestic Product (GDP) and National Income must be equal.
4. Explain the difference between **durable goods, non-durable goods, and services**.
5. Add savings and investment spending into the circular flow. Explain their effects.
6. Explain is the condition for macroeconomic equilibrium with neither recession nor inflation? Why?
7. Explain under what conditions there will be a recession (or a deflation)?
8. Explain under what conditions there will be inflation?
9. Add the Government Sector onto the circular flow model. Explain its effects.
10. Define "**government purchases**"; "**government transfers**"
11. Define "*disposable income*".
12. Define "**budget deficit**" and "**budget surplus**".
13. Explain under what conditions a budget deficit is appropriate? Explain how this budget deficit is financed?
14. Explain under what conditions a budget surplus is appropriate? Explain how this budget surplus is disposed of.
15. Add the International Sector into the circular flow model. Explain its effects.
16. Define "**import**"; "**export**"; "**trade deficit**"; "**trade surplus**"

## Chapter 10 The Circular Flow Model (Latest revision August 2004)

The basic circular flow model provides a picture of the interconnection of the various aspects of our economy. As an analogy, it provides a picture of the “forest”. In subsequent chapters, we shall examine the individual “trees” in detail. As we examine the details of the various aspects of our economy and see how they interconnect, we can understand why the economic problems of slow economic growth, unemployment, or inflation might result. We can also understand how these problems might be solved.

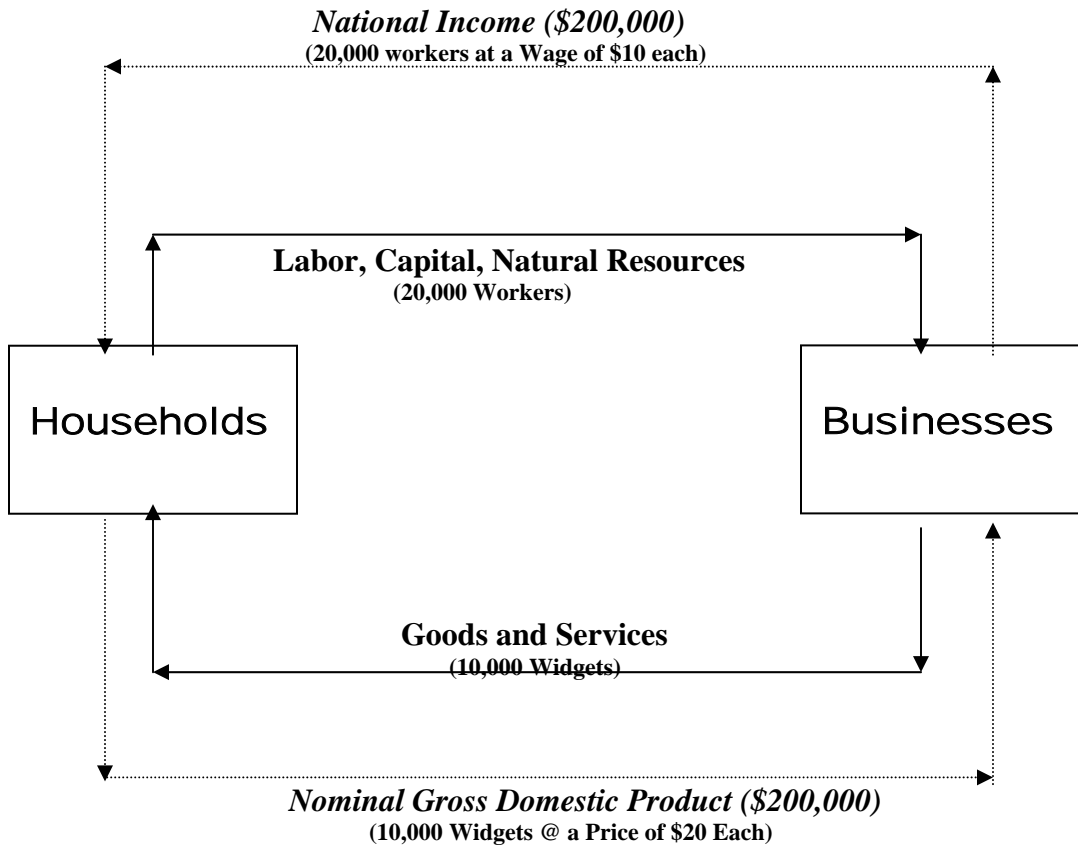
We will build the basic circular flow model step by step. We begin with some simplifying assumptions. These are not realistic; but they do allow us to understand the main points of the model. In each subsequent step, we shall make the model more and more realistic until we have a good picture of the interconnections that are important. Our model is much like a road map. Just as a road map does not show every bump in the road or every turn, our model will not show every detail of the economy. And just as a road map does give us enough information to get from one place to another, our circular flow model provides us enough information to understand much about our economy.

As was stated, we begin with some very simplifying assumptions. **First, assume there is no government at all. And second, assume there are neither exports nor imports.** (We will change these assumptions below). Let us divide what is left into two groups. On the one hand, we have **businesses**. Businesses are responsible for the organization of production. To help us understand, assume there is only one product in the world. Call it a “**widget**”. Businesses are responsible for the production of widgets. If they hire all of the workers they can (full employment), use all of the machines and natural resources available, use the best available technology, and so forth, they can produce 10,000 widgets. Each widget is to sell for \$20. Thus, the most businesses can produce is \$200,000 worth of widgets (10,000 x \$20). As you know from earlier chapters, the amount of goods and services that can be produced at full-employment is called “**Potential Real GDP**”. So the Potential Real GDP is \$200,000.

The other group is **households**. Households have two important functions. First, they provide labor (as well as capital goods and natural resources) to the businesses. Assume that, if we have full-employment, there will be 20,000 workers available (review the definition of full employment from Chapter 3). Each worker is to receive a wage of \$10.

Examine the first circular flow chart. First, notice that 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income (20,000 x \$10). This is called the **National Income**. They receive this income because they produced 10,000 widgets. What do these people do with their income? The answer is that they spend it. They buy the 10,000 widgets that they produced. The value of all of the goods and services that people buy is called the **Nominal Gross Domestic Product (GDP)**. The flow is circular in that: *people work and, in doing so, they produce goods and services. While working, they earn income. People then use the income they earned to buy the goods and services that they produced when they worked.*

## The Basic Circular Flow Model



**Explanation:** Businesses are responsible for the production of widgets. If they hire all of the workers they can, use all of the machines available, use all of the natural resources available, and so forth, they can produce 10,000 widgets. Each widget is to sell for \$20. Thus, businesses can produce is \$200,000 worth of widgets (10,000 x \$20), called “Potential Real GDP”. Households have two important functions. First, they provide labor (and capital and natural resources) to the businesses. If we have full-employment, there will be 20,000 workers available. Each worker receives a wage of \$10. The 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income (20,000 x \$10) --the **National Income**. Households then spend their incomes. They buy the 10,000 widgets. The value of all of the goods and services that people buy is called the **Nominal Gross Domestic Product (GDP)**.

Notice from the chart that *Nominal Gross Domestic Product (GDP) and National Income must conceptually be equal*.<sup>\*</sup> This must be so. How does one earn income? The answer is that one produces goods and services that are sold. There is no magical way to earn income. You earn income by producing. *The value that you earn is equal to the value that you produce*. (Or, to paraphrase the last line of a famous Beatles album, “the wealth you take is equal to the wealth you make”.)

The spending by people thus far is all *consumption*. People are buying widgets to consume them (i.e., use them up). Generally, *consumption is divided into three groups: durable goods, non-durable goods, and services*. Goods are physical items, such as cars and clothes. *Goods are durable if, when you buy them, you reasonably expect them to last three years or more*. So automobiles, televisions, and even most clothes are durable. *Goods are non-durable if you reasonably do not expect them to last three years*. So food items are non-durable. *Services are items that are not physical*. So, education, health care, and entertainment are services.

## 2. Bringing In Savings and Business Investment Spending

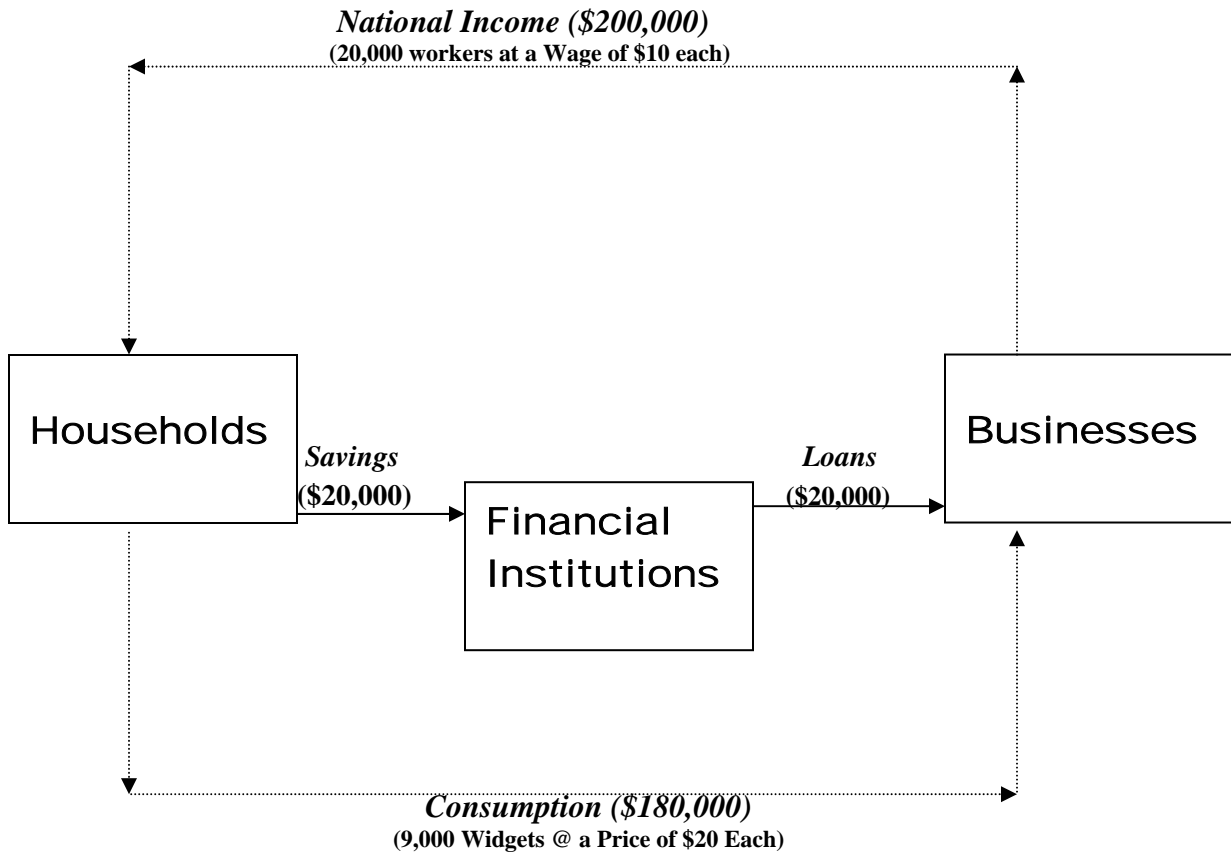
In the previous case, we assumed that all of the income earned was spent on consumer goods. This is not likely to be the case. Although Americans are notorious for saving very little, we do indeed save something. So, let us consider this change that makes our circular flow model more realistic.

Examine the circular flow model below. Again, let us start with the households. The 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income (20,000 x \$10), called the **National Income**. They receive this income because they produced 10,000 widgets. What do these people do with their income? In this case, let us assume that they spend \$180,000 of it, buying 9,000 widgets at \$20 each. The other \$20,000 is saved. As you saw in Chapter 7, there are many forms of saving. Let us assume here that all of the savings are placed in a financial institution (such as a bank or credit union), perhaps in a savings account or a CD. What does the financial institution do with the savings? The answer is that they lend it out. (We will discuss financial institutions in Chapter 21. They are indeed interesting institutions. After all, you put your money into the financial institution. They lend it out. However, it is still there.) Some of the lending of the financial institutions will be to other households to spend on consumer goods. So your savings may be loaned to me to buy my new car. But some of the lending is to a private business for business investment spending. As you know, *business investment spending means that private businesses are buying capital goods. Capital goods include machines, tools, buildings, and so forth*. Many of these capital goods are too expensive to be paid-for out of current earnings. So the businesses borrow from the financial institutions and use the increased earnings resulting from the new capital goods to pay off the loans.

In the circular flow model below, it is assumed that the private businesses borrow the \$20,000 that the households chose to save. They use this money to buy the

<sup>\*</sup>(Nominal GDP and National Income are not statistically equal for reasons we shall not consider here.)

## The Basic Circular Flow Model With Savings and Investment



**Explanation:** The 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income ( $20,000 \times \$10$ ), called the **National Income**. They receive this income because they produced 10,000 widgets. With their income, assume that they spend \$180,000 of it, buying 9,000 widgets at \$20 each. The other \$20,000 is saved. Assume here that all of the savings are placed in a financial institution (such as a bank or credit union), perhaps in a savings account or a CD. The financial institutions lend out the savings. Assume that none of the lending of the financial institutions is to another household to spend on consumer goods. Instead, assume that all of the lending is to a private business for business investment spending and that the private businesses borrow all of the \$20,000 that households chose to save. They use the \$20,000 to buy the other 1,000 widgets at the price of \$20 each. The total spending by all spenders (called **aggregate demand**) is now \$200,000. This is composed of \$180,000 of **consumption** and \$20,000 of **business investment spending**. This exactly equals the Potential Real GDP of \$200,000. People are buying everything that can be produced. We are at “full employment”.

other 1,000 widgets at the price of \$20 each (remember that we assumed that there is only one product produced). The total spending by both groups of spenders (called **aggregate demand**) is now \$200,000. This is composed of \$180,000 of **consumption** and \$20,000 of **business investment spending**. This exactly equals the Potential Real GDP of \$200,000. People are buying everything that can be produced. We are at “full employment”. However, it may be that the businesses do not borrow the exact amount that savers wish to save. We will discuss saving behavior in Chapter 14 and Business Investment Spending in Chapter 15. The act of saving and the act of buying capital goods are done by different people for different reasons. Therefore, it is very possible that they will not be equal. Let us see what happens if they are not equal.

What happens if savers wish to save more than businesses wish to spend on investment spending? Let us assume that the saving is still \$20,000 but that desired business investment spending is zero. Financial institutions do everything in their power to lend the \$20,000 to the businesses, but no business wants to borrow any money. In this case, the total spending (aggregate demand) is only \$180,000, composed of consumption of \$180,000 and business investment spending of zero. But Potential Real GDP is still \$200,000. So we have what is called a **GDP Gap of \$20,000**. **People are spending \$20,000 less than is necessary to have full-employment**. If people are not buying enough, you know that there are **surpluses**. If there are surpluses, companies should lower their prices. This is called **deflation**. In this example, prices would fall from \$20 to what level? The answer is \$18, so that the \$180,000 of spending will buy all 10,000 widgets. Of course, if the companies take in only \$180,000 from consumers, they cannot pay the 20,000 workers their \$10. So the wages will also have to fall – in this case to \$9. What has happened to the **real wage** of the workers? The answer is that nothing has happened to it; **the workers are not worse off at all**. With a wage of \$9 and a price of widgets of \$18, they can buy just as many widgets as they could when they earned \$10 but the price was \$20. The real wage has stayed constant.

The description in the previous paragraph will be very important to understanding the ideas of economists who lived in the 18<sup>th</sup>, 19<sup>th</sup>, and early 20<sup>th</sup> centuries. We will discuss their views extensively in Chapter 11. However, you have already learned that prices rarely fall. The last time there was deflation for an entire year occurred in 1954 to 1955. And you will see that wages rarely fall either. If prices and wages do not fall, what will happen? If the price of widgets stays at \$20, the \$180,000 of consumption will buy only 9,000 widgets. The other 1,000 will not be bought; therefore, they will not be produced. And if the wages stay at \$10, only 18,000 workers can be hired. The other 2,000 will be unemployed. This is **cyclical unemployment**. While production is falling from 10,000 widgets to 9,000 widgets, and unemployment is rising from zero to 2,000 workers, we have a **recession**. Notice that **there are two important conditions to have a recession: people must desire to buy fewer goods or services and prices and wages must not fall**. Both conditions must be present for a recession to occur.

Now let us assume that businesses desire to spend more than \$20,000 on business investment spending --- say \$30,000. In this case, desired spending (aggregate demand) will equal \$210,000, composed of \$180,000 by the consumers and \$30,000 by the businesses. But people cannot buy \$210,000 worth of goods and services; there are only

\$200,000 worth of goods and services available. If people wish to buy more than is available, you know that there will be shortages. When the companies see the **shortages**, they will raise prices. Of course, this is called **inflation**. How high will the prices go? If consumers and businesses wish to spend \$210,000, the price for each widget must rise from \$20 to \$21.

The next two sections of the chapter, which make the model much more realistic, do not add any new principles. So if this section is clear, the other sections should be clear too. So, to summarize, let us reduce the main points of the section to talk that resembles Goldilocks:

*(1) If spending, or aggregate demand, composed of consumption and business investment spending, is too low (that is, below Potential Real GDP), there will be a recession.*

*(2) If spending, or aggregate demand, composed of consumption and business investment spending, is too high (that is, above Potential Real GDP), there will be inflation.*

*(3) We want spending or aggregate demand, composed of consumption and business investment spending, to be “just right” (that is, equal to Potential Real GDP).*

### Test Your Understanding

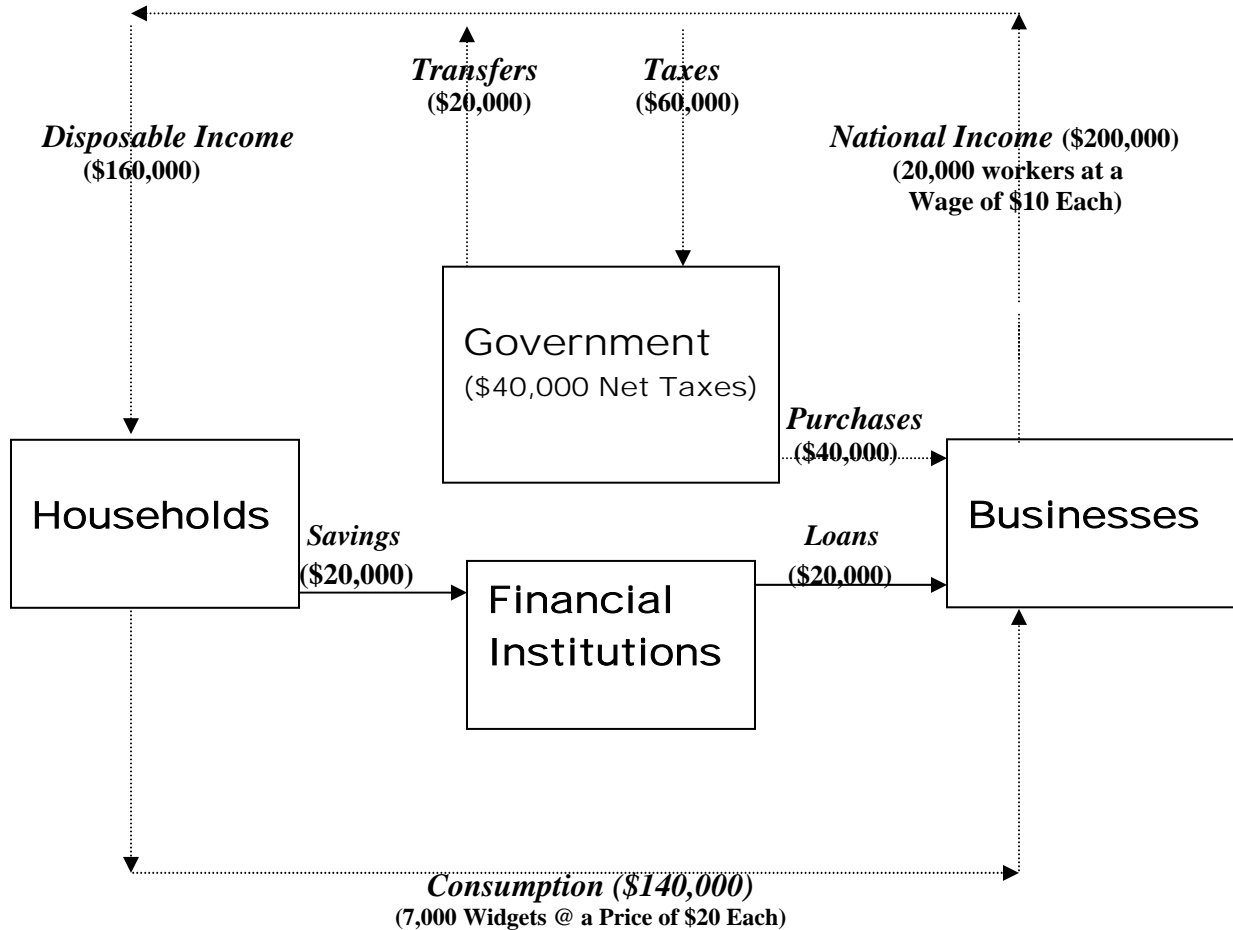
Assume that Potential Real GDP equals \$10,000. Of their income, consumers wish to spend \$8,000 and to save the other \$2,000. Businesses desire \$1,000 for Business Investment Spending. What will result for this economy? Why?

### 3. Bringing in Government Purchases and Taxes

Now examine the circular flow model below. Again, let us start with the households. The 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income (20,000 x \$10), called the **National Income**. They receive this income because they produced 10,000 widgets. However, of this income, let us say that \$60,000 of it goes to the government as **taxes** and does not get to the households. Of the \$60,000 that the government taxes, however, \$20,000 will come back as transfers. *“Transfers” means that the government takes income from some households and transfers it to other households, who may spend or save it.* The government does not spend this money itself. The largest transfer for the federal government is for Social Security. Here, income is transferred from taxpayers to those retired or disabled. Other transfers are welfare, the GI Bill, and so forth. If the households earn \$200,000, have \$60,000 taken away as taxes, but have \$20,000 of this returned as transfers, the households will receive \$160,000. This is called their disposable income. *So, disposable income equals National Income minus Taxes plus Transfers.* Households may dispose of this disposable income in two ways: they may **spend it or save it**. Assume that they choose to save \$20,000 of their disposable income and to spend the remaining \$140,000.

Follow the circular flow below. The savings are placed in a financial institution. Assume for now that businesses desire to borrow the \$20,000 for business

## The Circular Flow Model With Government Purchases and Taxes



**Explanation:** The 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income (20,000 x \$10), called the **National Income**. They receive this income because they produced 10,000 widgets. With their income, assume that they spend \$140,000 of it, buying 7,000 widgets at \$20 each. \$20,000 is saved. \$60,000 is paid as tax to the government. Of this, \$20,000 comes back to other households as transfers, leaving \$40,000 as net taxes. Assume here that all of the savings are placed in a financial institution. The financial institutions lend out the savings. Assume that all of the lending is to private businesses for business investment spending and that the private businesses borrow all of the \$20,000 that households chose to save. They use the \$20,000 to buy 1,000 widgets at the price of \$20 each. The government spends its \$40,000 of net taxes on government purchases. It buys 2,000 widgets at \$20 each. Therefore the total spending by all spenders (called **aggregate demand**) is now \$200,000. This is composed of \$140,000 of **consumption**, \$20,000 of **business investment spending**, and \$40,000 of **government purchases**. This exactly equals the Potential Real GDP of \$200,000. People are buying everything that can be produced. We are at “full employment”.

investment spending. Total spending (aggregate demand) is \$160,000 --- \$140,000 from consumers and \$20,000 from business investment spending. Where is the other \$40,000? The answer is that the government has it. This is the tax money that has not been sent back to a household as a transfer. What does the government do with this money? The answer is that the government spends the money on government purchases. We will examine the details of these government purchases in Chapter 16. Assume the government spends the entire \$40,000. ***Total spending (aggregate demand) is now composed of the spending of three groups --- consumers, business investment spending, and government purchases.*** Together, these add to \$200,000 (\$140,000 from the consumers, \$20,000 on business investment spending, and \$40,000 on government purchases). Since Potential Real GDP is \$200,000, total spending is “just right”. All 10,000 widgets will be bought. All 20,000 workers will be employed.

As we saw in the previous section, savings and business investment spending need not be equal. As was done above, let us again assume that people wish to save \$20,000 but that businesses desire nothing for business investment spending. What is total spending (aggregate demand) now? The answer is \$180,000 -- \$140,000 by consumers and \$40,000 by the government. Since Potential Real GDP is still \$200,000, spending (aggregate demand) is too low. As we saw in the previous section, if spending (aggregate demand) is too low, the result should be deflation. But since prices rarely fall, the actual result is likely to be recession. Production will fall from 10,000 widgets to 9,000 widgets. Unemployment will rise from zero to 2,000 workers.

The government can help avoid the recession by changing its own spending (or its taxes). Since we want the total spending to be “just right” (= \$200,000), how much should the government spend? The answer is \$60,000. In this case, the consumer spending of \$140,000 plus the business investment spending of 0 plus the government purchases of \$60,000 would equal the Potential Real GDP of \$200,000. (Or the government can accomplish the same result by lowering the taxes by \$20,000 so that consumers will spend \$20,000 more.) But notice that the government would be spending \$60,000 while it takes in only \$40,000 in taxes (net of transfers). ***If the government spends more than it takes in as tax revenue, it has a budget deficit.*** In this example, is this budget deficit “good” or “bad”? In this case, the budget deficit is “good”. Because of the budget deficit, this economy will avoid all of the agonies that go with recession. If the government spends more than it takes in, where does it get the extra money to spend? The answer is that ***the government borrows the extra money.*** The government goes to the financial institutions, or to the savers directly, and borrows by selling them Treasury bills, notes, or bonds. ***Notice that the government is borrowing money and spending money that no one else wants to spend.*** Households put the money into some form of saving; they did not want to spend the money. The financial institutions wanted to lend the money to private businesses, but the private businesses did not want to borrow it. ***Budget deficits can be good for the economy if the government is borrowing and spending money that no one else wants to spend and if the economy would experience recession without the existence of the deficits.*** (Notice, however, that while a budget deficit of \$20,000 is helpful in this example, a budget deficit of more than \$20,000

would not be desirable. If the budget deficit exceeded \$20,000, total spending would be “too much” and there would be inflation.)

Now, let us examine the other possibility. Savers still wish to save \$20,000 but businesses desire \$30,000 for business investment spending. The total spending (aggregate demand) now equals \$210,000 --- \$140,000 by consumers, \$30,000 by businesses on business investment spending, and \$40,000 by the government on its purchases. Since Potential Real GDP is still \$200,000, this total spending (aggregate demand) is “too much”, causing inflation. The price of a widget would rise from \$20 to \$21. If the government wished to have the country avoid this inflation, it can again do so by changing its spending (or its taxes). How much should the government now spend? The answer is \$30,000. (Or, the government could raise taxes by the same \$10,000.) If it does so, the total spending (aggregate demand) will equal \$200,000, which will be “just right”. ***But if the government spends \$30,000 while it collects \$40,000 in taxes (net of transfers), the government has a budget surplus of \$10,000.*** This budget surplus is appropriate in that it helps avoid inflation. What does the government do with the surplus \$10,000? There are several possible choices. But in this example, **the government provides the money to the savers (perhaps by paying off previous debt)**. The savers will place the money in some form of savings in a financial institution. The financial institutions will then have available all \$30,000 they need. The businesses will now be able to borrow all of the money that they desire to borrow for business investment spending. (It is also possible that the government could lend the money directly to the businesses.)

***In summary, total spending (aggregate demand) is now composed of three groups of spenders: consumers, businesses (for business investment spending), and government purchases. Our goal is that the sum of the spending by these three groups exactly equals the Potential Real GDP. If the sum is too low, the economy will experience deflation or recession. The government can help the country avoid these by having a budget deficit equal to the amount by which total spending (aggregate demand) is “too low”. And if the sum is too high, the economy will experience inflation. The government can help the country avoid the inflation by having a budget surplus equal to the amount by which total spending (aggregate demand) is “too high”.***

### **Test Your Understanding**

1. Assume that, there is only one product produced, which we will call a "widget". If there were full-employment, production would equal 1,000 widgets to sell at \$100 per widget. Therefore production in the United States is valued at \$100,000. National income also must equal \$100,000. This income involves 10 workers being paid \$10,000 per year. (Ignore profits for now.) Each worker produces 100 widgets.

Of their \$100,000 of income, the workers pay \$10,000 in taxes, save \$10,000, spend \$80,000 on consumer goods produced in the United States. Businesses wish to spend \$5,000 on private business investment spending, that is, on capital goods produced in the United States.

If the government spent the same amount that it raised in taxes (\$10,000), what would happen to production in this economy? Why?

If the government decided to spend \$30,000, without raising taxes, what would happen to this economy? Why?

In order to avoid any problem of unemployment or inflation, how much should the government spend? Why?

If it did so, the government would have a budget deficit equal to \$\_\_\_\_\_.

Where would the government get the money to pay for this deficit?

2. At the beginning of 2001, it appeared that the American economy was headed for a recession. Real GDP was stagnant and unemployment was rising. At the same time, a report was done stating that the federal government would have \$5.6 trillion in budget surpluses over the next ten years. Given the conditions prevailing at the beginning of 2001, would these budget surpluses be good or bad for the American economy? Explain why.

If the government wished to reduce these projected budget surpluses, what options would it have? What are the advantages and the disadvantages of each option?

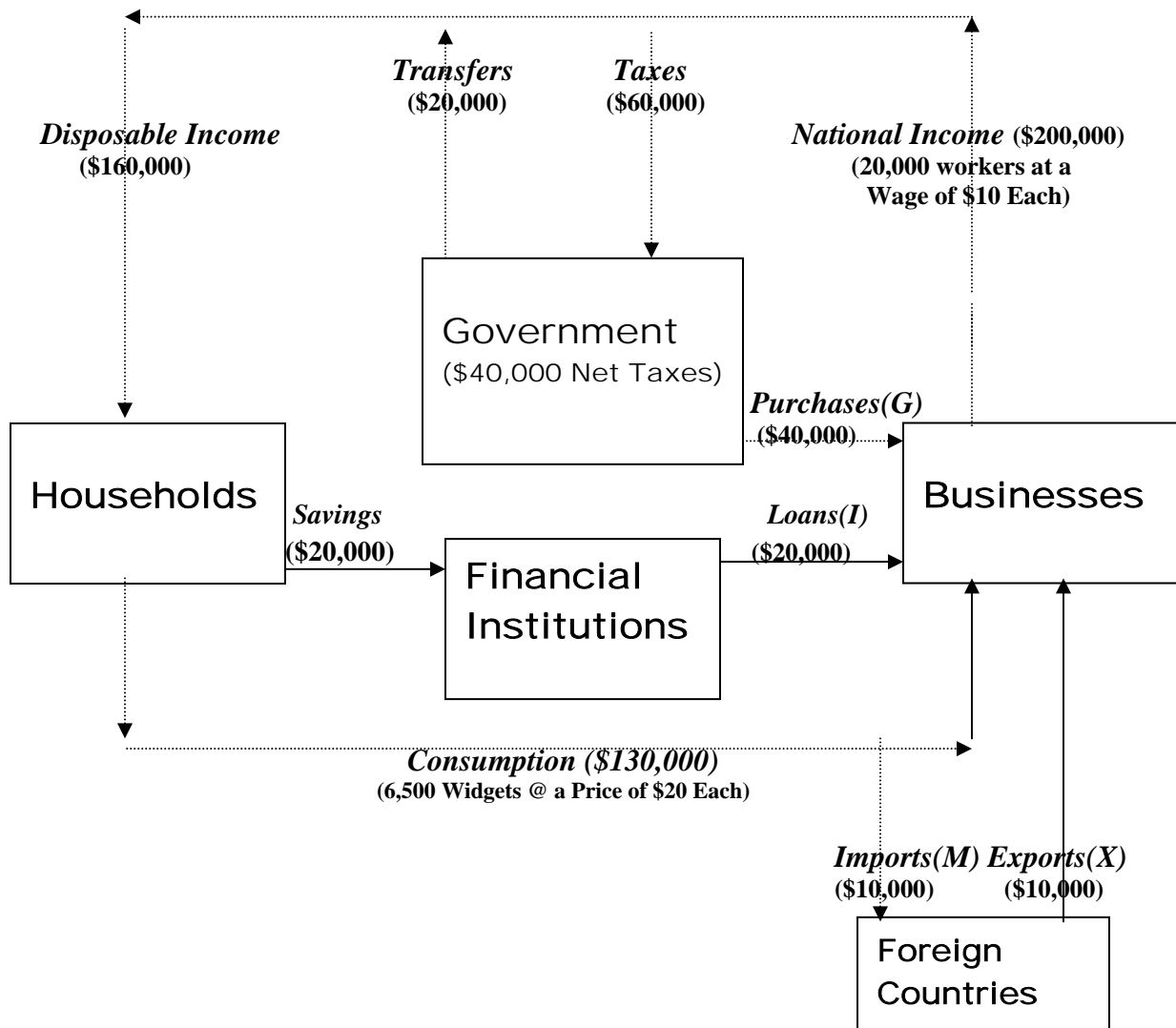
### 3. Bringing in Exports and Imports

The circular flow model below brings in the rest of the world. With this addition, the model is now complete. It describes many important factors that affect the American economy and shows the relation between them.

We have seen that our goal is to have total spending be “just right” (that is, equal to Potential Real GDP). Of the national income, there were two reasons that households might not spend all of their income. First, they might save some of their income. Second, they pay taxes on their income. *In order for total spending (aggregate demand) to be “just right”, the amount of their incomes that households do not spend must be spent by others.* These others include private businesses (for business investment spending) and the government (for government purchases). Bringing the rest of the world into the model does not change this thinking. All it does is add another reason households might not spend all of their income and an additional spender. The other reason that households might not spend all of their income is *imports*. Remember that Real GDP is the value of all goods and services produced in the United States in a year. *Importing goods or services involves spending that does not come back to American businesses.* On the other hand, the additional spending is from *exports*. Foreigners may also buy goods and services produced in the United States.

Examine the circular flow model below. Again, start with the households. The 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income (20,000 x \$10), called the **National Income**. They receive this income because they produced 10,000 widgets. However, of this income, let us say that \$60,000 of it goes to the government as **taxes** and does not get to the households. Of the \$60,000 that the government taxes, however, \$20,000 will come back as transfers. The government has the other \$40,000. Of the \$160,000 that

## The Circular Flow Model With Exports and Imports



**Explanation:** The 20,000 workers provide their labor to businesses. Each worker receives a wage of \$10. Therefore, workers receive \$200,000 in income (20,000 x \$10), called the **National Income**. They receive this income because they produced 10,000 widgets. With their income, assume that they spend \$130,000 of it, buying 6,500 widgets at \$20 each. \$20,000 is saved. \$60,000 is paid as tax to the government. Of this, \$20,000 comes back to other households as transfers, leaving \$40,000 as net taxes. Assume here that all of the savings are placed in a financial institution. The financial institutions lend out the savings. Assume that all of the lending is to private businesses for business investment spending and that the private businesses borrow all of the \$20,000 that households chose to save. They use the \$20,000 to buy 1,000 widgets at the price of \$20 each. The government spends its \$40,000 of net taxes on government purchases. It buys 2,000 widgets at \$20 each. The foreigners spend \$10,000 on American exports, buying 500 widgets at \$20 each. Therefore the total spending by all spenders (called **aggregate demand**) is now \$200,000. This is composed of \$130,000 of **consumption** (\$140,000 minus \$10,000 of **imports**), \$20,000 of **business investment spending**, \$40,000 of **government purchases**, and \$10,000 of **exports**. This exactly equals the Potential Real GDP of \$200,000. People are buying everything that can be produced. We are at “full employment”.

households have after paying their taxes, assume that they choose to save \$20,000 in financial institutions. Also, assume that \$10,000 of their spending goes out of the country as imports. This means that households spend \$130,000 buying goods and services produced in the United States. This is consumption. Assume that businesses borrow the \$20,000 of saving and spend it on business investment spending. Assume also that the government spends the \$40,000 it has after collecting the taxes and paying out the transfers. And finally, assume that foreigners spend all \$10,000 that they received from imports buying goods and services produced in the United States (exports). How much total spending (aggregate demand) is there? The answer is \$200,000 (\$130,000 by consumers, \$20,000 by businesses, \$40,000 by the government, and \$10,000 by foreigners). Total spending (aggregate demand) is “just right”. By now you should be able to explain what will result if the amount people wish to save plus the amount they pay in taxes (net of transfers) plus the amount they spend on imports is greater than (or less than) the amount of business investment spending plus the amount of government purchases plus the amount of exports.

***Let us summarize. Total spending (aggregate demand) is now broken into four groups of spenders: consumers, businesses (for business investment spending), the government, and foreigners (net exports = exports minus imports)\*. If the sum of the spending of these four groups is less than the Potential Real GDP, we could have deflation. But it is more likely that we would have recession. If the sum of the spending of these four groups is greater than the Potential Real GDP, we would have inflation. Our goal is to have the sum of the spending from each of these groups just equal the Potential Real GDP.***

\*We have to subtract the imports at the end because they are counted in when we measure consumption and business investment spending.

### **Test Your Understanding**

1. Assume that, there is only one product produced, which we will call a "widget". If there were full-employment, production would equal 1,000 widgets to sell at \$100 per widget. Therefore production in the United States is valued at \$100,000. National income also must equal \$100,000. This income involves 10 workers being paid \$10,000 per year. (Ignore profits for now.) Each worker produces 100 widgets.

Of their \$100,000 of income, the workers pay \$10,000 in taxes, save \$5,000, spend \$85,000 on consumer goods, of which \$80,000 were produced in the United States and \$5,000 were imported. Businesses wish to spend \$10,000 on private business investment spending. Foreigners spend \$6,000 on American exports.

If the government spent the same amount that it raised in taxes (\$10,000), what would happen to production in this economy (inflation, recession, or neither?)? Why?

In order to avoid any problem of unemployment or inflation, how much should the government spend? Why? If it did so, the government would have a (budget deficit or surplus?) equal to \$\_\_\_\_\_. If there is a deficit, where would the government get the money to pay for this deficit? If there is a surplus, what would be done with the surplus?

2. In question 1, you see that the United States had a budget surplus (government spending was less than tax revenues) and also a trade surplus (imports were less than exports). It is also true that a budget deficit (government spending being greater than tax revenues) would coincide with a trade deficit (imports being greater than exports). Explain why these two surpluses (or these two deficits) will occur at the same time.

We have now concluded Part II of the text. We have all of the tools we need to explain why our economy might experience recession or inflation. In Part III, we will use these tools to examine the period up to the end of World War II (1945). We will examine and explain the record for the American economy in this period, especially the disastrous Great Depression of the 1930s. We shall also examine the economic views that were dominant in this period, views that are now known as **Classical Economics**.

### Assignment

Go to the following site on the Internet for the Economic Report of the President. Go to the Statistical Tables.

1. Click on Table B-1. What is the Nominal Gross Domestic Product for the most recent year (or quarter)?
2. What was the Consumer Spending for the most recent year (or quarter)? How much of this was for Durable Goods? How much of this was for Non-Durable Goods? How much of this was for Services?
3. What was the Business Investment Spending for the most recent year (or quarter)?
4. Go back to the Main Menu. Click on Table B-20. What was the total Government Spending for the current year (or quarter)? How much of this was done by the federal government and how much was done by state and local government? How much government spending qualifies as consumption and how much qualifies as investment?
5. Go back to the Main Menu. Click on Table B-31. What was the Disposable Income in the most recent year (or quarter)? How much did households spend on consumption?
6. Go back to the Main Menu. Click on Table B-32. What was Gross Private Saving in the most current year (or quarter)? How much of this saving was done by persons and how much was done by businesses?
7. Go back to the Main Menu. Click on Table B-42. What was the unemployment rate in the most current year (or quarter)? If we assume that the natural rate of unemployment is 4%, is the American economy experiencing a GDP Gap or not?
8. Go back to the Main Menu. Click on Table B-84. What are the government's tax revenues in the most current year (or quarter)? How much of this tax revenue is paid by persons? How much of this tax revenue is paid by businesses? How much of this tax revenue is paid for Social Insurance? What was the government spending equal to in the most current year (or quarter)? How much of this was Transfer Payments? Did the government have a budget deficit or a budget surplus (of how much)?
9. Go back to the Main Menu. Click on Table B-103. In the most current year (or quarter), what were American exports of goods equal to? What were American imports of goods equal to? Did America have a trade deficit surplus on goods only? Did America have a trade deficit or surplus on goods and services?
10. Put the numbers from these 9 questions into the framework of this chapter. Using these numbers, analyze the state of the American economy in the most current year (or quarter). From these numbers, would you expect America to be experiencing recession, inflation, or neither? Why? Is your expectation confirmed?

### Practice Quiz for Chapter 10

1. **Disposable Income** equals:
  - a. National Income
  - b. National Income minus Taxes
  - c. National Income minus Taxes plus Transfers
  - d. National Income plus Taxes minus Transfers
  
2. Conceptually, National Income must equal:
  - a. Nominal Gross Domestic Product (GDP)
  - b. Disposable Income
  - c. Consumption
  - d. Business Investment Spending
  
3. Which of the following is likely to be a **durable good**?
  - a. Beef
  - b. A New Automobile
  - c. Education
  - d. Health Care
  
4. Assume that, there is only one product produced, which we will call a "widget". If there were full-employment, production would equal 1,000 widgets to sell at \$100 per widget. Therefore production in the United States is valued at \$100,000. National Income involves 10 workers being paid \$10,000 per year. (Ignore profits for now.) Each worker produces 100 widgets.
 

Of their \$100,000 of income, the workers pay \$10,000 in taxes, save \$10,000, spend \$80,000 on consumer goods produced in the United States. Businesses wish to spend \$15,000 on private business investment spending, that is, on capital goods produced in the United States. If the government spent the same amount that it raised in taxes (\$10,000), what would happen to production in this economy?

  - a. Inflation
  - b. Recession
  - c. Neither Recession nor Inflation
  
5. Using the numbers in question 4, in order to avoid any problem of unemployment or inflation, how much should the government spend?
  - a. \$5,000
  - b. \$10,000
  - c. \$15,000
  - d. 0
  
6. For the country to experience high cyclical unemployment, which of the following is needed?
  - I. A decrease in aggregate demand
  - II. A floor on wages so that they do not fall
  - a. I only
  - b. II only
  - c. Both I and II
  - d. Neither I nor II
  
7. **Budget deficits** might be an appropriate policy if there otherwise would be:
  - a. inflation
  - b. recession
  - c. neither inflation nor recession
  
8. If the government has a budget deficit, where does it get the money to spend?
  - a. tax revenues
  - b. printing currency
  - c. borrowing
  - d. stealing
  
9. Our "goal" is to have:
  - a. Consumption + Business Investment Spending + Government Purchases + Net Exports = Potential Real GDP
  - b. Consumption + Business Investment Spending + Government Purchases + Net Exports = Nominal GDP
  - c. Savings + Business Investment Spending = Taxes + Government Purchases
  - d. Consumption + Business Investment Spending + Government Purchases + Net Exports be greater than Potential Real GDP
  
10. Assume that the amount people save plus the amount people pay in taxes is greater than the amount of business investment spending plus the amount of government purchases. In order to avoid recession or inflation, the country should experience a
  - a. trade surplus
  - b. trade deficit
  - c. trade balance