

Part IV: The Keynesian Revolution: 1945 - 1970

Objectives for Chapter 13: Basic Keynesian Economics

At the end of Chapter 13, you will be able to answer the following:

1. According to Keynes, consumption depends on (is a function of) what?
2. Define *"disposable income"* (review) . *"average propensity to consume"*. *"marginal propensity to consume"*.
3. From a number set, calculate the marginal propensity to consume and the marginal propensity to save. From this number set, calculate **the equilibrium real GDP**. First, do so with only consumption and investment spending. Then, add it government purchases. Finally, add in net taxes and net exports. (Relate to the circular flow model.)
4. If real GDP is below (or above) equilibrium real GDP, why will it rise (fall) to equilibrium? (That is, why can these other levels of real GDP NOT be equilibrium?) What is meant by **"unintended inventory investment"**?
5. What is a recessionary? an inflationary (expansionary) gap? Show these on the aggregate demand - aggregate supply graph. (Review)
6. Explain why a change in investment spending (or government purchases) causes equilibrium real GDP to change by more than the change in investment spending (or government purchases).
7. What is meant by the *"multiplier"*?
8. How is the expenditures multiplier calculated? Why is the real expenditures multiplier lower than indicated by the multiplier formula?

Chapter 13: Basic Keynesian Economics (latest revision August 2004)

Introduction

John Maynard Keynes, arguably the most influential economist of the 20th century, was introduced in the previous chapter. The Great Depression of the 1930s had called into question the Classical View of Economics, a view that had prevailed for 150 years. Remember that the basic conclusion of the Classical View was that cyclical unemployment would not last very long. Since unemployment rates would fall automatically, there was no need for any government action to lower them. But rates of cyclical unemployment had been very high from 1929 until the beginning of World War II in 1941. In the previous chapter, Keynes' criticisms of the Classical View were discussed. In this chapter, we will examine the economic theory that Keynes developed to replace the Classical view. This theory is known as **Keynesian Economics**. It became somewhat influential after World War II and then became very influential since the 1960s. We can break this theory into just a few components: **(1) consumption, (2) equilibrium Real GDP, (3) inflationary and recessionary gaps, (4) multipliers, and (5) fiscal policy**. Fiscal policy will not be discussed until Chapter 18.

(1) Consumption

Let us begin to understand Keynesian economics by examining its analysis of consumer spending. *According to Keynes, consumer spending depends upon disposable income.* This relationship is known as **the consumption function**. We described disposable income earlier. *Disposable income is calculated as the National Income minus Taxes Paid plus Transfers.* Let us examine the following consumption function:

Disposable Income	Consumption	Savings
0	\$1000	-\$1000
\$1000	\$1800	-\$ 800
\$2000	\$2600	-\$ 600
\$3000	\$3400	-\$ 400
\$4000	\$4200	-\$ 200
\$5000	\$5000	0
\$6000	\$5800	\$200
\$7000	\$6600	\$400
\$8000	\$7400	\$600
\$9000	\$8200	\$800
\$10,000	\$9000	\$1000

Notice that there are only two things one can do with disposable income: spend or save. The amount spent on consumption plus the amount saved must equal the amount of disposable income. Notice also that savings can be negative. What does this mean? It means that the person has either borrowed or has used previous savings to pay for the consumption.

Keynes made two assertions about consumption. *First, as disposable income rises, the amount spent by consumers also rises.* This is shown clearly in the table on the previous page. *Second, as disposable income rises, the percent of disposable income spent on consumer goods falls.* Notice in the table that, if disposable income is \$5000, consumers spend \$5000. This is 100% of disposable income. But if disposable income is \$10,000, consumers spend \$9000. This is 90% of disposable income.

This second point needs some illustration. Assume there are two people: Joe and Bill. Each is married with five children. Joe has an income of \$10,000 per year. How much will Joe spend on consumer goods? Surely, Joe will spend all \$10,000, and probably more. The need for shelter, food, and transportation will likely absorb all of Joe's income (100%). Bill has an income of \$100,000,000. How much will Bill spend on consumer goods? Let's say Bill can get by on \$10,000,000. This would only represent 10% of Bill's income. What happens to the other \$90,000,000? The answer is that it goes into some form of saving. Bill spends a smaller percent of his income because Bill can afford to save. Joe cannot afford to save at all.

Keynes gave a name to the percent of disposable income spent on consumer goods. He called it the *"average propensity to consume"*. *So, as disposable income rises, consumption rises and the average propensity to consume falls.* Keynes also named another important concept: the *marginal propensity to consume. This is defined as the change in consumption that results from a given change in disposable income.*

$$\text{Average Propensity to Consume} = \frac{\text{Consumption}}{\text{Disposable Income}}$$

$$\text{Marginal Propensity to Consume} = \frac{\text{Change in Consumption}}{\text{Change in Disposable Income}}$$

Notice that the marginal propensity to consume must be a number between zero and one. A number of zero tells you that if disposable income rises by \$1, consumption will not rise at all. The whole additional dollar will be saved. A number of one tells you that if disposable income rises by \$1, consumption will rise by the whole additional dollar. None of the increase will be saved. Go back to the table on the previous page. What is the marginal propensity to consume? Notice that, as you read down the table, disposable income always changes by \$1000 (0 to 1000, 1000 to 2000, etc.). As it does, consumption always changes by \$800 (1000 to 1800, 1800 to 2600, etc.). So the marginal propensity to consume is \$800 divided by \$1000, which equals **0.8 or 4/5**. This tells us that if disposable income rises by \$1, an extra \$0.80 will be spent and an extra \$0.20 will be saved.

Test Your Understanding

(1) Fill in the following consumption function:

Disposable Income	Consumption	Savings
0	1000	
1000	1900	- 900
2000	2800	- 800
3000	3700	
4000		- 600
5000	5500	
6000		- 400
7000	7300	
8000		- 200
9000	9100	
10,000		0
11,000	10,900	
12,000	11,800	
13,000		300
14,000	13,600	
15,000		500
16,000	15,400	
17,000	16,300	
18,000		800
19,000	18,100	
20,000		1000
21,000	19,900	
22,000	20,800	
23,000	21,700	
24,000	22,600	
25,000		1500

(2) Calculate the **marginal propensity to consume**. _____Calculate the **marginal propensity to save**. _____(3) If disposable income is 10,000, what is the **average propensity to consume**?_____ If disposable income is 20,000, what is the **average propensity to consume**?

_____ Therefore, as disposable income rises from 10,000 to 20,000, consumption _____ And the average propensity to consume _____ (answer "rises" or "falls").

(2A) Equilibrium Real GDP with only Consumption and Investment

Equilibrium Real GDP is a concept we have discussed several times before. *The equilibrium real GDP occurs when the amount that buyers desire to buy (aggregate demand) is equal to the amount that sellers wish to sell (aggregate supply).* The amount that buyers wish to buy (aggregate demand) has been divided into four categories: consumer spending, business investment spending, government purchases, and net exports. We have already considered consumption. As we did with the circular flow model, let us bring in the other spenders one at a time.

First, let us bring in business investment spending. For simplicity, we will assume that business investment spending does not depend on real GDP. Business investment spending depends on other variables (such as real interest rates or business expectations). These other variables will be considered in Chapter 15. For now, assume business investment spending to be a constant \$400.

Real GDP (= Income)	Consumption	+	Business Investment Spending	= Aggregate Demand
0	\$1000		\$400	\$1400
\$1000	\$1800		\$400	\$2200
\$2000	\$2600		\$400	\$3000
\$3000	\$3400		\$400	\$3800
\$4000	\$4200		\$400	\$4600
\$5000	\$5000		\$400	\$5400
\$6000	\$5800		\$400	\$6200
\$7000	\$6600		\$400	\$7000
\$8000	\$7400		\$400	\$7800
\$9000	\$8200		\$400	\$8600
\$10,000	\$9000		\$400	\$9400
\$11,000	\$9800		\$400	\$10,200
\$12,000	\$10,600		\$400	\$11,000
\$13,000	\$11,400		\$400	\$11,800
\$14,000	\$12,200		\$400	\$12,600
\$15,000	\$13,000		\$400	\$13,400

The column labeled **Aggregate Demand** is calculated as the sum of consumption plus business investment spending.

What is the equilibrium Real GDP? The column on the left represents production (Real GDP). Remember that production (Real GDP) is equal to national income. The column on the right represents Aggregate Demand. Equilibrium occurs where aggregate demand equals aggregate supply. This occurs when Real GDP is equal to **\$7000**. If \$7000 worth of goods and services were produced, consumers would buy \$6600 and businesses will buy \$400. All \$7000 worth of goods and services will be bought.

No other number can be equilibrium. To show this, let us pick one number below \$7000 and one number above \$7000. Assume that Real GDP were \$1000. Consumers want to buy \$1800 worth of goods and services while businesses want to buy \$400 worth

of capital goods. Thus, buyers want to buy \$2200. But there is only \$1000 worth of goods and services produced. As a result, there is a **shortage** equal to \$1200 worth of goods and services. In Keynesian language, *unintended inventory investment* falls. (**Inventories** are the stock of goods on hand. They are considered as part of investment spending. They have declined in a manner that was not planned.) When companies notice that their inventories have declined, they will order more goods and services from manufacturers. Manufacturers will respond to the new orders by producing more. As they produce more, Real GDP rises from \$1000. Therefore, \$1000 cannot be equilibrium. (**Changes in Inventories and New Orders From Manufacturers** are important statistics that people monitor closely. They predict future changes in Real GDP.)

Now assume that real GDP were \$15,000. Consumers want to buy \$13,000 worth of goods and services while businesses want to buy \$400 worth of capital goods. Thus, buyers want to buy \$13,400. But there is \$15,000 worth of goods and services produced. As a result, there is a **surplus** equal to \$1600 worth of goods and services. In Keynesian language, *unintended inventory investment* rises. When companies notice that their inventories have risen, they will order fewer goods and services from manufacturers. Manufacturers will respond to the reduction in orders by producing less. As they produce less, Real GDP falls from \$15,000. Therefore, \$15,000 cannot be equilibrium. Only \$7,000 can be equilibrium because, if this amount is produced, there will be no shortages and no surpluses.

Test Your Understanding

1. Go back to the circular flow model in Chapter 10. Put in the numbers to show what would occur if Real GDP were \$7000.
2. The consumption function from the previous Test Your Understanding is repeated below. Business Investment Spending of 200 is added in. First, calculate the equilibrium Real GDP. Second, explain why \$1000 cannot be the equilibrium Real GDP. Third, explain why \$25,000 also cannot be the equilibrium Real GDP.

Real GDP (=Income)	Consumption	Business Investment Spending
0	1000	200
1000	1900	200
2000	2800	200
3000	3700	200
4000	4600	200
5000	5500	200
6000	6400	200
7000	7300	200
8000	8200	200
9000	9100	200
10,000	10,000	200
11,000	10,900	200
12,000	11,800	200
13,000	12,700	200
14,000	13,600	200
15,000	14,500	200
16,000	15,400	200
17,000	16,300	200
18,000	17,200	200

19,000	18,100	200
20,000	19,000	200
21,000	19,900	200
22,000	20,800	200
23,000	21,700	200
24,000	22,600	200
25,000	23,500	200

(2B) Equilibrium Real GDP with Consumption, Investment, and Government

Bringing government into the picture does not change anything significantly. There is simply another spender. The basic principles of Section 2A are the same. The table on the next page reproduces the previous table. However, in this table, it is assumed that the government taxes \$1000 and that the government also spends \$1000. There are no transfers. **Equilibrium Real GDP occurs where Aggregate Demand (Consumption plus Business Investment Spending plus Government Purchases) is equal to Real GDP.** From the table below, you can see that this occurs when Real GDP is equal to **\$8,000**.

Real GDP	Taxes	Disposable Income	Consumption	Investment	Government	Aggregate Demand
2000	1000	1000	1800	400	1000	3200
3000	1000	2000	2600	400	1000	4000
4000	1000	3000	3400	400	1000	4800
5000	1000	4000	4200	400	1000	5600
6000	1000	5000	5000	400	1000	6400
7000	1000	6000	5800	400	1000	7200
8000	1000	7000	6600	400	1000	8000
9000	1000	8000	7400	400	1000	8800
10,000	1000	9000	8200	400	1000	9600
11,000	1000	10,000	9100	400	1000	10,400
12,000	1000	11,000	10,000	400	1000	11,200
13,000	1000	12,000	10,800	400	1000	12,000
14,000	1000	13,000	11,600	400	1000	12,800
15,000	1000	14,000	12,400	400	1000	13,600
16,000	1000	15,000	13,200	400	1000	14,400

Test Your Understanding

1. Explain why \$2000 cannot be the equilibrium Real GDP. Then, explain why \$16,000 cannot be the equilibrium Real GDP.
2. Go back to the **Circular Flow Model** of Chapter 10. Plug in the numbers when Real GDP is \$13,000.
3. Go to the number set in the earlier Test Your Understanding. This is repeated below. Now assume that the government spends \$1000 and also taxes \$1000. There are no transfers. What is the new equilibrium Real GDP?

Real GDP	Taxes	Disposable Income	Consumption	Investment	Government	Aggregate Demand
1000	1000	0	1000	200	1000	
2000	1000	1000	1900	200	1000	
3000	1000	2000	2800	200	1000	
4000	1000	3000	3700	200	1000	
5000	1000	4000	4600	200	1000	
6000	1000	5000	5500	200	1000	
7000	1000	6000	6400	200	1000	
8000	1000	7000	7300	200	1000	
9000	1000	8000	8200	200	1000	
10,000	1000	9000	9100	200	1000	
11,000	1000	10,000	10,000	200	1000	
12,000	1000	11,000	10,900	200	1000	
13,000	1000	12,000	11,800	200	1000	
14,000	1000	13,000	12,700	200	1000	
15,000	1000	14,000	13,600	200	1000	
16,000	1000	15,000	14,500	200	1000	
17,000	1000	16,000	15,400	200	1000	
18,000	1000	17,000	16,300	200	1000	
19,000	1000	18,000	17,200	200	1000	
20,000	1000	19,000	18,100	200	1000	

(2C) Equilibrium Real GDP with Consumption, Investment, Government, and Net Exports

When we bring in the rest of the world, we have the complete model. There is yet another spender -- foreigners. The basic principles of Section 2A are the same. The table below reproduces the previous table. However, in this table, it is assumed that exports are equal to \$1000 and that imports are also equal to \$1000. *Equilibrium Real GDP occurs where Aggregate Demand (Consumption plus Business Investment Spending plus Government Purchases plus Exports minus Imports) is equal to Real GDP.* From the table below, you can see that this occurs again when real GDP is equal to \$8,000.

Real GDP	Taxes	Disposable Income	Consumption	Investment	Government	Exports	Imports	Aggregate Demand
2000	1000	1000	1800	400	1000	1000	1000	3200
3000	1000	2000	2600	400	1000	1000	1000	4000
4000	1000	3000	3400	400	1000	1000	1000	4800
5000	1000	4000	4200	400	1000	1000	1000	5600
6000	1000	5000	5000	400	1000	1000	1000	6400
7000	1000	6000	5800	400	1000	1000	1000	7200
8000	1000	7000	6600	400	1000	1000	1000	8000
9000	1000	8000	7400	400	1000	1000	1000	8800
10,000	1000	9,000	8200	400	1000	1000	1000	9600
11,000	1000	10,000	9100	400	1000	1000	1000	10,400
12,000	1000	11,000	10,000	400	1000	1000	1000	11,200
13,000	1000	12,000	10,800	400	1000	1000	1000	12,000
14,000	1000	13,000	11,600	400	1000	1000	1000	12,800
15,000	1000	14,000	12,400	400	1000	1000	1000	13,600
16,000	1000	15,000	13,200	400	1000	1000	1000	14,400

Test Your Understanding

- Using the new numbers above, explain why \$2000 cannot be the equilibrium Real GDP. Then, explain why \$16,000 cannot be the equilibrium Real GDP.
- Go back to the **Circular Flow Model**. Plug in the numbers when Real GDP is \$13,000.
- Go to the number set in the Test Your Understanding above. These are repeated below. Now assume that exports equal \$1000 and also that imports equal \$1000. What is the new equilibrium Real GDP?

Real GDP	Taxes	Disposable Income	Consumption	Investment	Government	Exports	Imports	Aggregate Demand
1000	1000	0	1000	200	1000	1000	1000	1000
2000	1000	1000	1900	200	1000	1000	1000	1000
3000	1000	2000	2800	200	1000	1000	1000	1000
4000	1000	3000	3700	200	1000	1000	1000	1000
5000	1000	4000	4600	200	1000	1000	1000	1000
6000	1000	5000	5500	200	1000	1000	1000	1000
7000	1000	6000	6400	200	1000	1000	1000	1000
8000	1000	7000	7300	200	1000	1000	1000	1000
9000	1000	8000	8200	200	1000	1000	1000	1000
10,000	1000	9000	9100	200	1000	1000	1000	1000
11,000	1000	10,000	10,000	200	1000	1000	1000	1000
12,000	1000	11,000	10,900	200	1000	1000	1000	1000
13,000	1000	12,000	11,800	200	1000	1000	1000	1000
14,000	1000	13,000	12,700	200	1000	1000	1000	1000
15,000	1000	14,000	13,600	200	1000	1000	1000	1000
16,000	1000	15,000	14,500	200	1000	1000	1000	1000
17,000	1000	16,000	15,400	200	1000	1000	1000	1000
18,000	1000	17,000	16,300	200	1000	1000	1000	1000
19,000	1000	18,000	17,200	200	1000	1000	1000	1000
20,000	1000	19,000	18,100	200	1000	1000	1000	1000
21,000	1000	20,000	19,000	200	1000	1000	1000	1000

(3) Gaps

The concept of the gap has been discussed before. *The gap is the difference between the equilibrium Real GDP (which is the amount of production that will actually occur) and the Potential Real GDP (the amount of production necessary to have full employment. If the equilibrium Real GDP is below the Potential Real GDP, the gap is called a recessionary gap. If the equilibrium Real GDP is above the Potential Real GDP, the gap is called an inflationary gap.*

Go back to the earlier table. The equilibrium Real GDP was calculated as \$8,000. Assume that the Potential Real GDP is equal to \$13,000. Then, there is **a recessionary gap of \$5,000**.

According to Keynes, if nothing is done about it, this gap will continue indefinitely and perhaps will become larger. Wages and prices will not fall sufficiently to reduce the gap. Real interest rates will fall, but neither consumer spending nor business investment spending will rise because of pessimistic expectations. Closing the gap will require government actions.

Test Your Understanding

Go back to the table at the top of this page. Assume now that the Potential Real GDP is equal to \$10,000. How large is the gap? What kind of gap is it?

(4) Multipliers

One again, refer to the table above. The equilibrium Real GDP was \$8000. Now assume that the government increases its purchases from the 1000 to 2000. All the other numbers are to remain the same, including taxes. What is the new equilibrium Real GDP?

Real GDP	Taxes	Disposable Income	Consumption	Investment	Government	Exports	Imports	Aggregate Demand
2000	1000	1000	1800	400	2000	1000	1000	4200
3000	1000	2000	2600	400	2000	1000	1000	5000
4000	1000	3000	3400	400	2000	1000	1000	5800
5000	1000	4000	4200	400	2000	1000	1000	6600
6000	1000	5000	5000	400	2000	1000	1000	7400
7000	1000	6000	5800	400	2000	1000	1000	8200
8000	1000	7000	6600	400	2000	1000	1000	9000
9000	1000	8000	7400	400	2000	1000	1000	9800
10,000	1000	9,000	8200	400	2000	1000	1000	10,600
11,000	1000	10,000	9100	400	2000	1000	1000	11,400
12,000	1000	11,000	10,000	400	2000	1000	1000	12,200
13,000	1000	12,000	10,800	400	2000	1000	1000	13,000
14,000	1000	13,000	11,600	400	2000	1000	1000	13,800
15,000	1000	14,000	12,400	400	2000	1000	1000	14,600
16,000	1000	15,000	13,200	400	2000	1000	1000	15,400

The answer, as you can see, is now \$13,000. What is the new gap? The answer is zero (Equilibrium Real GDP of \$13,000 minus Potential Real GDP of \$13,000).

We have discovered something that needs to be explained. We increased government purchases by \$1000 (from \$1000 to \$2000). We did not change anything else. Yet, equilibrium Real GDP increased by \$5000 (from \$8000 to \$13,000). Where does the other \$4000 come from?

Before we answer this question, let us define some terminology. Government purchases increased by \$1000. And equilibrium Real GDP increased by \$5000, which is 5 times the increase in government purchases. This number, 5, is called the **Multiplier**. A multiplier is just a number that multiplies something to calculate something else. In this case, the number multiplies the change in government purchases to calculate the change in equilibrium Real GDP.

$$\text{Change in Government Purchases} \times \text{Multiplier} = \text{Change in Equilibrium Real GDP}$$

$$+1000 \quad \times \quad 5 \quad = \quad +5000$$

Now, let us answer the question as to where the extra \$4000 comes from. Suppose the government spends the \$1000 additional money to buy computers from Dell. This gives

Dell \$1000 additional income. That additional income goes to the company's workers, owners, and suppliers. What do they do with the additional \$1000 of income? To answer this, we need the marginal propensity to consume. We calculated this as 0.8. This means that every \$1 increase in income will cause consumption to increase by \$0.80. There was an increase in income of \$1000. Therefore, consumption will increase in \$800 (.8 times \$1000). We called this **induced consumption**. What happened to the other \$200 of income. The answer is that it was saved.

The workers, owners, and suppliers of Dell spent an additional \$800 buying goods at Sears. This provides an additional \$800 of income for the workers, owners, and suppliers of Sears. What do they do with this additional income? The answer is that they spend \$640 of it (0.8 times \$640) and save the other \$160. So we have another \$640 of induced consumption.

The workers, owners, and suppliers of Sears have spent \$640 of additional income buying food at Vons. This gives the workers, owners, and suppliers of Vons an additional \$640 of income. What do they do with this additional income? The answer is that they spend an additional \$512 (0.8 times \$640) and save the other \$128. So we have yet another \$512 of induced consumption.

This \$512 will be spent, creating another round. In each succeeding round, consumers will spend 80% of the addition to their income and save the rest. After four rounds, the additional total spending now adds to \$2952. We know that, when all rounds are completed, total spending will rise by \$5000.

Let us summarize.	+1000	Spending by the Government	
	+ 800	Induced Consumption	by Dell
	+ 640	Induced Consumption	by Sears
	+ 512	Induced Consumption	by Vons = \$2,952
		
		<hr/>	
	+5000	Increase in Equilibrium Real GDP	

The basic principle of the multiplier is that one person's spending generates another person's income. That person spends part of that additional income which generates income for yet another person. And so. The effect of an increase in spending snowballs. Because only part of any increase in income is spent, the process eventually ends.

Most of the time, we will not have a table by which to make the calculations. And we will need the multiplier number. To calculate it, there is a formula. You need to remember this formula:

$$\text{Multiplier} = \frac{1}{1 - \text{Marginal Propensity to Consume}}$$

Take the marginal propensity to consume, subtract it from 1, and then divide the result into 1. So take 0.8, subtract it from 1, and the result is 0.2 (the marginal propensity to save). Take 0.2 and divide it into 1 and the result is 5.

In reality, the multiplier is likely to be much smaller than is given by this calculation. In fact, the actual multiplier for government purchases is usually estimated to be close to 2. The reason the actual multiplier is smaller is that our calculation does not consider certain facts. First, **as spending and income rise, taxes will rise as well.** The increase in taxes will hold back the growth of additional spending. **Second, as spending rises, prices (including interest rates) are likely to rise as well.** The rise in prices will also hold back the growth in additional spending. **And third, as spending rises, some of the increase in spending is likely to flow out of the country as imports.** If we considered the effect of the rise in taxes, prices, and imports, our calculation would be much more complicated. So we will keep the calculation simple. But remember that a realistic calculation would generate a much smaller multiplier.

Test Your Understanding

What is the multiplier if the marginal propensity to consume is $4/5$? $2/3$? $9/10$? 0 ?

We will analyze in one of two ways. One, if government increases its purchases by \$1000, what is the new equilibrium Real GDP? To answer this, you would solve with the formula to find that the multiplier is 5. You would multiply the \$1000 increase in government purchases by 5 to get \$5000. Then, you would add the \$5000 on to the original equilibrium Real GDP of \$8000 to get \$13,000. What is the new gap? The answer is zero ($\$13,000 - \$13,000$)

Two, if the government wished to close the gap, what should it do to its spending? The gap is \$5000 ($\$8000 - \$13,000$). You would use the formula to calculate the multiplier as equal to 5. What increase in government purchases, when multiplied by 5, will increase equilibrium Real GDP by \$5000. The answer, of course, is \$1000.

Test Your Understanding

Go back to the table. Now assume that the government decreases its purchases from \$1000 to \$500. There is no change in any other variable, including taxes. **Use the multiplier formula** to calculate the new equilibrium Real GDP. Now calculate the new gap (Potential Real GDP is still \$10,000). What kind of a gap is it?

If the government had desired to eliminate all recessionary and all inflationary gaps, what should its purchases be equal to? **Again show using the multiplier formula.**

Summary

In the Keynesian view of Economics, **consumption is related to disposable income.** An economy will generate an equilibrium Real GDP each year. ***That equilibrium Real GDP is determined by where the amount buyers wish to buy (the aggregate demand which is equal to consumption plus business investment spending plus government purchases plus net exports) is just equal to the amount sellers wish to sell (the Real GDP).*** Or to say the same thing in different words, the equilibrium Real GDP occurs where the entire national income that is earned is spent by some buyer (a consumer, a business, a government agency, or a foreigner), no more and no less. That equilibrium Real GDP may or may not equal the goal for Real GDP, called Potential Real GDP (the amount of production needed to have full employment). ***If the equilibrium Real GDP is less than the Potential Real GDP, the difference is called a recessionary gap. If the***

equilibrium Real GDP is more than the Potential Real GDP, the difference is called an inflationary gap. In the Keynesian view, these gaps will not be eliminated automatically in a relatively short time. They may be eliminated automatically eventually, but that is not good enough. As Keynes put it, “in the long run, we are all dead”. **Therefore, there is a need for government action to eliminate any gap that exists.**

Finally, the Keynesian view stresses the concept of the multiplier. *Any change in government purchases (or consumer or business purchases, for that matter) will cause the equilibrium Real GDP to change by more than that amount.* This is so because a dollar spent by the government gives someone additional income which will lead to additional spending by that person, and so forth.

We need to analyze the actions the government can take to eliminate any gap that might exist. But before we can do that, we need to do a more detailed analysis of the factors affecting consumer spending and business investment spending. We will do this in the next two chapters.

Practice Quiz for Chapter 13

<u>Real GDP (National Income)</u>	<u>Planned Investment</u>	<u>Consumption</u>
\$ 500	500	600
1,000	500	1,000
1,500	500	1,400
2,000	500	1,800
2,500	500	2,200
3,000	500	2,600
3,500	500	3,000

- The **marginal propensity to consume** is:
a. 400 b. 500 c. 1 d. 0.8 e. 0.75
- If national income is 1000, what is the **average propensity to consume**?
a. 1 b. 1000 c. 0.8 d. 0.5 e. 0.75
- According to Keynes, as disposable income rises, consumption _____ and the average propensity to consume _____.
a. rises; rises b. falls; falls c. rises; falls d. falls; rises
- Using these numbers, the **equilibrium Real GDP** is:
a. 1,500 b. 2,000 c. 2,500 d. 3,000 e. 3,500
- Using these numbers, if Real GDP were 2,500, **unintended inventory investment (the shortage or surplus)** would equal:
a. 0 b. 100 c. 200 d. 500
- Using these numbers, if **Potential Real GDP** equals 3,000, there would be a/an:
a. inflationary gap of 500 b. gap of zero c. recessionary gap of 500 d. recessionary gap of 100
- Using these numbers, if planned investment spending were to rise by 1,000 (to 1,500), the new equilibrium real GDP would be: (hint: use **the multiplier formula**)
a. 1,500 b. 8,500 c. 5,000 d. 12,500
- Assume that government spending rises by \$1000. The marginal propensity to consume is $\frac{3}{4}$. (This does not relate to the numbers above.) In the **first round**, the amount of **induced consumption** will be:
a. \$1000 b. \$750 c. \$800 d. \$4000

9. Why does an increase in government purchases cause equilibrium Real GDP to rise by more than the increase in government purchases (i.e., why is there a multiplier)?
- a. an increase in government purchases causes an increase in the money supply
 - b. an increase in government purchases increases people's incomes causing them to spend more
 - c. an increase in government purchases causes an equal increase in taxes
 - d. an increase in government purchases causes an increase in interest rates
10. The actual multiplier is lower than the simplified multiplier from the formula because the formula does not consider that, if government purchases increase,
- a. taxes will increase
 - b. prices will increase
 - c. imports will increase
 - d. all of the above