

Unit 2, Part 2: Measurement of Economic Performance

(Inflation)

Exam Dates

Multiple Choice:

Advanced Placement Macroeconomics Unit 2 Part 2- Overview - Measuring Economic Performance

Textbook Pages

1. Chapter 7 page 134, "Inflation" to the end of the chapter
2. Chapter 2, pages 38 - 41 The Circular Flow Model
3. Chapter 4, pages 75 - 77 "The Circular Flow Revisited" up to but not including "Federal Finance"

Graphs for Graphing Test

Key Graphs 1 - 11

Note: For the Circular Flow Model, you will be given an image of the model with some terms given and some missing. You will be asked to fill in the missing terms correctly.

Key Concepts for Part 2 Test

Inflation, price indices, CPI, GDP Deflator, adjusting for inflation, depreciation, personal income, Circular Flow, households, businesses, government, international sector, gross domestic product, inflation

Reading Due Dates. GO FOR UNDERSTANDING!

Outline Collection -

- Chapter 7, page 134 the short section on "Inflation" and "Meaning of Inflation," page 138 "Who is hurt by inflation" to page 140 "Does Inflation Affect Output," and page 141 "Hyperinflation"

Crucial Activities for Part 2 Test

1. Outline: Chapter 7, page 134 the short section on "Inflation" and "Meaning of Inflation," page 138 "Who is hurt by inflation" to page 140 "Does Inflation Affect Output," and page 141 "Hyperinflation"
2. Macroeconomics Lesson 3 Activity 15 Who is Hurt / Helped by Inflation?
3. Macroeconomics Lesson 2 Activity 11 Measuring Price Changes
4. Macroeconomics Lesson 3 Activity 13 Price Indexes
5. Reading Questions: A Shortcoming of the Consumer Price Index: Substitution Bias
6. The Circular Flow – A model of economic activity
7. Getting into the flow activity
8. Discuss Getting into the flow activity
9. Macroeconomics Lesson 1, Activity 10 - Understanding the Circular Flow of the Macroeconomy
10. Practice Test

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LESSON 3 ■ ACTIVITY 15

Who Is Hurt and Who Is Helped by Unanticipated Inflation?

In Questions 1 through 15 decide which people or groups are hurt by unanticipated inflation and which benefit from unanticipated inflation. Circle the correct response, and explain why you answered as you did.

H means the person or group is *hurt* by unanticipated inflation.

G means the person or group *gains* from unanticipated inflation.

U means it is *uncertain* if the person or group is affected by unanticipated inflation or if the effects are unclear.

1. Banks extend many fixed-rate loans.

H G U

Explain:

2. A farmer buys machinery with a fixed-rate loan to be repaid over a 10-year period.

H G U

Explain:

3. Your family buys a new home with an adjustable-rate mortgage.

H G U

Explain:

4. Your savings from your summer job are in a savings account paying a fixed rate of interest.

H G U

Explain:

5. A widow lives entirely on income from fixed-rate corporate bonds.

H G U

Explain:

6. A retired couple lives entirely on income from a pension the woman receives from her former employer.

H G U

Explain:

7. A retired man lives entirely on income from Social Security.

H G U

Explain:

8. A retired bank official lives entirely on income from stock dividends.

H G U

Explain:

9. The federal government has a \$5,000,000,000 debt.

H G U

Explain:

10. A firm signs a contract to provide maintenance services at a fixed rate for the next five years.

H G U

Explain:

11. A state government receives revenue mainly from a progressive income tax.

H G U

Explain:

12. A local government receives revenue mainly from fixed-rate license fees charged to businesses.

H G U

Explain:

13. Your friend rents an apartment with a three-year lease.

H G U

Explain:

14. A bank has loaned millions of dollars for home mortgages at a fixed rate of interest.

H G U

Explain:

15. Parents are putting savings for their child's college education in a bank savings account.

H G U

Explain:

16. What conclusions can you draw about who is helped and who is hurt by unanticipated inflation?

17. If you were certain that the inflation rate would be 10 percent a year for the next 10 years, how might your behavior change? Does your answer depend on who you are? Student? Worker?

Part B

Measuring Price Changes

Price indexes measure price changes in the economy. By using a price index, you can combine the prices of a number of goods and/or services and express in one number the average change for all the prices. The consumer price index, or CPI, is the measure of price changes that is probably most familiar to people. It measures changes in the prices of goods and services commonly bought by consumers. Items on which the average consumer spends a great deal of money — such as food — are given more weight (importance) in computing the index than items such as newspapers, magazines and books, on which the average consumer spends comparatively less.

The index itself is based on a market basket of approximately 400 goods and services weighted according to how much the average consumer spent in the base year. Other price indexes used in the United States include

- the producer price index, which measures changes in the prices of consumer goods before they reach the retail level, as well as the prices of supplies and equipment businesses buy, and
- the gross domestic product price deflator, or GDP price deflator, which is the most inclusive index available because it takes into account all goods and services produced.

To construct any price index, economists select a previous period, usually one year, to serve as the base period. The prices of any subsequent period are expressed as a percentage of the base period. For convenience, the base period of almost all indexes is set at 100.

For the consumer price index, the formula used to measure price change from the base period is

$$\text{Consumer price index} = \frac{\text{weighted cost of base-period items in current-year prices}}{\text{weighted cost of base-period items in base-year prices}} \times 100$$

We multiply by 100 to express the index relative to the figure of 100 for the base period.

To keep things simple, let's say an average consumer in our economy buys only three items, as described in Figure 11.2. First compute the cost of buying all the items in the base year:

30 x \$5.00	=	\$150
40 x \$6.00	=	240
60 x \$1.50	=	<u>90</u>
TOTAL	=	\$480

To compute the consumer price index for Year 1 in Figure 11.2, find the cost of buying these same items in Year 1. Try this yourself. Your answer should be \$530: the sum of $(30 \times \$7) + (40 \times \$5) + (60 \times \$2)$. The consumer price index for Year 1 is then equal to $(\$530 / \$480) \times 100$, which equals 110.4. This means that what we could have bought for \$100 in the base year costs \$110.40 in Year 1.

If we subtract the base year index of 100.0 from 110.4, we get the percentage change in prices from the base year. In this example, prices rose 10.4% from the base year to Year 1.

Remember that the weights used for the consumer price index are determined by what consumers bought in the base year; in the example we used base-year quantities to figure the expenditures in

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Macroeconomics LESSON 2 ■ ACTIVITY 11 (continued)

Year 1 as well as in the base year. The rate of change in this index is determined by looking at the percentage change from one year to the next. If, for example, the consumer price index were 150 in one year and 165 the next, then the year-to-year percentage change is 10 percent. You can compute the change using this formula:

$$\text{Price change} = \frac{\text{change in CPI}}{\text{beginning CPI}} \times 100$$

Here's the calculation for the example above:

$$\text{Price change} = \frac{165 - 150}{150} \times 100 = 10\%$$

Fill in the blanks in Figure 11.2, and then use the data to answer the questions.



Figure 11.2

Prices of Three Goods Compared with Base-Year Price

	Quantity Bought in Base Year	Unit Price in Base Year	Spending in Base Year	Unit Price in Year 1	Spending in Year 1	Unit Price in Year 2	Spending in Year 2
Whole pizza	30	\$5.00		\$7.00		\$9.00	
Prerecorded audio cassette	40	6.00		5.00		4.00	
Six-pack of soda	60	1.50		2.00		2.50	
Total	—	—		—		—	

- What is the total cost of buying all the items in Year 2? _____
- What is the CPI for Year 2? _____
- What is the percentage increase in prices from the base year to Year 2? _____
- In August 2000 the CPI was 172.8, and in August 2001 the CPI was 177.50. What was the percentage change in prices for this 12-month period? _____

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LESSON 3 ■ ACTIVITY 13

Price Indexes

There is more than one method for constructing a price index. The easiest to understand is probably the *weighted-average* method explained in this activity. This method compares the total cost of a fixed market basket of goods in different years. The total cost is weighted by multiplying the price of each item in the basket by the number of units of the item in the basket and then adding up all the prices. The cost of the basic market basket in the current year is then expressed as a percentage of the cost of the basic market basket in the base year using this formula:

$$\text{index number} = \frac{\text{current-year cost}}{\text{base-year cost}} \times 100$$

Multiplying by 100 converts the number so it is comparable to the base-year number. The base year always has an index number of 100 since the current-year cost and the base-year cost of the market basket are the same in the base year.

Part A**Constructing a Price Index**

Using this information, let us now construct a price index. Fill in the blanks in Figure 13.1.



Figure 13.1

Constructing a Price Index

Basic Market Basket Item	No. of Units	Year 1		Year 2		Year 3	
		Price Per Unit	Cost of Market Basket	Price Per Unit	Cost of Market Basket	Price Per Unit	Cost of Market Basket
Cheese	2 lbs.	\$1.75	\$3.50	\$1.50	\$3.00	\$1.50	\$3.00
Blue Jeans	2 pair	12.00	24.00	15.50		20.00	40.00
Gasoline	10 gals.	1.25	12.50	1.60	16.00	2.70	
Total Expenditure	—	—	\$40.00	—	\$50.00	—	

- We now have the information needed to construct a price index. The first step is to pick a base year and apply the formula. If Year 1 is selected as the base year, the index number for Year 1 is $(\$40 / \$40) \times 100 = 100$. The index number for Year 2 is $(\$50 / \$40) \times 100 = 125$ and the index number for Year 3 is $(\text{_____} / \$40) \times 100 = \text{_____}$.
- These index numbers indicate that there was a 25 percent increase in prices between Year 1 and Year 2.
 - What is the percentage increase between Year 1 and Year 3? _____.
 - What is the percentage increase between Year 2 and Year 3? _____.

Part B**Changing the Base Year**

We need not have chosen Year 1 to be our base year. To determine if our choice of base year influenced the results, let's use Year 2 as our base year and recompute both the index numbers and the percentage changes between years. The first percentage change in prices has been done for you.



Figure 13.2

Changing the Base Year of a Price Index

Year	Index Numbers (Year 2 = Base)	Percentage Change in Prices (calculated by using changes in index numbers)	
Year 1	$(\$40 / \$50) \times 100 = 80$	Between Yr. 1 and Yr. 2	$([100 - 80] / 80) \times 100 = 25\%$
Year 2	$(\$50 / \$50) \times 100 = 100$	Between Yr. 2 and Yr. 3	
Year 3	$(\$70 / \$50) \times 100 = 140$	Between Yr. 1 and Yr. 3	

- Do the index numbers change when the base year is changed from Year 1 to Year 2? _____
- Does the percentage change in prices between years change when the base year is changed from Year 1 to Year 2? _____ Why or why not?
- Would the price index numbers you have computed above change if a different set of expenditure patterns were selected for weighting? _____ Why?
- Under what conditions would each price index number computed above be a cost-of-living index?
- Would each price index number computed above be accurate if the quality of the goods in the basic market basket changed? _____ Explain why.
- How do you know if the quality of a product changes for the better? For the worse?

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A Shortcoming of the Consumer Price Index: Substitution Bias

(Modified from Khan Academy Article, " How changes in the cost of living are measured" <https://www.khanacademy.org/economics-finance-domain/macroeconomics/macroeconomic-indicators-and-the-business-cycle/macroeconomic-price-indices-and-inflation/a/how-changes-in-the-cost-of-living-are-measured-cnx>)

The most commonly cited measure of inflation in the United States is the *Consumer Price Index*, or CPI. The US Bureau of Labor Statistics (BLS) generates the CPI by creating a 'market basket' of goods and services that are supposedly purchased by the average American family of four. By comparing the prices of the goods and services in this market basket over time, the BLS calculates the inflation rate.

One reason that the inflation rate is calculated is to determine how much the *cost of living* has changed over time. If the inflation rate is 6%, then consumers would then need to spend 6% more money to enjoy the same lifestyle that they did before the inflation occurred. We would then say that the cost of living gone up 6%. All of this assumes that the BLS' market basket accurately represents the lifestyle of American families. However, in recent years, economists have become aware of a subtle problem with the Consumer Price Index: the change in the total cost of the market basket is not quite the same as the change in the *cost of living* because individual consumers change their personal market baskets over time to avoid inflation.

Let us imagine that over the past 10 years, the cost of purchasing the BLS' market basket increased by 25%. We would then say that inflation over that decade was 25% and that the cost of living has gone up 25%. However, when prices of particular products rise, consumers do not always simply pay these higher prices. Instead, they seek out other products to purchase instead. They change their own personal market basket to avoid inflation while the BLS' market basket remains fixed. This makes the BLS' market basket outdated and hence inaccurate. So while the CPI shows that inflation has been 25%, the actual inflation that consumers experience may be significantly less.

This problem with the CPI is called '**substitution bias**,' and it causes to CPI to overstate the inflation that consumers actually experience. Because consumers change their market basket to avoid inflation while the BLS does not change its market basket, the inflation rate that is calculated using the CPI is somewhat higher than the actual inflation rate experienced by US Consumers.

1. Read the entire text before answering these questions.
2. The US Bureau of Labor Statistics uses the CPI to calculate the inflation rate. It involves creating and comparing *what* over time (be complete)?
3. Over time, what happens to the actual market baskets of American families that does not happen to the BLS' market basket? Why?
4. As a result of this difference between the BLS' and the actual market baskets, the inflation rate calculated using the CPI will likely be a bit higher or lower than the actual change in the cost of living?
5. What specific name is given to this problem with the CPI?

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The Circular Flow – A model of economic activity

I. Two Markets in the circular flow

A.

B.

II. Two Actors in the simple circular flow

A.

B.

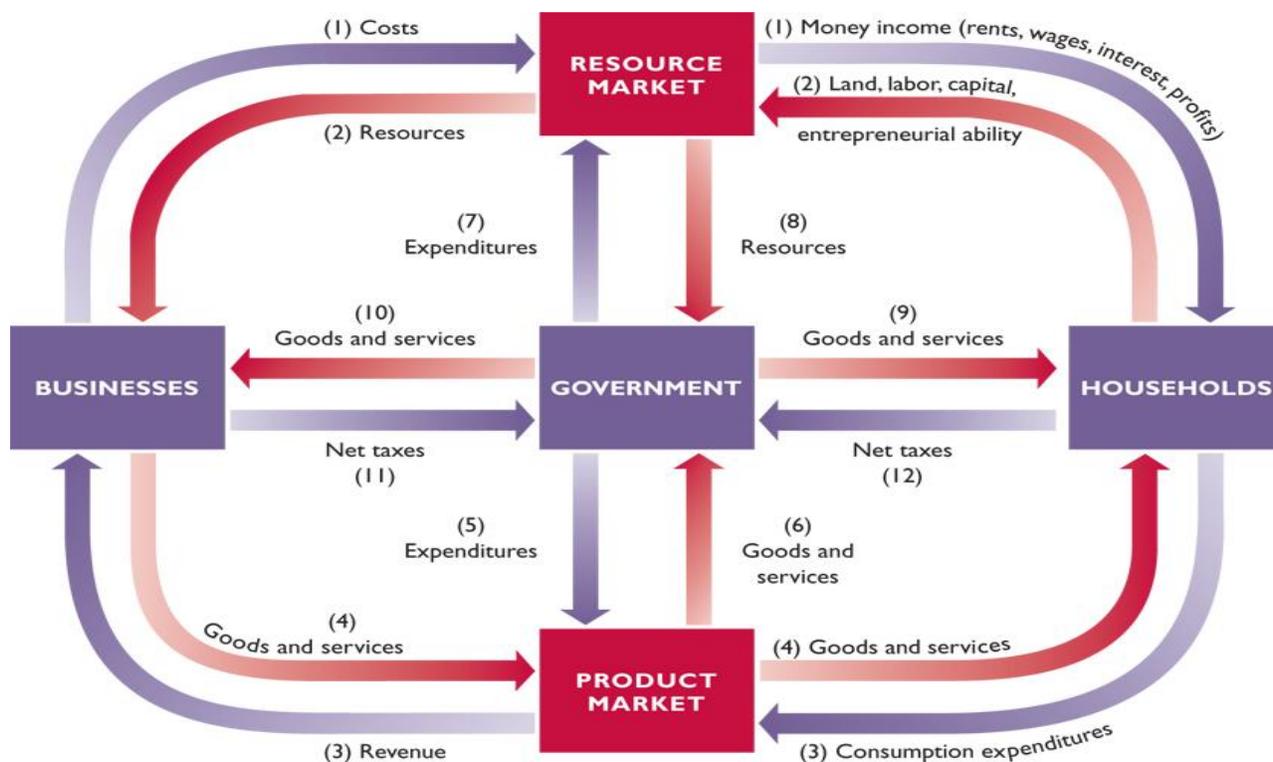
III. 3rd actor in the expanded circular flow: _____

A.

B.

C.

D.

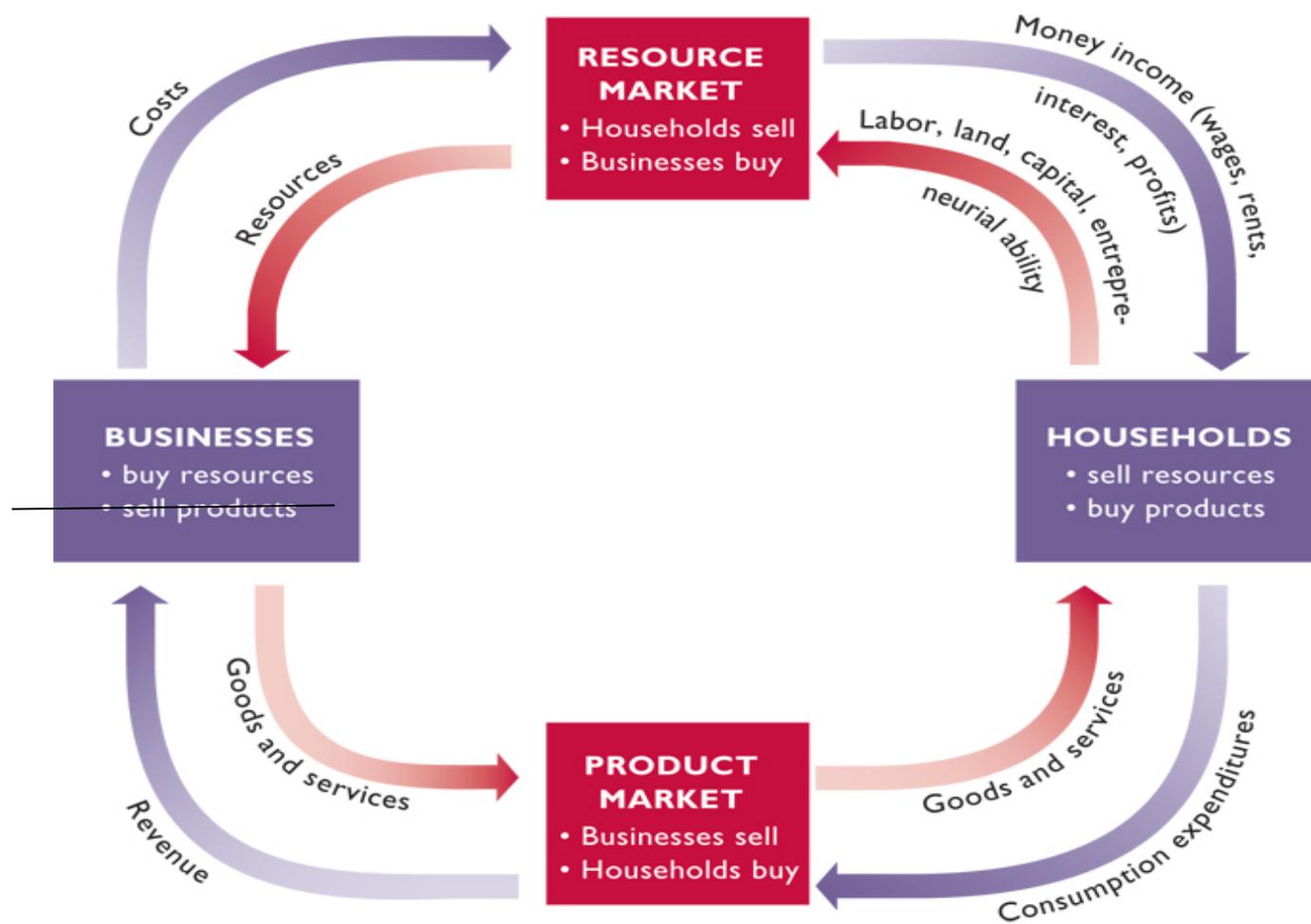


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Getting into the flow

Directions: Read the story below. Then, get the characters and things from the story into the flow by filling out the table at the bottom, writing each bolded term from the story next to the term that it is equal to. For terms for which there is no specific bolded word that should be substituted, just re-write the term from the circular flow diagram (For example, "Resource Market" will still just be "Resource Market," so I left it as "Resource Market" as an example.)

Story: Mr. Vincent works as a mechanic for "Run-Smooth Auto-repair." With some of the money he makes, goes to ABC Warehouse and buys a new LCD TV made by Sony Corporation.



Circular Flow Term	Term From The Story	Circular Flow Term	Term From The Story
1. Households =		2. Consumption Expenditures =	
3. Product Market =		4. There are two businesses in the story. If we divided the business box into a top and bottom section, the bottom one business would =	
5. Revenue =		6. Goods and Services =	
7. Land, Labor, Capital, Entrepreneurial Ability =		8. Resource Market =	Resource Market
9. Resources =		10. Top business =	
11. Costs =		12. Money Income =	

Getting into the flow

Directions: Put an **X** under either Product Market or Factor Market to indicate which one is being described:

Example	Resource Market	Product Market
1. A job fair (where people are invited to apply for a job)		
2. 10 minute oil change garage		
3. A Fast Food restaurant		
4. An office with a file cabinet full of job applications and where people are interviewed for jobs.		
5. A website where people post job applications		
6. Sears shopping website		
7. A Temp Agency (Where businesses can hire employees to work temporarily)		

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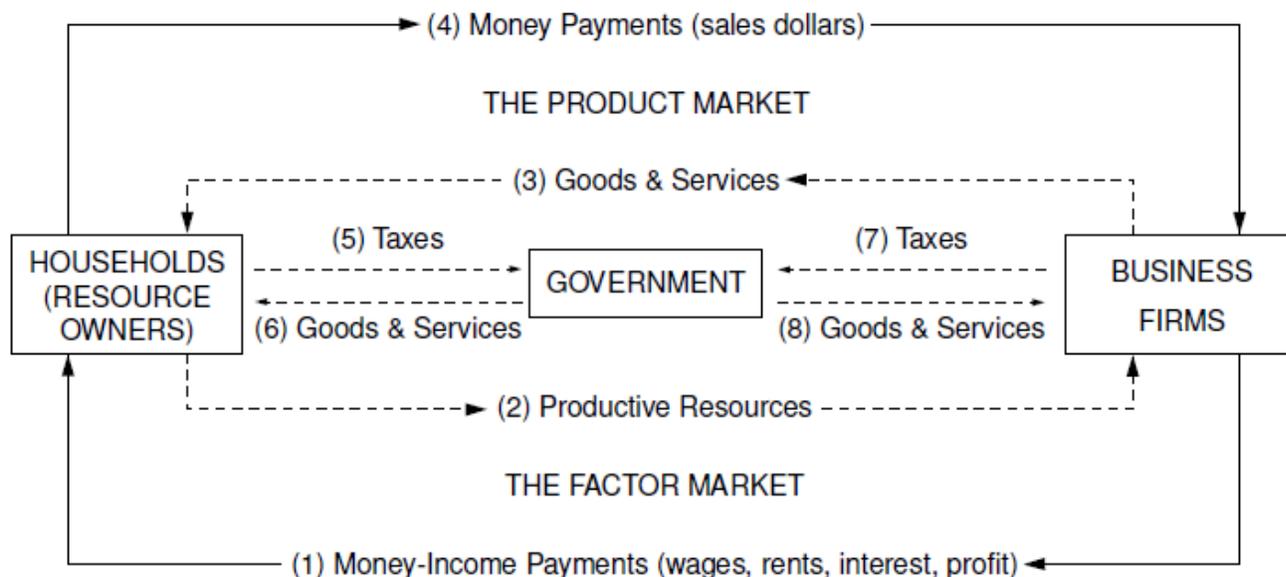
LESSON 1 ■ ACTIVITY 10

Understanding the Circular Flow of the Macroeconomy

Firms provide goods and services to households through the product markets. Households pay for these goods and services with money. Households supply firms with productive resources: labor, land, capital and entrepreneurial skills. Firms pay money income to households. The value of income firms pay to households, including the profits that business owners receive, equals the dollar value of output. Firms and households decide how much to buy or sell in the markets for goods and resources. For example, Tran spends \$10.00 on school supplies at the market, buying goods and paying with money. The market owner uses the \$10.00 to pay part of the salary of Mariko, the cashier. The firm is buying resources and paying for them with money. The \$10.00 is now ready to be spent in another round. Firms and households pay taxes and user fees to the government, which provides them with some goods and services, such as police protection and national defense.



Figure 10.1

The Circular Flow of Resources, Goods, Services and Money Payments

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Macroeconomics LESSON 1 ■ ACTIVITY 10 (continued)

Part A

Each of the flows in the circular flow diagram in Figure 10.1 is numbered. Identify which number matches the transaction described in the statements below. Consider only the first transaction — not the return flow.

1. David buys a CD at the local store for \$9.99. _____
2. Emily earns \$6.50 per hour entering data at the music conservatory. _____
3. Maria pays her federal income tax. _____
4. Jagdish receives \$15,000 in profits from his half-ownership of a coffee shop. _____
5. Keisha makes decorative pillows that she sells for \$30.00. _____
6. Mammoth Toys Inc. hires 100 new employees. _____
7. The National Park Service opens two new campgrounds in Yellowstone National Park.

Part B

Write T if the statement is true and F if the statement is false.

8. Money flows are clockwise. _____
9. Goods and services flows are clockwise. _____
10. The resource market determines the price per acre of farmland. _____
11. The product market determines the price of a computer. _____
12. Firms sell resources in the resource markets. _____
13. Government buys resources and households sell resources. _____
14. Government buys products, and firms sell products. _____
15. The product market determines the salary of the C.E.O. of a firm. _____
16. The resource market determines the price of soda. _____
17. The resource market determines the price of soda-bottling equipment. _____