

(a) National income = compensation of employees + business interest payments + rental income of persons + corporate profits + proprietors' income. National income = \$1866.3 + \$264.9 + \$34.1 + \$164.8 + \$120.3 = \$2450.4.

(b) Personal income:

National income		\$2450.4
Minus: Corporate profits	\$164.8	
Social security contributions	<u>253.0</u>	(417.8)
Plus: Government and business transfers	374.5	
Interest paid by government	105.1	
Corporate dividends	<u>66.4</u>	<u>546.0</u>
Personal income		\$2578.6

(c) Personal disposable income = Personal income – personal taxes = \$2578.6 – \$402.1 = \$2176.5.

(d) Personal saving = Personal disposable income – (personal consumption expenditures + interest paid by consumers).

Personal saving = \$2176.5 – (\$1991.9 + \$64.4) = \$120.2.

MEASURING THE PRICE LEVEL

2.11 Table 2-5 presents the price of and units of aggregate output for 199x and 199y. (a) Present in Table 2-6, nominal GDP for 199x and 199y. (b) Also calculate in Table 2-6 real output for 199y

Table 2-5 Aggregate Output in a Five-Good Economy

Good	199x		199y	
	Units Produced	Price	Units Produced	Price
A	25	\$1.50	30	\$1.60
B	50	7.50	60	8.00
C	40	6.00	50	7.00
D	30	5.00	35	5.50
E	60	2.00	70	2.50

Table 2-6 Nominal and Real GDP for 199x and 199y

Good	Value of 199x Output 199x prices	Value of 199y Output 199y prices	Value of 199y Output 199x prices
A	\$ 37.50		
B	375.00	\$ 48.00	\$ 45.00
C	240.00	480.00	450.00
D	150.00	350.00	300.00
E	<u>120.00</u>	192.50	175.00
GDP	\$922.50	<u>175.00</u>	<u>140.00</u>
		\$1245.50	\$1110.00

by measuring 199y output in 199x prices. What is the purpose of such a calculation? (c) What is the GDP deflator in 199y?

- (a) Nominal GDP for 199x and 199y is found by multiplying the units produced each year by the respective price of each unit for that year and then summing the calculated values. Thus, as presented in Table 2-6, the value of good A in 199x is \$37.50; nominal GDP (value of output for goods A through E for 199x) is \$922.50 in 199x; it is \$1245.50 in 199y.
- (b) Measuring 199y output in 199x prices gives a measure of real output for 199y. The right column measures the value of 199y output for goods A through E in 199x prices; real GDP for 199y is \$1110. A comparison of the first and last column (both measured at 199x prices) reveals the change in output, whereas a comparison of the first and second columns reveals a combined change in both output and prices.
- (c) The GDP deflator for 199y is 112.2, found by dividing 199y nominal GDP (199y output measured in 199y prices) by 199y real GDP (199y output measured in 199x prices) and multiplying by 100: $(\$1245.50/\$1110)100 = 112.2$.

2.12 What is a GDP deflator?

The GDP deflator is an index of price changes for goods and services included in GDP. Thus, the deflator reflects changes in the price of goods and services purchased by consumers, businesses, and government. The GDP deflator is found by dividing current-dollar GDP by constant-dollar GDP, with the spending components (*C, I, G*) of constant-dollar GDP derived separately.

2.13 (a) What is the CPI? (b) Does an increase in the CPI always indicate an increase in the consumer's cost of living?

- (a) The CPI is a measure of the prices paid by the typical urban working-class family for a fixed basket of goods and services. Statisticians have sampled "typical" consumers to establish a relevant basket of goods which is purchased and the appropriate relative importance (weight) of each good. The basket consists of goods and services divided into the following categories: food and beverages, housing, apparel, transportation, medical care, entertainment, and other.
- (b) Although the CPI is the most reliable measure of the cost of living, it may overstate the prices individuals pay for goods and services that they actually purchase over time. Because it is a fixed-weight index, it does not allow for substitution effects, where consumers may "shop" for goods whose prices are rising and/or select a substitute good whose price has experienced a smaller relative increase. The quality of goods also changes, so that a price increase may reflect improved quality rather than inflation. For these reasons, the CPI may not truly reflect consumers' cost of living.

2.14 Suppose households purchase the categories of goods and services listed in Column 1 of Table 2-7; the relative importance of each category is given by the weight assigned in column 2. The price index for each category during year 1 and year 2 is found in columns 3 and 4, respectively. (a) From the data, calculate the CPI for year 1 and year 2. (b) What is the rate of inflation between year 1 and year 2 as measured by the change in the CPI?

- (a) In Table 2-8 the price index for each spending category is multiplied by its respective weight and then summed. The CPI for year 1 is 280.80 and 301.87 for year 2.
- (b) The rate of inflation is calculated by taking the change in the CPI between year 1 and year 2 and dividing by year 1 CPI. The rate of inflation indicated by the CPI is 7.50%. $[(301.87 - 280.80)/280.80 = 0.075, \text{ or } 7.50\%]$

Table 2-7

Category	Price Index for Each Category		
	Weight	Year 1	Year 2
Food and beverages	0.175	270	270
Housing	0.460	300	330
Apparel	0.046	180	180
Transportation	0.193	280	308
Medical care	0.049	300	330
Entertainment	0.036	230	241
Other	<u>0.041</u>	250	250
	1.000		

Table 2-8

Category	Year 1	Year 2
Food and beverages	$0.175(270) = 47.25$	$0.175(270) = 47.25$
Housing	$0.460(300) = 138.00$	$0.460(330) = 151.80$
Apparel	$0.046(180) = 8.28$	$0.046(180) = 8.28$
Transportation	$0.193(280) = 54.04$	$0.193(308) = 59.44$
Medical care	$0.049(300) = 14.70$	$0.049(330) = 16.17$
Entertainment	$0.036(230) = 8.28$	$0.036(241) = 8.68$
Other	$0.041(250) = \underline{10.25}$	$0.041(250) = \underline{10.25}$
CPI	280.80	301.87

2.15 What does the producers price index measure?

The PPI is an index of the prices charged by businesses for crude, intermediate, and finished goods. Because these prices represent various stages of production, some goods enter the PPI as many as three times: as a crude good (e.g., wheat sold by the farmer), as an intermediate good (flour sold by the mill), and as a finished good (bread sold by the baker to a food retailer). A PPI is published for crude goods, intermediate goods, and finished goods to avoid the double counting that exists in the CPI for goods at all stages of production. Prices in the PPI are weighted as they are in the CPI. Movements in the PPI can be used to forecast the CPI; however, because the PPI does not include services, such forecasts are subject to error when the principal cause of inflation derives from increases in the prices of services.

MEASURING UNEMPLOYMENT AND THE UNEMPLOYMENT RATE

2.16 What are the causes of unemployment?

Unemployed workers can be placed into three categories: frictional, structural, and cyclical unemployment. Frictional unemployment is short-term, usually up to six months; it consists of temporary layoffs (perhaps due to a temporary decrease in the demand for labor), labor which has voluntarily left a job, and reentrants and new entrants into the labor force, who have a longer job search. Structural unemployment is longer term; it exists because of skill and/or location mismatching in the labor markets. For example, a job applicant may not have the required skill for a particular job; or a job may exist in another region but labor is unaware of its availability or is unwilling to relocate. Cyclical unemployment exists because of the business cycle. A deficiency of labor demand relative to supply periodically develops when decreases occur in economic activity.

2.17 What is a natural rate of unemployment?

The natural rate of unemployment is the rate that exists when there is no cyclical unemployment. Because frictional and structural unemployment are always present in a dynamic market economy, the natural rate of unemployment equals the percentage of the labor force that is frictionally and structurally unemployed at a point in time. The labor markets are considered to be at full employment when equilibrium exists at the natural rate of unemployment.

THE BALANCE OF PAYMENTS**2.18** What does a balance-of-payments statement measure?

A balance-of-payments statement is a record of all transactions between the residents of a country and the residents of foreign countries for a specific period of time. These international transactions are categorized to record a country's trade balance (net balance for a country's commodity exports and imports), current account balance (net balance on international trade, services and unilateral transfers), capital account balance (net balance on capital inflows and outflows), and official reserve transactions (changes in the international reserves held by governments and official agencies). When there are no statistical discrepancies and no change in official reserve transactions, the capital account balance is the financial counterpart of a country's balance on current account. Thus, in the absence of a change in official reserve assets, a country's net balance on current account and capital account is zero, i.e., its balance of payments is zero.

2.19 Use the following data to measure a country's balance on merchandise trade, balance on current account, balance on capital account and balance of payments. There is no change in reserve assets held by governments and official agencies.

1. The U.S.A. exports goods valued at \$19,650.
2. The U.S.A. imports merchandise valued at \$21,758.
3. U.S. citizens receive interest income of \$3621 from foreign investments.
4. Interest income of \$1394 is paid on foreign-owned assets in the U.S.A.
5. U.S. citizens' travel expenditures equal \$1919.
6. Foreign travel in the U.S.A. is \$1750.
7. U.S. unilateral transfers are \$2388.
8. U.S. capital outflow is \$4174.
9. U.S. capital inflow is \$6612.

The balance on merchandise trade is the difference between goods imported and goods exported:

Exports of goods	+\$19,650
Imports of goods	-\$21,758
Balance on merchandise trade	-\$2,108

The balance on current account is the balance on merchandise trade, interest paid and received, travel and unilateral transfers

		-\$2,108
Balance on merchandise trade		+\$5,371
Exports of services		
Interest income	+\$3,621	
Travel	+\$1,750	
Imports of services		-\$3,313
Interest income	-\$1,394	
Travel	-\$1,919	
U.S. government unilateral transfers		-\$2,388
Balance on current account		-\$2,438

The balance on capital account is the difference between capital inflows and capital outflows

U.S. capital outflows	-\$4,174
U.S. capital inflows	+\$6,612
Balance on capital account	+\$2,438

The balance of payments equals the net balance on current account and capital account: Balance of payments = 0.

- 2.20 (a) What are official reserve transaction balances? (b) Explain why the capital account is the financial counterpart of a country's balance on current account when there is no change in official reserve transaction balances.
- (a) Official reserve transaction balances consist of international reserves held by governments or official government agencies. International reserves include a government's holdings of gold, balances in the International Monetary Fund, and foreign currencies.
- (b) International transactions are recorded on a system of double-entry accounting where each debit entry necessitates a credit entry. Thus, the sum of all debit items in the balance of payments must equal the sum of all credit items. When there is no change in official reserve assets held by governments, the balance on current account plus the balance on capital account must equal zero. Hence, a deficit (-) current account balance must be countered by a surplus (+) capital account balance, i.e., the capital account is the financial counterpart of a country's balance on current account when there is no change in the holding of official reserve transaction balances.

Multiple Choice Questions

- In a private sector model,
 - Household saving is a leakage from the circular flow.
 - Investment is a spending injection.
 - Saving leakages equal investment injections.
 - All of the above.
- In an open economy model, GDP is the sum of
 - Consumption, gross investment, government spending, and net exports.
 - Consumption, net investment, government spending, and net exports.