

2.3: Calculating GDP_{HL} Activity



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2.3 CALCULATING GDP_{HL}: STUDENT LEARNING ACTIVITY

Answer the questions that follow.

1. DEFINITIONS

Define the following terms:

- Factor incomes
- Factors of production
- Final accounts: Exports of goods and services
- Final accounts: General government final consumption expenditure
- Final accounts: Gross capital formation
- Final accounts: Imports of goods and services
- Final accounts: Private final consumption expenditure
- Final goods
- Foreign direct investment
- GDP deflator
- Inflation
- National income
- Negative economic growth
- Nominal GDP
- Productivity
- Real economic growth
- Real GDP
- Real output
- The expenditure approach

[10 marks]

2. SHORT-ANSWER QUESTIONS

1. The national accounts of Candyland have the following statistical information for 2016:
 - Consumer spending = \$145 billion
 - Government spending = \$45 billion
 - Investment spending = \$55 billion
 - Exports of goods and services = \$33 billion
 - Imports of goods and services = \$38 billion

Calculate the nominal GDP of Candyland in 2016.

[2 marks]

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2. In 2016 foreign worker remittances from Candyland and the profits of multinational corporations (MNCs) earned in Candyland were \$4.5 billion, and that remittances to Candyland from its workers abroad and overseas profits from Candyland's MNCs totaled \$3.8 billion. Using this information and information in Question 1 above, calculate Candyland's GNI for 2016. **[2 marks]**

3. The base year for measuring real GDP in Candyland is 2014. In 2015 the rate of inflation was 2.4% and in 2016 it was 1.9%. Using this information and data contained in Question 1 above, calculate the real GDP of Candyland in 2016. **[2 marks]**

4. Candyland has a population of 3.6 million. Using information from the questions above, calculate:
 - i. Candyland's nominal GDP per capita
 - ii. Candyland's real GDP per capita **[2 marks]**

5. Explain why real GDP per capita is a good measure of the standard of living in Candyland. **[4 marks]**

Table 1: Selected economic data from Candyland (2012-2016)

Year	2012	2013	2014	2015	2016
Nominal GDP (\$ billion)	45.2	48.1	49.9	46.6	52.1
GDP deflator	98.2	100.0	102.4	101.1	104.8

6. Using information from table 1 above: **[6 marks]**
 - i. Identify the base year
 - ii. Calculate real GDP for each of the years: 2012 – 2016
 - iii. Explain why the GDP deflator has decreased in 2015, relative to 2014

7. Nominal GDP = in year 1 was \$620 billion. In year 2 the rate of inflation was 5% and the nominal GDP was \$680 billion. Calculate real GDP for year 2.

8. Nominal GDP in 2016 was \$700 billion and the real GDP in the same year was \$720. Calculate the GDP deflator and the rate of inflation for 2016.

9. Real GDP in a country in 2016 was \$940 billion. It increased in 2016 to \$1 105 billion. Calculate economic growth in percentage terms for 2016.

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Table 2: Nominal GDP and inflation data for country X

Year	Nominal GDP	Real GDP	Rate of inflation	GDP deflator
2013	\$4 230 b		-	100
2014	\$4 501 b		2%	
2015	\$4 712 b		1.5%	
2016	\$5 005 b		2.6%	
2017	\$4 994 b		-1.1%	

10. Using information from table 1 above:

[6 marks]

- i. Identify the base year
- ii. Calculate the GDP deflator for each year
- iii. Calculate real GDP for each year

3. MULTICHOICE QUESTIONS

Choose the best answer to each question.

[40 marks]

1. The expenditure method of calculating GDP includes:
 - a. Gross operating surplus
 - b. Compensation of employees
 - c. Net indirect taxes
 - d. Income from abroad

2. Which is true if an economy has experienced growth in real GDP?
 - a. The quantity of goods and services has increased
 - b. The price level has increased
 - c. The price level has increased at a slower rate than the increase in goods and services
 - d. Firms are earning higher profits and consumers are spending more

3. Economic growth is measured by the:
 - a. Amount of increase in nominal GDP
 - b. Percentage increase in nominal GDP
 - c. Amount of increase in real GDP
 - d. Percentage increase in real GDP

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4. If nominal GDP increased by 3% and the price level by 4%, real GDP has:
 - a. Increased by 7%
 - b. Decreased by 1%
 - c. Increased by 1.5%
 - d. Decreased by 12%

5. In 2015 (base year) nominal GDP = \$80b, in 2016 it was \$96b, the GDP deflator in 2006 was:
 - a. 100
 - b. 110
 - c. 120
 - d. 160

6. $C = \$40b$, $U = \$10b$, $G = \$30b$, $I = \$35b$, $X = \$20b$, $L = 35b$, $M = 25b$, the value of GDP =
 - a. \$85b
 - b. \$100b
 - c. \$115b
 - d. \$170b

7. $C = \$40b$, $G = \$30b$, $I = \$35b$, $X = \$20b$, $M = 25b$, GDP deflator = 110 the value of real GDP =
 - a. \$90.9b
 - b. \$90b
 - c. \$89.9b
 - d. \$110b

8. If nominal GDP = \$120b, income from abroad = \$30b, and income sent abroad = \$35b, then:
 - a. GNI = \$105b
 - b. GNI = \$115b
 - c. GNI = \$125b
 - d. GNI = \$180b

9. To convert GDP to GNI, it is necessary to:
 - a. Deduct indirect sales taxes
 - b. Deduct import payments
 - c. Add subsidies
 - d. Add net property income from abroad

10. The difference between GDP and GNP is:
 - a. GNP includes a deflator to adjust for inflation
 - b. GDP includes a deflator to adjust for inflation
 - c. GDP adds property income from overseas investments
 - d. GNP adds property income from overseas investments

11. In national statistics, the term used to express the value of money at the time it was recorded is:

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- a. The GDP deflator
 - b. Real GDP
 - c. Nominal GDP
 - d. GDP per capita
12. Which of the following items in national statistics is not associated with the expenditure approach?
- a. Compensation of employees
 - b. Net exports of goods and services
 - c. Household expenditure on domestically produced goods and services
 - d. Government expenditure
13. Which of the following items in national statistics is associated with the expenditure approach?
- a. Compensation of employees
 - b. Gross operating surplus
 - c. Gross fixed capital formation
 - d. Government expenditure
14. If the average annual salary in an economy is \$36 000 and the price index is 120, then:
- a. Real average income is \$26 600
 - b. Real average income is \$28 000
 - c. Real average income is \$30 000
 - d. Real average income is \$32 600
15. If nominal GDP is \$650b, the GDP deflator is 125, net income from abroad is -\$40b, then
- a. Real GDP is \$600b
 - b. Real GDP is \$560b
 - c. GNI = 610b
 - d. Real GNI = \$560b
16. Gross capital formation is associated with which component in calculating GDP
- a. Consumption spending
 - b. Investment spending
 - c. Government spending
 - d. Net exports
17. Income sent abroad is a national statistic necessary to measure
- a. Real GDP
 - b. Nominal GDP
 - c. GNI
 - d. GDP per capita
18. If the population grows at a slower rate than the rate of economic growth, then.
- a. GDP per capita has definitely increased

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- b. GDP per capita has definitely decreased
 - c. GDP per capita has either increased or decreased
 - d. GDP per capita changes are inconclusive
19. In 2016 an economy's real GDP was \$400b, and in 2015 it was \$380b. Economic growth was:
- a. 5%
 - b. 5.26%
 - c. 6%
 - d. 6.25%
20. In 2016 an economy's GDP was \$450b, and in base year 2015 it was \$420b. The GDP deflator is 105:
- a. Real economic growth = 2.04%
 - b. Real economic growth = 1.90%
 - c. Real economic growth = 1.84%%
 - d. Real economic growth = 1.80%
21. From the base year, rates of inflation were 2.5%, 1.0%, -0.5 and 1.6%. The current GDP deflator is:
- a. 102.4
 - b. 104.2
 - c. 104.6
 - d. 106.4
22. From the base year, rates of inflation were 2.5%, 1.0%, -0.5 and 1.6%. The current GDP deflator is:
- a. 102.4
 - b. 104.2
 - c. 104.6
 - d. 106.4
23. If nominal GDP was \$340b, and government spending was \$100b, the G's contribution to GDP is:
- a. 32.91%
 - b. 31.14%
 - c. 29.41%
 - d. 28.91%
24. GDP = \$200b, net income from abroad = \$20b, and gross capital formation was \$50b:
- a. $I = 25\%$ of GDP
 - b. $(X - M) = 25\%$ of GDP
 - c. $I = 33\%$ of GDP
 - d. $(X - M) = 20\%$ of GDP
25. If the total compensation of employees was \$50b and national income was \$150b, then:
- a. Wages = 25% of GDP
 - b. Gross operating surplus = 25% of GDP

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- c. Gross operating surplus = 33.3% of GDP
- d. Wages = 33.3% of GDP

26. The expenditure method of calculating GDP includes:

- a. Net indirect taxes
- b. Income from abroad
- c. Gross operating surplus
- d. Net exports of goods and services

27. If nominal GDP increased by 5% and the price level by 1.5%, real GDP has:

- a. Increased by 2.5%
- b. Increased by 1%
- c. Increased by 3.5%
- d. Decreased by 1.5%

28. $C = \$140b$, $U = \$110b$, $G = \$130b$, $I = \$135b$, $X = \$120b$, $L = 135b$, $M = 125b$, the value of GDP =

- a. \$200b
- b. \$400b
- c. \$640b
- d. \$540b

29. $C = \$90b$, $G = \$60b$, $I = \$30b$, $X = \$20b$, $M = 15b$, GDP deflator = 120 the value of real GDP =

- a. \$154.12b
- b. \$162.24
- c. \$164.74
- d. \$184.20

30. If nominal GDP = \$140b, income from abroad = \$40b, and income sent abroad = \$30b, then:

- a. GNI = \$160b
- b. GNI = \$150b
- c. GNI = \$140b
- d. GNI = \$210b

31. In 2016 an economy's real GDP was \$600b, and in 2015 it was \$570b. Economic growth was:

- a. 6%
- b. 6.25%
- c. 5%
- d. 5.26%

32. In 2016 an economy's GDP was \$500b, and in base year 2015 it was \$470b. The GDP deflator is 105:

- a. Real economic growth = 1.32%
- b. Real economic growth = 1.38%
- c. Real economic growth = 1.83%

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- d. Real economic growth = 2.83%
33. Which of the following items in national statistics is not associated with the expenditure approach?
- Net exports of goods and services
 - Gross capital formation
 - Government expenditure
 - Operating surplus
 - expenditure
34. If the average annual salary in an economy is \$40 000 and the price index is 110, then:
- Real average income is \$26 363
 - Real average income is \$28 363
 - Real average income is \$32 363
 - Real average income is \$36 363
35. If nominal GDP is \$800b, the GDP deflator is 125, net income from abroad is -\$50b, then
- Real GDP is \$640b
 - Real GDP is \$600b
 - GNI = 640b
 - Real GNI = \$600b
36. Income from abroad is a national statistic necessary to measure
- GNI
 - GDP per capita
 - Real GDP
 - Nominal GDP
37. If the population grows at a faster rate than the rate of economic growth, then.
- GDP per capita has definitely increased
 - GDP per capita has definitely decreased
 - GDP per capita has either increased or decreased
 - GDP per capita changes are inconclusive
38. From the base year, rates of inflation were 1.5%, 1.2%, -0.2 and -0.25%. The current GDP deflator is:
- 102.25
 - 102.55
 - 103.50
 - 103.55
39. If nominal GDP was \$400b, and government spending was \$100b, the G's contribution to GDP is:
- 22%
 - 25%
 - 50%

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d. 20%

40. If nominal GDP fell by 1.5% and the price level increased by 1.0%, real GDP has:
- Increased by 2.5%
 - Increased by 1.5%
 - Decreased by 2.5%
 - Decreased by 0.5%

4. TRUE OR FALSE QUESTIONS

Indicate whether the following statements are true or false.

- A GDP deflator is used to convert nominal GDP to real GDP
True
False
- Real growth in GDP per capita growth can be achieved without an increase in real GDP
True
False
- In an economy with high levels of investment in assets abroad, GDP is lower than GNI
True
False
- In times of deflation, real GDP can be higher than nominal GDP
True
False
- Capital formation in the national statistics is needed to calculate GDP in the expenditure approach
True
False
- Real GDP per capita is typically higher than nominal GDP
True
False
- GDP per capita is a better measure of living standards than GDP itself.
True
False

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8. Real GDP and nominal GDP are not typically the same in the base year.
True
False
9. Foreign direct investment will increase GDP and lower GNI.
True
False
10. In an economy with high levels of foreign direct investment, GDP is lower than GNI.
True
False

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