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Exercise 2

1. Is the following a stock or flow variable?

2.1 Inventories	stock	2.2 Change in Inventories	Flow
2.3 Money Supply	stock	2.4 Change in Money Supply	Flow
2.5 National Income	Flow	2.6 Expenditure	Flow
2.7 Wealth	Stock	2.8 Population	Stock
2.9 Capital	Stock	2.10 Interest	Flow

2. What is the difference between GDP and GNP? When looking at the US and China, which country do you expect to have higher GNP? Why?

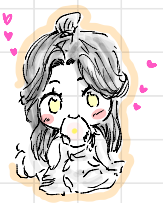
ANS. In comparison between the US and China, one would expect the US to have a higher GNP because labour wages are cheaper in China than in the US. In other words, since production costs are lower in China than in the US, the US will produce its goods in China. Therefore, the US GNP is likely to be higher than China's.

3. The canned apple has 5 stages of production as follows. Find the value added of each stage and the GDP value of the canned apple.

Stages of Production	Value of Sales	Value Added
Growing Apple	12	
Pickling	15	3
Canning	18	3
Shipping	20	2
Retail Sale	22	2

ANS. Total value added = 3+3+2+2
= 10 ※

GDP value = 22 ※



4. What is Transfer Payment? Why is it not included in GDP?

5. Why are we interested in Real GDP? Explain with examples. Is

ANS. Transfer payment is a one-way payment to person or organization that have not given or exchanged goods and services in return. Transfer payments do not create any products, so it is not included in GDP.

5. Why are we interested in Real GDP? Explain with examples. Is there a problem associated with Real GDP?

ANS. Because real GDP eliminates the effects of inflation and deflation. However, GDP says nothing about the wealth of a country, nor does it say anything about the composition of output. Real GDP focuses on the change in quantity produced, not the change in prices.

6. Suppose 2018 is the base year. What can we say about Real GDP, Nominal GDP, and GDP Deflator of 2018?

ANS. If 2018 is the base year, real GDP & nominal GDP will be equal and the GDP deflator for 2018 is 100.

Nominal GDP, and GDP Deflator of 2018.

7. Explain three limitations of the GDP concept.

ANS.

1. Inequality: GDP has nothing to say about the distribution of output among individuals in a society.

2. Informal Economy: GDP does not count the unreported income gererated in the hidden part of the economy.

3. Externality: GDP does not take into account the cost or benefits on the third party, as a result of production.

8. In 2018, Kingdom Asgard made the following transactions. Using the expenditure approach, identify which component of GDP is affected by each transaction, and calculate the 2018 GDP.
- The citizens bought 8 new cars, each worth 50$. → 400 $ consumption

ANS.

- The citizens bought 4 new houses, each worth 150$. → 600 $ investment
- The citizens grew rice for their own consumption. The rice was worth 500$. → Investment & not include in GDP BC isn't in the market.
- The firms bought 6 used machines, each worth 50$. → 300 $ investment & not include in GDP
- The firms bought 8 car parts, each worth 25$. → 200 $ investment & not include in GDP
- The government bought 4 new computers, each worth 50$. → 200 $ government spening
- The government paid 1000$ to the poor as welfare payment. → doesn't count in goverment spending and not GDP.
- The citizens bought 10 imported ships, each worth 100$.
- The firms sold 4 planes abroad, each worth 200$.

↳ 800 $ export

1000 $ import

GDP = C + I + G + (X - M)
= 400 + 600 + 200 + (800 - 1000)
= 400 + 600 + 200 - 200
= 1000 ✱

9. Suppose that there are three goods in the economy – goods A, B, and C. Calculate Nominal GDP, Real GDP, and GDP Deflator when 2012 is the base year. Also, calculate the annual inflation rate from 2014 to 2015.

Year	Price of A	Quantity of A		Price of B	Quantity of B		Price of C	Quantity of C		
2012	1	3	3	2	3	6	3	3	9	. 18
2013	3	1	3	4	2	8	1	4	4	. 15
2014	2	2	4	3	4	12	2	1	2	. 18
2015	4	4	16	1	1	1	4	2	8	. 25

Year	Nominal GDP	Real GDP	GDP Deflator
2012			
2013			
2014			
2015			

ANS.

Year	Nominal GDP	Real GDP	GDP Deflator
2012	18	18	100
2013	15	17	88.24
2014	18	13	138.46
2015	25	12	208.33

GDP deflator = $\frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$

inflation rate from 2014 - 2015

↳ $\frac{\text{New} - \text{old}}{\text{old}}$

$= \frac{26 - 18}{18} = 0.39$ #

10. Using the table below, calculate GNP and NNP.

	Billions of Dollars
GDP	8000
Receipts of factor income from the rest of the world	250
Payments of factor income to the rest of the world	300
Depreciation	900
Indirect taxes minus subsidies	500
Corporate profits minus dividends	500
Social insurance payments	700
Personal interest income received from the government and consumers	300
Transfer payments to persons	1100
Personal taxes	1000

ANS.

GNP = GDP + NFFI

= GDP + from abroad to abroad

= 8000 + (250 - 300)

= 7950 #

NNP = GNP - Depreciation

= 7950 - 900

= 7050 #

11. Using the table below, Calculate the following items.

11.1 Gross domestic investment

11.2 GDP, using the expenditure approach

11.3 GNP

11.4 NNP

11.3 National Income, using the income approach

(Do not worry if NNP and NI differ greatly.)

Table 6.5

Depreciation	168.0
Compensation of employees	1,407.7
Corporate profits	257.6
Dividends	78.4
Exports	212.8
Government purchases	716.8
Imports	235.2
Indirect taxes	593.6
Net interest income	182.2
Net private domestic investment	784.0
Personal consumption expenditures	2,203.2
Personal interest income	112.0
Receipts of factor income from the rest of the world	35.2
Personal taxes	627.2
Proprietor's income	173.9
Payments of factor income to the rest of the world	68.8
Rental income	34.1
Social insurance payments	380.8
Subsidies	44.8
Transfer payments	504.0

WAGES

X

G

M

INTEREST

C

non-coperate profit

ANS:

11.1 GDI = NDI + Depreciation

= 784 + 168 = 952

11.2 C + I + G + (X - M)

= 2203 + 952 + 716.8 + (212.8 - 235.2) = 3849.6

11.3 GNP = GDP + NFFI

= 3196 - 169 = 3648

11.4 NNP = GNP - Depreciation

= 3648 - 168 = 3480

1.5 1407.07 + 257.6 + 543.6 + 182.2 + 173.4 + 34.1 + 44.9 = 2604.3

12. In a simple economy, suppose that all income is either compensation of employees or profits. Suppose also that there are no indirect taxes. Calculate GDP from the table below. Show that the expenditure approach and the income approach add up to the same figure.
(Hints: (1) NNP + Depreciation = GNP, (2) NFFI = 0, and (3) NI = NNP)

Consumption	9500	C
Investment	3000	I
Depreciation	1750	
Profits	2400	
Exports	850	x
Compensation of employees	11500	
Government purchases	3200	G
Direct taxes	1200	
Saving	1600	
Imports	900	M

The expenditure approach.

→ GDP = C + I + G + (x - M)

= 9500 + 3000 + 3200 + (850 - 900)

= 15,650 #

The income approach

→ NI = NNP

GNP = NNP + Depreciation

→ GDP - Depreciation = Profits + compensation

GDP = 2400 + 11500 + 1750

= 15,650 #