New Senior Secondary

Exploring ECONOMICS Exam Practice 5

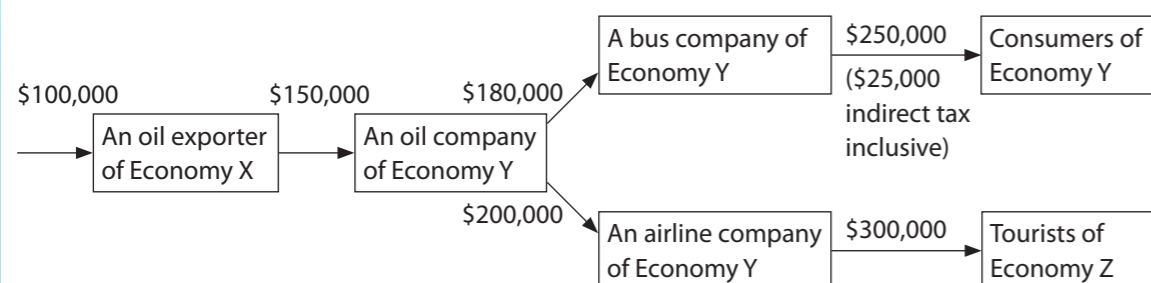## National Income and Price Level

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Typical Question 3   **Calculation of GDP using the expenditure approach and production approach**

The following diagram shows a production chain related to gasoline in Economy Y.

Calculate the contribution of the above production chain to the GDP at market prices of Economy Y

a. using the expenditure approach; and

b. using the value-added approach.

1. Question analysis

Key words: 'calculate', 'contribution', 'GDP at market prices of Economy Y', 'using the expenditure approach' and 'using the value-added approach'

2. Answering techniques

In the expenditure approach, GDP is equal to the sum of expenditures of final users (including households, firms, the government and the foreign sector) on outputs of resident producing units of Economy Y. GDP = C + I + G + X − M. Hence, we have to identify the final expenditures (tax inclusive) and the value of imports involved in the production chain.

In the value-added approach, GDP at market prices = Sum of value-added of all resident producing units of Economy Y + Indirect taxes − Subsidies. Hence, we have to identify the value-added, indirect taxes and subsidies involved in the production chain.

3. Suggested answer

a. Final users of outputs of Economy Y include consumers of Economy Y and tourists of Economy Z.

GDP = Final expenditures **(tax inclusive)** of consumers + Final expenditures of tourists − Value of imports

= ($250,000 + $300,000) − $150,000

= $400,000

b. Resident producing units of Economy Y concerned include the oil company, the bus company and the airline company. Value-added of a producing unit = Value of its output **(tax exclusive)** − Value of intermediate consumption (payments to other producing units for using up their goods and services in the course of its production).

GDP = Value-added of the oil company + Value-added *(tax exclusive)* of the bus company + Value-added of the airline company + *Indirect taxes less subsidies*

= [($180,000 + $200,000 − $150,000) + ($250,000 − *$25,000* − $180,000) + ($300,000 − $200,000)] + *$25,000*

= $400,000

(**Note:** According to the *System of National Accounts 2008*, the calculation of value-added does not count indirect taxes. Please refer to paragraphs 6.70 and 6.83 of http://unstats.un.org/unsd/nationalaccount/SNA2008.pdf.)

C   Correcting Common Errors

The following sentences contain mistakes. The corrections and underlying reasons are explained.

1. **'Values of all transactions are included in the calculation of GDP.'**

Correction

Only the values of production of resident producing units produced within the specified period are included in the calculation of GDP.

Explanation

Values of the following items are not included in the calculation of GDP:

- **Transactions not involving production** (such as transactions of financial assets and transfer payments)
- Production of **non-resident producing units** (such as imports)
- Goods **not currently produced** (such as past inventories)
- Transactions of **second-hand goods**

2. **'In the expenditure approach, all components of GDP are measured at their market values.'**

Correction

In the expenditure approach, most components of GDP are measured at their market values, but **government consumption expenditure is measured at its cost**.

Explanation

Government departments not engaged in market activities provide public services free of charge or at prices below cost. Since they are not engaged in market activities, values of their production are estimated at costs, instead of market values.

In the short run, as both AD and SRAS increase, real national income increases but the change in price level is uncertain. The price level increases / remains unchanged / decreases if the increase in AD is larger than / equal to / smaller than the increase in SRAS (measured by the distance of horizontal movement).

In the long run, as both AD and LRAS increase, real national income (= full employment level) increases but the change in price level is uncertain. The price level increases / remains unchanged / decreases if the increase in AD is larger than / equal to / smaller than the increase in LRAS (measured by the distance of horizontal movement).

Short run situation

Long run situation
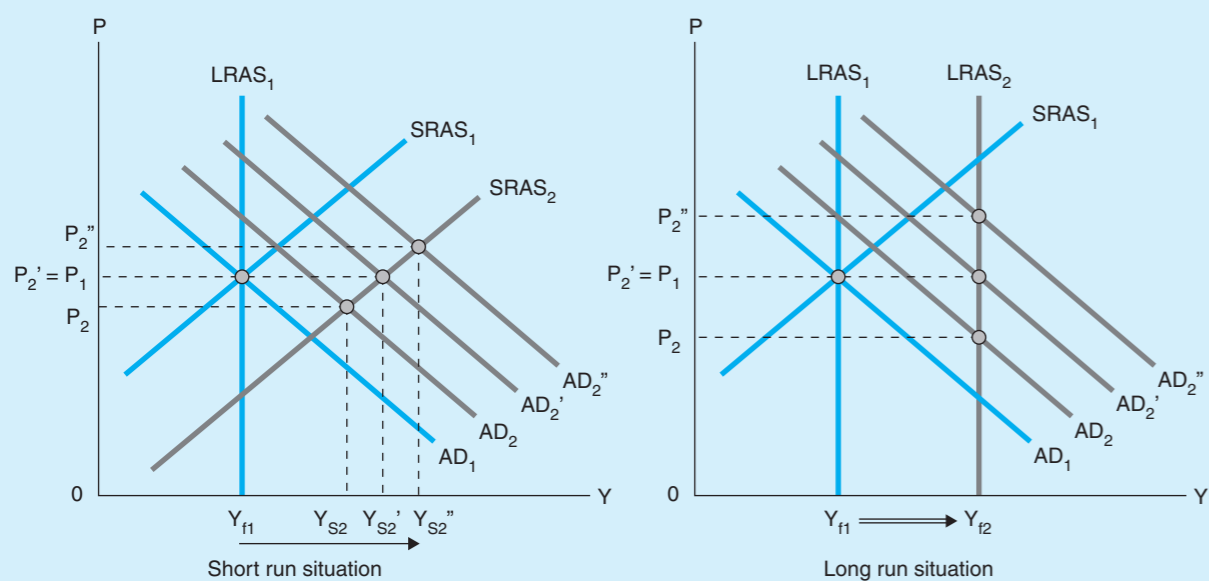
Typical Question 3 Accounting for economic phenomena

Under what conditions will the twin evils of an economy — an increase in unemployed persons and a rise in the price level — co-exist?

1. Question analysis

Key words: 'conditions', 'increase in unemployed persons' and 'rise in price level'

2. Answering techniques

Firstly, identify the given changes in real national income (Y) and the price level (P).

Then, from the effects of changes in AD, SRAS and LRAS, identify a possible cause of the given economic phenomena. The effects are summarised below.

	Short run effects		Feature
	Change in real national income	**Change in price level**	
AD ↑ (increases)	↑	↑	Both Y and P ↑
AD ↓ (decreases)	↓	↓	Both Y and P ↓
SRAS ↑ (increases)	↑	↓	Y and P change in opposite ways and Y ↑
SRAS ↓ (decreases)	↓	↑	Y and P change in opposite ways and Y ↓
AD ↑ + SRAS ↑	↑ + ↑ = ↑	↑ + ↓ = ? (if ↑ > ↓ ⇒ ↑, etc.)	Y ↑ and P?
AD ↑ + SRAS ↓	↑ + ↓ = ? (if ↑ > ↓ ⇒ ↑, etc.)	↑ + ↑ = ↑	Y? and P ↑
AD ↓ + SRAS ↑	↓ + ↑ = ?	↓ + ↓ = ↓	Y? and P ↓
AD ↓ + SRAS ↓	↓ + ↓ = ↓	↓ + ↑ = ?	Y ↓ and P?

	Long run effects		Feature
	Change in real national income	**Change in price level**	
AD ↑	Unchanged	↑	$Y = Y_f$ and P ↑
AD ↓	Unchanged	↓	$Y = Y_f$ and P ↓
LRAS ↑	↑	↓	Y and P change in opposite ways and Y ↑
LRAS ↓	↓	↑	Y and P change in opposite ways and Y ↓
AD ↑ + LRAS ↑	Unchanged + ↑ = ↑	↑ + ↓ = ? (if ↑ > ↓ ⇒ ↑, etc.)	Y ↑ and P?
AD ↑ + LRAS ↓	Unchanged + ↓ = ↓	↑ + ↑ = ↑	Y ↓ and P ↑
AD ↓ + LRAS ↑	Unchanged + ↑ = ↑	↓ + ↓ = ↓	Y ↑ and P ↓
AD ↓ + LRAS ↓	Unchanged + ↓ = ↓	↓ + ↑ = ?	Y ↓ and P?

Note: In the long run, Y is always equal to Y_f, the full employment real national income. Hence, an increase (a decrease) in LRAS must raise (reduce) Y in the long run, no matter how AD changes.
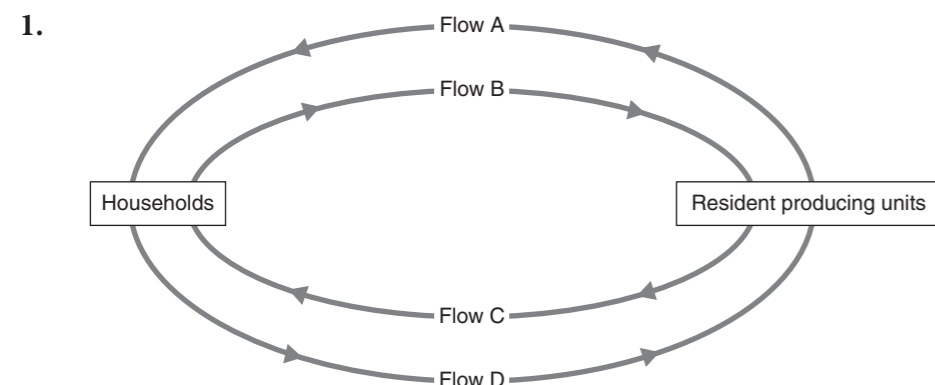
3. Suggested answer

In the short run, an increase in unemployed persons (or a decrease in Y) and a rise in the price level have the following possible causes:

- Decrease in SRAS
- Increase in AD < Decrease in SRAS
- Decrease in AD < Decrease in SRAS

Multiple Choice Questions

There are 45 questions in this paper. Choose the BEST answer for each question. (45 marks)

1.

In the above diagram, Flow A and Flow D are real flows while Flow B and Flow C are money flows. What does the diagram illustrate?

A. Flow A and Flow D show that the total value of goods and services produced is equal to the total value of factor services employed.

B. Flow B and Flow C show that the total expenditure of households is equal to the total income received by households.

C. Flow A and Flow D show that the total quantity of goods and services produced is equal to the total quantity of factor services employed.

D. Flow B and Flow C show that the total expenditure of households is equal to the total revenue of resident producing units.

2. In using the expenditure approach to calculate Hong Kong's gross domestic product, which of the following should be counted?

A. Stamp duty paid when buying shares

B. Tobacco duty

C. Loan interest that a resident producing unit pays to a local bank

D. Electricity charges paid by the Airport Authority Hong Kong

3. In 2009, private consumption expenditure in Hong Kong was HK$1,004,235 million. However, the total spending of all households in Hong Kong was larger than private consumption expenditure because the value of _____ purchased by households is not counted in the latter.

A. imports

B. indirect taxes on consumer goods

C. second-hand goods

D. past inventories

4. The following diagram shows a production chain in Economy Y.
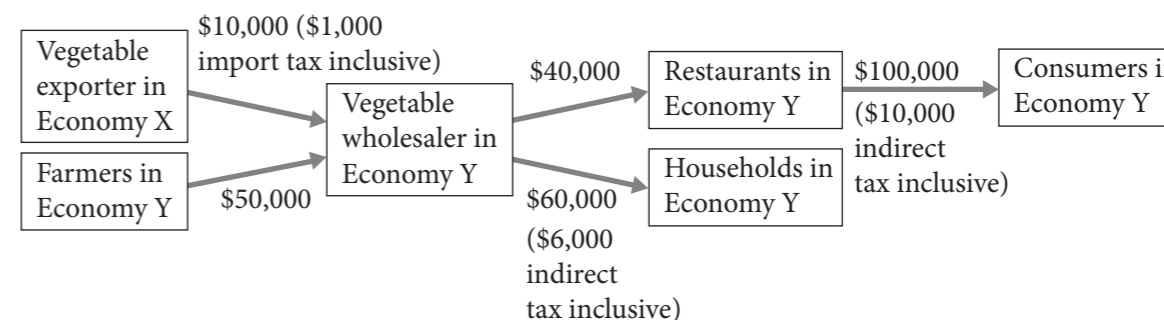
The contribution of the above production chain to the GDP at factor cost of Economy Y is

A. $84,000.

B. $134,000.

C. $135,000.

D. $150,000.

5.

Total exports	$80,000
Total imports	$60,000
Factor income from abroad	$12,000
Factor income paid abroad	$18,000
Indirect taxes	$6,000
Subsidies	$3,000
Changes in inventories	$1,000
Depreciation	$2,000

The difference between GDP at market prices and GDP at factor cost is equal to _____;
the difference between GNP and GDP is equal to _____; and the difference between
gross investment expenditure and net fixed investment expenditure is equal to _____.

A. -$3,000 … -$6,000 … $1,000

B. $3,000 … -$6,000 … $3,000

C. $3,000 … $6,000 … $2,000

D. $20,000 … $3,000 … $3,000