# ANGLO-CHINESE JUNIOR COLLEGE

## JC1 Economics

**H2** | **Introduction to Macroeconomics Tutorial Worksheet 5**

### Section A: Data Response Questions

**Question 1**

**Table 1: Selected US economic indicators from 2009 – 2014**

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|
| **Real GDP (% change)** | -2.8 | 2.5 | 1.6 | 2.3 | 2.2 | 2.4 |
| **Unemployment rate (%)** | 9.3 | 9.6 | 8.9 | 8.1 | 7.4 | 6.2 |
| **Labour Force (Millions)** | 154.2 | 153.8 | 153.6 | 154.9 | 155.4 | 155.9 |
| **Inflation rate (%)** | -0.4 | 1.6 | 3.2 | 2.1 | 1.5 | 1.6 |

*Source: World Bank, US Bureau of Labour Statistics*

**Suggested answers:**

| | | | |
|---|---|---|---|
| (a) | (i) | State the formula to calculate unemployment rate.<br><br>UnN rate is calculated by taking the total no. of unemployed divide by the total labour force X 100% | [1] |
| | (ii) | Explain why 'retirees' are ***NOT*** considered as unemployed.<br><br>Unemployed ➔ they are willing and able to work and are actively looking for jobs, but are not able to find a job<br>- Must be part of the labour force to begin with | [2] |



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| | | | |
|---|---|---|---|
| | | Retirees ➔ NOT willing nor able to work, so are not actively looking for job ➔ not part of the labour force ➔ hence not considered as unemployed even though they do not work. | |
| (b) | Describe the trend of General Price Level in the US from 2009 to 2014.<br><br>• (General trend) From 2009 to 2014, general price level in the US has been rising.<br>• (Refinement) There was a fall in general price level in 2009. | | [2] |
| (c) | Compare the trend of unemployment rate and inflation rate in the US from 2011 to 2014.<br><br>• (Similarity) Between 2011 and 2014, both unemployment rate and inflation rate in US reflect generally decreasing trends.<br>• (Difference) Unemployment rate has been consistently decreasing while inflation rate experienced an increase from 2013 to 2014. | | [2] |
| (d) | Explain what the trend of unemployment rate from 2011 to 2014 suggests about the overall performance of the US economy across the years.<br>*Hint: link to the total production of output within the country.*<br><br>*Unemployment rate falling ➔ suggests higher utilization of labour resource (1m)*<br><br>*A country is now able to produce more output (1m) since more labour resource are hired ➔ economic performance improved / better since there is a fall in unN over the years. (1m)*<br><br>*Students should also note that economic performance is tied closely to standard of living: The higher the economic performance, each citizen / resident is also able to consume more goods and services and also earn higher per capita income *assuming no change in population. Therefore, material SOL improved.* | | [3] |

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**Question 2**

**Table 2: Percentage change in real gross domestic product (GDP)**

| | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| **Japan** | -5.5 | 4.7 | -0.5 | 1.8 | 1.6 |
| **USA** | -2.8 | 2.5 | 1.6 | 2.3 | 2.2 |
| **China** | 9.2 | 10.6 | 9.5 | 7.8 | 7.7 |
| **Germany** | -5.6 | 4.1 | 3.6 | 0.4 | 0.1 |

*Source: World Bank, OECD Statistics*

**Table 3: Unemployment (% of total labour force)**

| | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| **Japan** | 5 | 5 | 4.5 | 4.3 | 4 |
| **USA** | 9.4 | 9.7 | 9 | 8.2 | 7.4 |
| **China** | 4.4 | 4.2 | 4.3 | 4.5 | 4.6 |
| **Germany** | 7.7 | 7.1 | 5.9 | 5.4 | 5.3 |

*Source: World Bank, OECD Statistics*

**Suggested answers:**

| | | |
|---|---|---|
| (a) | Compare the trend of real GDP between China and Japan from 2010 to 2013.<br><br>• (Similarity) Both China and Japan real GDP experienced generally increasing trend from 2010 to 2013.<br>• (Difference) China experienced increasing trend throughout the period but Japan experienced a fall in real GDP from 2010 to 2011. | [2] |
| (b) | Explain the possible relationship between Germany's real GDP growth rate and unemployment rate.<br><br>• (Identify a possible relationship) When Germany experienced positive real GDP growth rate i.e. real GDP is rising, its unemployment rate falls.<br>• (Brief explanation) Rising real GDP → implies rising income → rising C → rising investment → job creation → fall in unemployment rate. | [2] |
| (c) | Explain what the Japan's real GDP in 2011 suggest about the overall Japan's economic performance in that year.<br><br>Japan's real GDP fell (as suggested by the -ve real GDP growth rate) ➔ total output produced within the economy fell. (1m)<br><br>The overall economic performance in that year worsened / decreased. (1m)<br><br>*Students should also note that economic performance is tied closely to standard of living: The poorer the economic performance, each citizen / resident is less able to consume goods and services and also earn lower per capita income *assuming no change in population. Therefore, material SOL worsened.* | [2] |

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**Question 3: Asia's Consumer Revolution Gets Serious**

**Table 4:**
**Singapore: Expenditure of Gross Domestic Product at 1995 Market Prices**

| | 1998 (S$ million) | 1999 (S$ million) | 2000 (S$ million) | 2001 (S$ million) | 2002 (S$ million) |
|---|---|---|---|---|---|
| Total GDP | 138,399 | 147,286 | 161,103 | 157,318 | 160,853 |
| Private Consumption Expenditure | 52,467 | 56,762 | 64,737 | 66,239 | 66,812 |
| Government Consumption Expenditure | 14,109 | 15,063 | 17,720 | 19,181 | 20,033 |
| Gross Fixed Capital Formation | 51,456 | 48,909 | 52,733 | 49,737 | 44,929 |
| Increase in Stocks | -7,828 | -2,755 | 1,045 | -8,917 | -8,487 |
| Net Exports of Goods and Services | 29,622 | 31,219 | 27,362 | 33,656 | 40,145 |
| Statistical Discrepancy | -1,427 | -1,912 | -2,494 | -2,578 | -2,579 |

*Source: Singapore Department of Statistics*

| | | | |
|---|---|---|---|
| (a) | Explain what it means by 'Gross Domestic Product measured at 1995 market prices'?<br><br>• Gross Domestic Product (GDP) refers to the **monetary value (not quantity)** of all **final** goods and services produced within the geographical borders of a country in a given period of time.<br>• The phrase "measured at 1995 market prices" suggests that the GDP value calculated using current prices (e.g. prices in 1998 for GDP in 1998) has been adjusted using market prices in 1995 so as to remove the effect of inflation on GDP value. | | [2] |
| (b) | (i) | Describe the trend for GDP at 1995 market prices in Singapore from 1998 to 2002.<br><br>• (General Trend) Generally, it was a rising trend from 1998 to 2002.<br>• (Refinement) although there was a slight fall in 2001. | [2] |
| | (ii) | Using the data in Table 4, account for the general trend in b(i). | [3] |

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| | | • Explanation for upward trend: This is supported by the increase in private and government consumption expenditure over the whole period<br>• Explanation for the refinement:<br>➔ Investment (gross fixed capital formation + increase in stocks) started falling from 2001. The fall in investment in 2001 outweighed the gain in the other components, leading to a fall in overall GDP in 2001.<br>➔ However, the gain in the other components outweighed the fall in investment in 2002, causing GDP to increase again in 2002. | |
| (c) | | Using the concept of the circular flow of income, explain how an increase in private consumption expenditure affects the equilibrium level of national income. | [4] |
| | | • An increase in private consumption (C) will generate an equivalent increase in income (Y) for households as more factors of production are hired to increase production.<br>• Part of the increase in Y will leak out of the circular flow as savings, taxes & import expenditure while the remaining will be spent on **additional** consumption, leading to an **additional / further** increase in consumption (C) and hence an equivalent further increase in Y.<br>• The cycle of leakages, increase in C and increase in Y will continue until there is no further increase in C.<br>Adding up the increase in Y in each period of the cycle gives a total increase in Y that is a multiple of the initial increase in C. Hence, the equilibrium level of national income (NY) increases by a multiple of the initial increase in C. | |

## Section B: Discussion Questions

**Question 4: Circular Flow of income**

Consider how the following scenario might affect Singapore's circular flow of income. Explain your answers.

(a) Chinese tourists increase their spending on shopping in Singapore.

(b) A rise in consumer and business confidence about the future.

(c) Depreciation of Singapore's currency.

(a) Chinese tourists increase their spending on shopping in Singapore.

- When Chinese tourists come to Singapore as a holiday destination, their expenditure to purchase goods and services in Singapore is considered as Singapore exports revenue (X).



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- X-revenue is an injection into the Singapore economy.
- Hence, assuming ceteris paribus (no other injection / withdrawal), the Singapore's national income increases.

(b) A rise in consumer and business confidence about the future.

- When there is a rise in consumer and business confidence about the future, consumers will consume more goods and services now, since they expect their future incomes to rise, hence reducing their savings (S).
- Due to the positive business sentiments, firms may expect higher sales revenue in the future. This will give the businesses more confidence to undertake investment projects as the investment projects are likely to be profitable (the cost to invest now will be outweigh by the returns/earnings in the future). As a result, there will be an increase in investment expenditure by firms (I).
- As savings (S) is a withdrawal and investment expenditure (I) is an injection into the Singapore economy
- Therefore, assuming ceteris paribus (no other injection / withdrawal), the lower withdrawal together with an increase in injection will increase Singapore's national income.

*Note to tutors: As we teach our students the different types of injections, which include G, I and X, injections do not include autonomous consumption expenditure. Hence, to answer this question, we will explain it via the fall in savings, rather than the increase in C.*

(c) Depreciation of Singapore's currency.

- When Singapore's currency depreciates, Singapore's exports become relatively cheaper in foreign currencies. (Do note that the price of goods and services in Singapore does not change).
- Since it is cheaper in foreign currencies, foreigners will be more willing to buy more from Singapore, resulting in an increase of Quantity demanded for our X.
- As export revenue is calculated by Px X Qdx, with the Px remains the same and a higher Qdx, the total export revenue will increase.
- Ceteris paribus, X-revenue is an injection into the economy, hence the circular flow of income will increase.

Note to tutors: Similar to the answers of the AD/AS question on depreciation of currency, our focus is the impact on exports revenue, rather than the import expenditure (as we will offset the import expenditure from all components of the AD).

**Stretch Q: How does an increase in Goods and Service Tax (from 7% to 9%) impact Singapore's circular flow of income?**



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**Question 5 – AD/AS & Equilibrium in the macroeconomy**

Using the Aggregate Demand-Aggregate Supply (AD-AS) diagram, explain the possible effects of each of the changes on a country's real national output and general price level.
Make clear any assumptions that you make in your answer.

| | |
|---|---|
| **(a)** | A rise in consumer and business confidence about the future.<br><br>• Rise in consumer confidence → rise in C→ rise in sales → boost in business confidence boosted) → as stocks run down, firms will invest to increase production.<br>• Rise in business confidence → firms expect sales revenue and profits to rise → I rise.<br>• Rise in C and I leads to a rise in AD (rightward shift of the AD curve) and an increase in real NY and GPL.<br>• An increase in I may also lead to an increase in quality and quantity of capital in the economy → increase productive capacity → increase in LRAS<br>• Since LRAS takes a longer time to increase, AD is likely to increase to a larger extent, leading to a rise in NY and GPL. |
| **(b)** | Depreciation of a country's currency.<br><br>• If a country's currency depreciates<br>▫ Price of the country's exports become cheaper in foreign currencies.<br>▫ Price of the country's imports become more expensive in local currency.<br>• Fall in price of exports in foreign currency → increase in quantity demanded for exports. Since price of exports in domestic currency is unchanged, export revenue (P x Q) will increase.<br>• Overall, net export revenue (X-M) rises.<br>• Rise in (X-M) leads to a rise in AD (rightward shift of the AD curve) and an increase in real NY and GPL.<br>Impact on AS:<br>• For import dependent countries: depreciation → increase in price of imported raw materials in domestic currency → increase cost of production for domestic firms<br>• SRAS may fall, leading to a fall in NY and rise in GPL<br><br>Note 1:<br>• Depreciation will always lead to an increase in X (regardless of PED value). GDP is calculated in home currency. The price of the exports in home currency remains unchanged while quantity demanded increases. Since export revenue us P x Q, X will always increase.<br>• The PED of exports will determine the extent of increase in X. |

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| | Note 2: There may be a substitution effect if depreciation leads to foreign imports being more expensive in home currency. Consumers may switch from imported goods and consumed more domestically produced goods instead, leading to an increase in C. (Where $C = C_{D\ (domestic)} + C_{I(imports)}$) |
| **(c)** | A country embarking on a land reclamation project.<br><br>• Increase in land resources and eventually capital resources e.g. new commercial, industrial, residential facilities can be constructed on the reclaimed land → increase in quantity and quality of resources in the country.<br>• Rise in productive capacity in the long run (rightward shift of the LRAS curve).<br>• Real NY and full employment output will both increase while GPL falls.<br>• If the land reclamation project is carried out by the government, it would likely involved an increase in G as well to hire construction companies and build the land. |
| **(d)** | Higher price of crude oil.<br>• Oil being an essential raw material → rise in cost of production.<br>• Decrease in SRAS (leftward shift of SRAS curve).<br>• Real NY falls, GPL increases.<br>Note: Consider the possible impact on (X-M) for oil exporting countries. |
| **(e)** | Banks in the country cut interest rates.<br>• Lower interest rate → lower cost of borrowing → stimulates C and I → higher AD (rightward shift of the AD curve).<br>• Higher I → In the long run, productive capacity increases → higher potential growth → LRAS curve shifts to the right.<br>• Increases in AD + LRAS → increase in real national income and full employment output<br>• Whether GPL increases would depend on the extent and rate of increase in AD and productivity capacity → rise in GPL will be moderated if the increase in productive capacity keeps pace with the rise in AD |
| **(f)** | The government lowers corporate tax rate.<br><br>• Lower corporate tax rate → higher after-tax profits for investment expenditure and business expansion.<br>• AD increases (rightward shift of the AD curve) → increase in real NY and GPL<br>• The investment subsequently increases productive capacity, due to an increase in capital stock accumulated (LRAS curve shifts to the right)<br>Note: It is conceptually incorrect for students to argue that lower corporate tax rate will lead to a fall in firms' cost of production because corporate taxes are imposed on profits and have no effect on costs. |

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## Question 6

**Budget 2020: S$4 billion support package for households and firms amid COVID-19 outbreak**

Singapore's economy shrunk 13.2 per cent for the second quarter of this year compared to the same period last year, as the country enters into its worst recession since independence.

"The outbreak will certainly impact our economy," Deputy Prime Minister Mr Heng Swee keat said, noting that the tourism and aviation industries are most affected due to declining visitor arrivals to Singapore, air traffic through Changi Airport and a decline in hotel occupancy rates.

The outbreak has also disrupted supply chains and created ripple effects on other sectors, Mr Heng said.

Singapore will spend S$4 billion on a slew of new measures and enhancements to existing schemes to stabilise its economy amid the near-term uncertainties caused by COVID-19.

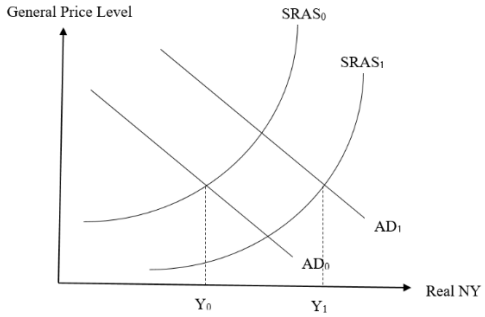
These are some of the measures announced:
- 25% corporate income tax rebate for companies
- Jobs Support Scheme (JSS) which provides wage support to employers
- Cash payout (ranging from $300-$900) for eligible Singaporeans

Source: Various news articles

(a) Explain how the "COVID-19 outbreak" has affected Singapore's Real National Output and General Price Level.

- Negative economic outlook → consumers are more cautious with their spending and firms postpone investment → fall in consumption (C) and investment (I) expenditure
- Fall in tourist arrivals → fall in spending by foreigners on domestic goods and services e.g. hotel accommodation → Fall in export revenue (X) and hence (X-M) assuming no change in M
- Fall in C, I and (X-M) will lead to a fall in AD and a fall in real NY coupled with a fall in GPL.

(b) Using the AD-AS diagram, explain how the above measures could prevent a further economic downturn in Singapore.

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- 25% corporate income tax rebate for companies → increase after-tax profits → encouraged firms to invest → increase in investment expenditure (I) → Increase in AD
- Jobs Support Scheme (JSS) which provides wage support to employers → reduce cost of production for firms → increase in SRAS
- Cash payout (ranging from $300-$900) for eligible Singaporeans → Government transfer payment → increases consumption expenditure(C) → Increase in AD
- Increase in AD and increase in SRAS will lead to an increase in real NY from $Y_0$ to $Y_1$, reversing the fall in real NY and increase in unemployment brought about by COVID-19, hence preventing further economic downturn.

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## Section C: Problem-based Learning

Students may research independently on the following issues over the Dec holidays. Your tutor will provide you with more instructions when you return to school in 2024.

This project is an opportunity for students to apply macroeconomic content to understand real-world issues and is also a platform for students to hone our 21st century skills such as collaboration and communication skills.

For this assignment, you will be working in **groups**.

1. In groups of 4 to 6, **select a country** from the following:

(a) China
(b) India
(c) UK
(d) USA
(e) Japan

2. (a) **Research on the economic statistics** for your selected country for **year 2017 to 2022:**

- Economic growth rate
- Unemployment rate
- Inflation rate

You may use online tools such as search engines (e.g. http://data.worldbank.org/) or Chat GPT.

**(b)** Using your research findings, **describe the trends in the above-mentioned indicators from year 2017 to 2022.**

3. **Identify a specific year** that your group would like to focus on.
**Using the AD-AS framework**, explain **possible reasons** for the data you have collected for **the chosen year.**

You may gather the reasons from search engines, magazines (e.g. TIMES, STRAITS TIMES, TODAY, CNN, CNA etc.)

You may use google slides or google document to capture your findings and application. You are to present and share your points in class.

**Deliverable: Group presentation (when school reopens in 2024)**
You are to prepare your findings using either a word document or PowerPoint slides or choose a video presentation as well. Each group will be given **5 minutes** to present in class.

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