T2W5 Class Test 3
Macroeconomic Aims and Issues
Mark Scheme

Singapore had experienced annual deflation in a number of years; 2020: -0.5%, 2015: -0.5%, 2002: -0.4%, and 1998: -0.3%. With the exception of 2015, deflation in 2020, 2002, and 1998 were during economic recession period.

(a) Explain one possible demand-side cause and one possible supply-side cause of deflation in Singapore. [10]

(b) Discuss whether deflation or inflation is more damaging for Singapore's economy. [15]

<u>**Suggested answers for (a)**</u>

<u>**Introduction**</u>

- Deflation is defined as negative inflation or a sustained fall in general price levels (GPL).
- The two main causes of deflation in Singapore stems from a fall in aggregate demand (AD) and a rise in aggregate supply (AS), particularly due to a fall in cost of production (COP).

<u>**Body**</u>

<u>**R1: Fall in AD causing deflation**</u>

- In 2019, before the COVID-19 pandemic (2020), Singapore's economy was experiencing positive growth, and its AD could be operating on the intermediate range of its AS curve with limited spare capacity.
- As a small and open economy, Singapore's (SG) economy is trade-oriented and depends heavily on trade for its economic growth. In 2020, when the global economy got weaker due to the onset of the COVID-19 pandemic where many of SG's trading partners went into recessions, the real national income of SG's trading partners falls such as in the US. This causes the average income of Americans to fall (assuming constant population size), making them less willing and able to purchase and consume goods and services, including SG's exports to the US.
- Assuming SG exports are normal goods with YED>0, the demand for SG's exports falls, ceteris paribus, reducing the quantity of her exports, causing a fall in X component of SG's AD.

<u>*Alternatively, the following analysis also works:*</u>

- Due to the weak global economic conditions in 2020 during the pandemic, households and firms became pessimistic and experienced lower confidence in the economy.
- Households predict that their future income may decrease and increase their precautionary savings, causing a fall in consumption spending (C) in AD. In addition, firms expect future demand to be weak, thus reducing their expected returns on investment projects, causing MEI to fall and overall reducing investment spending (I) in AD.

<u>Price Adjustment Mechanism</u>

- Since AD = C+I+G+(X-M), the fall in X and/or C and I will result in a fall in AD from AD_0 to AD_1. The fall in AD will start to create surpluses in the economy because current spending is below current production levels at the initial general price level P_0.
- The unplanned buildup of surplus inventories of goods and services will create downwards pressure on prices as firms are more willing to reduce prices to clear excess inventories.
- The reduction in production, coupled with the fall in demand for raw materials and labour put downward pressure on cost of production, allowing the firm to reduce price. This cause the fall in GPL from P_0 to P_1.

Explain how the fall in GPL is sustained

Either

- When AD falls from AD_0 to AD_1, firms will reduce output by hiring less labour. With lower income, households will spend less on induced consumption.
- This will trigger a multiplied decrease in AD from AD_0 to AD_2 via the reverse multiplier process where one person's cut in spending is another's reduction in income.
- This multiplied fall in AD from AD_0 to AD_2 will result in a sustained fall in GPL from P_0 to P_1 followed by P_2, showing deflation.

Or

- When the GPL falls from P_0 to P_1, households may develop expectations that prices will continue to fall in the future, thus withholding their purchases now and causing C to fall further.
- Moreover, as firms expect future returns to decrease due to weaker demand, I also fall.
- Combined, this leads to AD falling further from AD_1 to AD_2. Through the same adjustment process as before, surplus occurs and there is a further fall in GPL from P_1 to P_2, showing deflation.

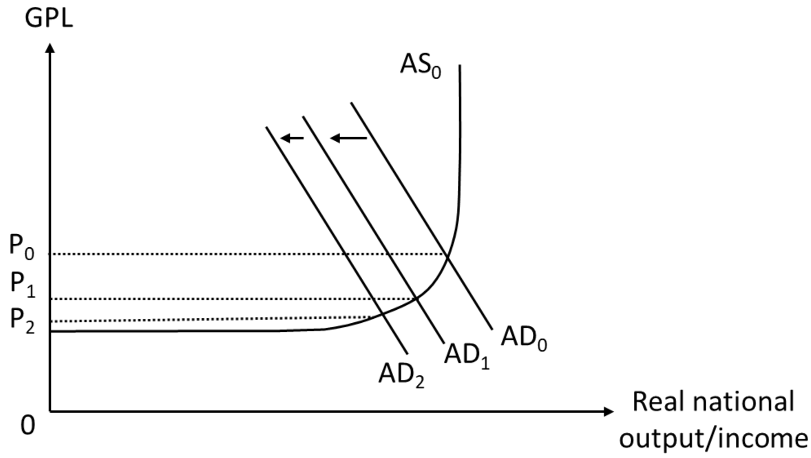

Figure 1: Deflation caused by fall in AD

R2: Rise in AS causing deflation

- The SG government has proactively increased spending on expanding our burgeoning Artificial Intelligence (AI) sector to increase the productivity levels for both private and public firms. For example, through the National Artificial Intelligence Strategy (NAIS) 2.0, the government has committed to spend on high-performance computing resources to support AI industry's growth.
- The above helps to increase the productivity of SG's economy. The workers working with more efficient AI tools will see an increase in output per unit labour hour. Assuming productivity growth outpaces wages growth, this leads to a fall in unit cost of production.
- As the costs fall, firms become more willing and able to produce more outputs at each GPL level due to rising profitability, causing AS to rise and shift downwards from AS_1 to AS_2.
- At the initial GPL, P1, aggregate supply (output) exceeds the level of aggregate demand (spending). This will lead to an accumulation of stocks and inventories and will cause firms to lower prices to sell off the excess inventories. The firms are also more willing and able to pass some cost savings on to other economic agents such as the consumers in the form of lower prices. As GPL falls, consumers are incentivised to consume more goods and services. This is represented by a downward movement along the AD curve. This continues until the GPL falls to P2.

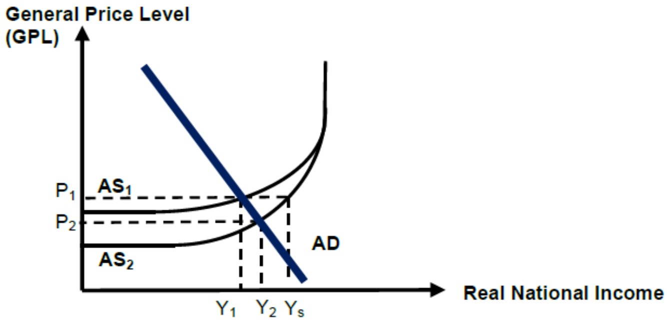

Figure 2: Deflation caused by rise in AS (fall in COP)

Alternatively, you can explain with both a fall in COP and a rise in productive capacity. (However, students should focus on the fall in COP to explain falling prices.)

- Moreover, with the rise in quantity of capital goods acquired and with greater output per unit input from better capital-labour ratio, this increases the AS and the productive capacity, shifting AS rightwards.
- Overall, AS shift outwards from AS_0 to AS_1. As the costs of production falls for the firms, they are more willing and able to pass some cost savings onto other economic agents (such as to consumers) as lower prices, decreasing the GPL from P_0 to P_1 and leading to deflation.

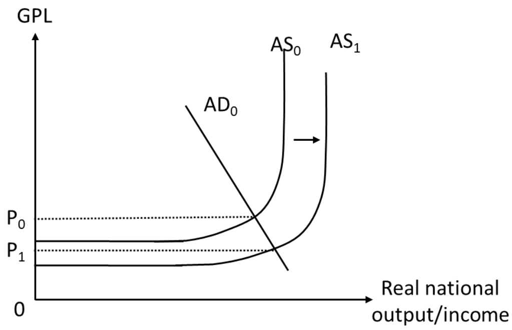

Figure 3: Deflation caused by rise in AS (fall in COP and rise in Yf)

Conclusion

- Deflation caused by fall in AD tends to be from external factors for SG whereas deflation caused by rise in AS can be from both internal and external factors.

Mark Scheme:

	Knowledge, Application, Understanding, Analysis	
L1	▪ *Lack application of relevant economic framework and context* ▪ *Critical errors in analysis* ▪ *Significant conceptual gaps in explanation*	***1 - 4***
L2	▪ *Some economic analysis for both requirements (R1 and R2) but with gaps or lapses in explanations* ▪ *Some application of context and use of examples* ▪ *Lacking in full scope of analysis*	***5 - 7***
L3	*A well-developed answer that demonstrates:* ▪ *Rigorous analysis for BOTH requirements* ▪ *Good scope of coverage* ▪ *Good application of contextual examples*	***8 - 10***

(b) Discuss whether deflation or inflation is more damaging for Singapore's economy.

Introduction

- Clarify that inflation/deflation is damaging because it either (i) harms SOL or (ii) hinders the attainment of other economic aims

Requirement #1: Inflation is damaging for an economy (2 well developed arguments is sufficient)

1. Reduces investment which hinders actual and potential economic growth

- High and especially unstable inflation cripples long term business planning because it creates uncertainty about the future prices of factors of production and the future profitability of investment projects in the country. Firms will be less willing to take risks and hence, investment falls. A fall in investment (I) decreases autonomous AD which can lead to a more than proportionate fall in real national income via the multiplier effect, hence bringing about a fall in actual economic growth and a rise in demand-deficient unemployment. The fall in investment can also bring about a fall in capital stock which leads to a fall in productive capacity, as reflected by a leftward shift of the AS curve, thereby leading to a fall in potential economic growth.
- Singapore's context: In 2024, Singapore's total investment (measured as Gross Fixed Capital Formation) was approximately 21.9% to 22.2% of its GDP, representing its importance as a driver of economic growth to the country.

2. More difficult to protect material standard of living (SOL)

- Inflation always reduce the value of money over time and the higher the inflation rate, the more significant the fall in the purchasing power of the dollar over time. High inflation can mean significant hardship for households whose nominal incomes do not keep pace with the increase in prices, such as retirees. Assuming that nominal income remains unchanged, high inflation significantly lowers the purchasing power of money or real income, which leads to a significant fall in households' ability to buy goods and services over time. Hence, households whose nominal incomes remain unchanged or rise much slower than inflation will experience a significant deterioration in their material SOL over time.
- FYI: Over the past decade (2015–2025), median income in Singapore actually showed a strong cumulative rise of approximately 46%, driven by wage growth across all income levels, with lower-income workers seeing the fastest growth. Bottom 10%: Average household income per member rose 82.7% (from $277 to $506).

3. Reduces international competitiveness and worsens the BOP

- If domestic inflation rises relative to foreign inflation, this reduces the price competitiveness of the domestic country's exports. Foreign countries will reduce their consumption for the relatively more expensive goods/services from Singapore. Singapore's PEDx is often argued to be greater than 1 as we are a small producer in the global market, hence the rise in price will lead to a more than proportionate reduction in quantity demanded - reducing Singapore's export revenue (X).
- In addition, Singapore households will demand more of the relatively cheaper imports, thus increasing import expenditure (M). Hence, the balance of trade (X-M) position for the country with relatively higher inflation rates will worsen, ceteris paribus.
- Singapore's dependence on trade as a driver of our economy meant that worsening of international competitiveness could have a significant negative impact on our economy. As of 2024, exports as % of GDP stands at 178%. That said, Singapore has enjoyed trade surpluses for more than 4 decades (last recorded BOT deficit was in 1984), with the Balance of Trade surplus in 2025 currently at S$131bn.

R1/Anti-thesis: Inflation is not necessarily demaging for an economy

1. Encourages spending and investment. When prices are expected to rise, households bring forward consumption and firms are more willing to invest. This boosts aggregate demand (AD) and can support economic growth and employment.

2. Reduces real debt burden. Inflation lowers the real value of debt, benefiting borrowers (including governments and firms). This can ease financial pressures and support continued spending and investment.

R1/Evaluation (any one well-explained evaluative point below)

1. Whether inflation is damaging or not depends on the rate and nature of inflation (mild vs high). Mild inflation (e.g. 2–3%) is often beneficial as it signals a growing economy with rising demand and helps to encourages spending (avoiding deflationary mindset) from households and firms. However, high or accelerating inflation rapidly erodes purchasing power while at the same time creates uncertainty which discourages investment. In some cases, it may lead to wage-price spiral.
2. It also depends on time frame and economic context. In the short run, demand-pull inflation may reflect strong economic growth and rising incomes and is not necessarily harmful. However, in the long run, a persistent inflation can reduce international competitiveness (exports become more expensive) and be highly damaging especially for countries dependent on exports. The context also matters. If inflation is caused by cost-push factors (e.g. supply shocks), inflation may coincide with stagnation (stagflation) which is likely more harmful as compared to inflation which is driven by strong demand, as it may be less concerning initially

Requirement #2: Deflation is damaging for an economy

Deflationary spiral

- A fall in general price levels will bring about increased expectations of future fall in prices hence consumers will postpone consumption of non-essential consumer goods and services, leading to a fall in autonomous consumption levels in Singapore. Firms will also postpone investment on tangible assets due to the pessimistic business confidence (falling consumption) in the economy, leading to a fall in autonomous investment in Singapore as well. This cause aggregate demand (AD) to fall since autonomous consumption and investment are components of AD.
- This triggers the **reverse multiplier process** which postulates that a fall in one man's spending will lead to a fall in another man's income. Due to the fall in autonomous consumption and investment, firms will see a piling up of inventories which signals them to cut back on production. As firms cut back production, they will hire less factors of production such as labour. Households directly hired will see a fall in income and this will lead to a fall in consumption expenditure. This process of fall in income and induced consumption is repeated over many rounds with the fall in income and induced consumption becoming smaller with each successive round as part of the fall in income at each round is leaked out in the form of savings, taxes and imports.
- Eventually the process ends when the cumulative fall in withdrawals equals the initial fall in autonomous aggregate demand. A new and lower equilibrium level of national income will be achieved. The fall in equilibrium real national income from Y_0 to Y_1 (diag. 2) is more than proportionate to the initial fall in autonomous AD, causing ***actual economic growth to fall in Singapore***.
- In addition, as firms cut back on production, they will hire less factors of production including labour since demand for a factor of production is a derived demand. This causes a ***rise in cyclical unemployment in the Singapore economy***.

Increases real value of debt

- A period of deflation may also ***increase the real value of debt for Singaporeans***. As nominal debt is fixed, when deflation (negative inflation) occurs, the real value of debt rises. Households must allocate more income to debt repayment → less consumption. Firms face higher real debt burdens → reduced investment and possible bankruptcies.

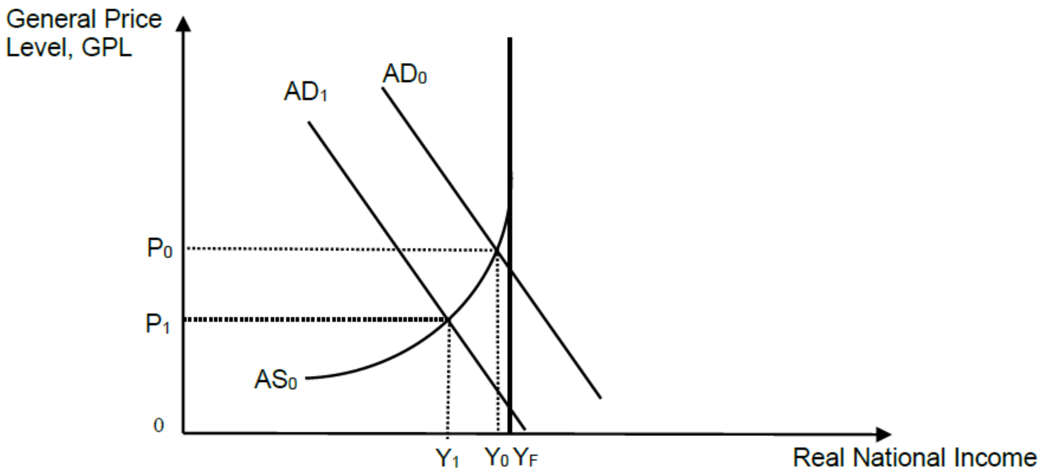

Diagram 2

R2/Anti-thesis: Deflation is not necessarily demaging for an economy

1. The cause of deflation can determine whether it is damaging to an economy. Deflation can arise from an increase in aggregate supply (AS) due to technological progress, lower costs of production (e.g. cheaper raw materials, improved efficiency) or better infrastructure/human capital. This means that firms can produce more efficiently → potentially higher profits despite lower prices. Consumers benefit from higher real incomes and purchasing power and the economy experiences non-inflationary growth. Unlike demand-deficient deflation, this type of deflation does not involve falling incomes or rising unemployment.
2. SOL: When prices fall, the real value of money rises, meaning that consumers can buy more goods and services with the same nominal income. This effectively increases real incomes. High purchasing power can support consumption rather than reduce it, especially if the deflation is mild and not expected to persist. This can lead to improving in standards of living, particularly for lower-income households.

R2/Evaluation (any one well-explained evaluative point below)

- Deflation is not inherently damaging; its impact depends critically on whether it is driven by supply-side improvements or demand deficiency.
- *Possible evaluation point: However, the **size of Singapore's multiplier is small** due to high marginal propensity to import and save thus the extent of fall in actual economic growth may not be significant in Singapore.*

Summative evaluation (2 to 3 evaluative points dedicated to answering the question as to whether inflation or deflation is more demaging)
Depends on (i) root cause (ii) magnitude / severity (iii) time horizon (iv) stakeholders involved

In Singapore, as a small and open economy, deflation is generally more damaging than inflation, especially in the short run, due to its impact on growth and employment. However, in the long run, sustained inflation can also erode competitiveness and stability.

1. Deflation is more damaging due to Singapore being a highly trade-dependent economy, where exports are a major component of AD. Several periods of deflation often followed global crises, such as the 1998 Asian Financial Crisis, the 2001 dot-com bubble burst, the 2009 Global Financial Crisis, and the 2020 COVID-19 pandemic, which caused demand to falter. The cause of deflation in Singapore is tied closely with external shocks and economic recession. The severity of the impact meant deflation and falling external demand coincided often, triggering a negative multiplier effect domestically. Inflation is less damaging in comparison. Even if driven by imported inflation (e.g. higher global energy prices), demand may still remain strong and that export demand may not immediately collapse unless inflation severely affects competitiveness.

2. Inflation is easier to manage than deflation. Singapore uses exchange rate policy (via Monetary Authority of Singapore) rather than interest rates. In the event of inflation, MAS can appreciate the SGD to reduce imported inflation. This is relatively effective because Singapore imports most of its goods. However, deflation is harder to combat. Currency depreciation by MAS may not stimulate demand if global demand is weak and especially it is limited in effectiveness when confidence is low.
3. However, inflation becomes more damaging if persistent in the long run. In the short run, deflation is worse as it typically leads to falling output, unemployment, and possibly a deflationary spiral. But if inflation is persistent and sustained in the long run, this can erode Singapore's international competitiveness. This harms export competitiveness which is critical for Singapore. The rise in cost of production may also cause firms to relocate

***Mark Scheme*:**

Knowledge, Application, Understanding, Analysis		
L1	▪ *No use of relevant economic framework* ▪ *Answer is mainly descriptive or mere listing of points* ▪ *Significant conceptual errors in explanation*	***1 - 4***
L2	▪ *Some application of relevant economic concepts and framework in analysis* ▪ *Some use of contextual examples* ▪ *Lacking in full scope of analysis, e.g., lacks details for negative or positive impact for R2*	***5 - 7***
L3	*A well-developed answer that demonstrates:* ▪ *Rigorous analysis for BOTH requirements* ▪ *Good application of contextual examples* ▪ *Good application of relevant economic framework*	***8 - 10***
Evaluation		
E1	▪ *Unsupported judgment* ▪ *Superficial conclusion/assertion*	***1 – 2***
E2	▪ *Substantiated judgment, recommendation supported by reasons/ economic analysis* ▪ *Answer the question regarding whether deflation or inflation is more damaging to the economy.*	***3 - 4***
E3	▪ *Insightful and perceptive evaluation and recommendation well discussed and evaluated using economic analysis and good application while answering the question of comparison.* ▪ *Summative evaluation at the end*	***5***