

ECONOMICS Higher 1 (Syllabus 8819)

Suggested Answer Outlines Year 6 Preliminary Examinations 2013

Case Study Question 1: Education

(a) (i) With reference to Tables 1 and 2, compare the government expenditure on education between Singapore and USA. [2]

Both the Singapore and USA's government expenditure per student on education as a percentage of GDP per capita increased from 2008 to 2010. [1m]

However, the Spore government's expenditure per primary student is consistently lower than that of USA <u>OR</u> the Singapore government's expenditure per tertiary student is higher than that of USA [1m]

<u>Note</u>: Though the examiners have accepted some significant differences which did not point to the difference in the expenditure of primary versus tertiary education between the 2 countries, those are considered as second tier answers. The question made specific references to the 2 tables with data only on primary and tertiary expenditure of the 2 countries and it is fair to expect Economics trained candidates to point out the relevant difference.

(a) (ii) Explain 2 possible reasons for the difference observed in (a)(i). [4]

Possible reasons (any 2):

- The US govt may place a larger value on the <u>external benefits</u> of primary school education than the Spore govt. It may be of the opinion that primary school education has a greater impact on society than tertiary education. The US government thus spends more for each primary school student. [2m]
- The US govt may find it more <u>equitable</u> to provide greater subsidy (per student) on a larger cohort of primary students as compared to a relatively smaller cohort of university graduates. The graduates are the ones who are likely to be able to command a higher wage and it may not be equitable to provide larger subsidy (per student) for this smaller group. [2m]
- 3. (Secondary point which examiners accepted The cost of providing primary school education may be higher in USA than in Spore. In USA, class sizes are smaller and the primary school teachers are mainly graduates as compared to Spore.)

(b) Explain the possible relationships between monthly wages and work experience.

[4]

Fig 1 shows that monthly wages and work experience are positively related in the earlier years of work of a worker. (1m for identification of relationship). As work experience increases, learning on the job increases and this will increase labour productivity. With higher output per worker, the demand for such workers will rise, ceteris paribus, and thus they are likely to be rewarded with higher wages. (explanation of relationship 1m)

Figure 1 also shows that the wages of workers with only primary school education decline after 30 years of work experience. (1m for identification of negative relationship). Their value-add to productivity tend to taper off and decline. Such workers are low-skilled and work is mainly manual. As physical activity declines with the workers' age, so will their productivity, that is, the monthly wages fall as their years of work increase beyond 30 years. (Explanation of negative relationship 1m)

(c) To what extent does an increase in education levels improve the standard of living in an economy? [8]

SOL refers to the welfare level of the average person in an economy. It encompasses both the material and the non-material aspects. Material SOL can be measured by real GDP per capita while non-material SOL is measured in terms of healthcare & education standards, stress level, externalities, etc.

Thesis: Higher education levels lead to higher SOL

- Higher education \rightarrow skills level $\uparrow \rightarrow$ quality of labour force $\uparrow \rightarrow$ potential EG \uparrow
- With rising demand for a country's goods & services → AD↑ → actual EG↑ → real GDP per capita↑, ceteris paribus→ material SOL↑
- With higher GDP, government tax revenue↑ →GE on healthcare, education, etc.↑ →nonmaterial SOL↑

An increase in education level implies a greater level of skills acquired or at least a greater ability to acquire new skills because of higher levels of numeracy and literacy. This is likely to lead to greater labour productivity and that means greater employability and higher pay (refer Fig 1). Employment level is likely to rise, leading to greater economic growth and higher national income per capita. Ability to buy goods and services increases and thus the material aspect of SOL increases. Also, the non-material aspect of SOL may improve due to reduced deviant behaviour and lower crime rates.

Anti-thesis: Higher education levels may not lead to higher SOL

If higher education levels do not lead to economic growth and real GDP per capita does not increase, SOL will not rise. As shown in Extract 3, many American university graduates are unemployed, with unemployment standing at 8%. The 8% unemployment rate of graduates is close to that of the overall unemployment rate of 8.1 to 7.5%. It is likely that there is weak economic growth in USA during that period and therefore reduced job creation. Recruitment is low and fresh graduates have difficulty getting employment especially if their expectation of pay is relatively higher than non-graduates. Therefore education level does not necessarily mean greater employability over a lower education school leaver if the economy is weak.

High unemployment \rightarrow stress levels & crime rates $\uparrow \rightarrow$ non-material SOL \downarrow

In the US, higher education increases the supply of skills that are not required by industry, the rate of unemployed graduates[↑] (Extract 1). In the course of choosing fields of studies which do not align with the manpower needs of the nation, graduates have difficulty looking for employment in the relevant fields. On the whole, higher level of education does not guarantee employment in the economy and therefore does not ensure a higher SOL for the average person.

Conclusion/Evaluation:

So higher levels of education of residents do not necessarily lead to increases in a country's GDP. It must be coupled with greater job opportunities in an economy so that SOL may rise. Also, if the Gini coefficient increase, income gap widens, the average person in the economy may not be better off.

Level	Descriptors	Marks
L1	A theoretical regurgitation of SOL with no reference to case study at all. Answer that is one-sided EITHER on how education does or does not lead to improvement in SOL.	1-3
L2	Answer shows balance and sufficient breadth in the discussion of how education may increase SOL. Points are somewhat developed with reference to case study evidence.	4-6
L3	Points are well-developed with strong use of case study material. Answer must show awareness that material SOL is measured by real GDP/capita and must make macro-economic links to employment and AD/AS framework. Answer must include both material aspect and non-material aspect (at least a mention) of SOL.	7-8

(d) (i) Explain the term positive externality.

Positive externality is generated when some of the benefits associated with the production or consumption of a good 'spills over' to third parties, that is, to parties other than the immediate buyer or seller **(1m for definition).** For example, when one receives education, he will benefit in terms of job satisfaction and higher wage earned. However, there is also the external benefit to society when he is also likely to contribute to a greater productivity rate in the economy and this helps to increase investments (including FDIs) to benefit all **(1m for an explanation of external benefits using an example).**

(d) (ii) Discuss whether education subsidies in the USA and Singapore should be adjusted to better achieve the governments' micro-economic objectives. [10]

Introduction

Clarify "micro-economic objectives"

- Efficiency in the usage and allocation of a country's limited resources
- Equity in the distribution of a country's goods and services

Thesis: Explain how education subsidies are used in both countries to achieve micro-economic objectives.

- To correct market failure (due to the existence of positive externalities in education) in order to achieve allocative efficiency.
 - Diagram and explanation positive externality and market failure in education
 Subsidizing an amount equivalent to MEB will bring consumption to a socially optimal level. Subsidy → COP↓→SS↑→P↓→Q_{DD}↑
 Use data in Tables 1 & 2, Extract 1 "government funds about 75% of the total cost" in Singapore and Extract 4 "government provides subsidies directly to institutions" in the USA.
- To establish a more equitable distribution of a merit good by keeping costs low to allow the poor access to primary, secondary and tertiary education. Education subsidies are also used in both countries to help talented but poor children to succeed. This helps to foster a more equal society.

Antithesis: However, the subsidy schemes in both countries can be adjusted to reduce adverse outcomes and apparent inequities.

- Tertiary education is currently over-subsidised in both countries.
 - In Singapore, tertiary education is more highly subsidized compared to primary education. But the gap between private and external benefits is wider for primary education (because, even though the private returns of primary education is low, literacy is essential to the functioning of society and ought to be accessible to all. The main beneficiary is the population at large). This gap is far narrower for tertiary education as the returns to individuals with higher education are substantial and often sustained through their working lives (See Figure 1). The premium on higher education is strong enough an incentive for people to want to pursue university qualifications, thus, from an **Equity standpoint**, there is no need for large government subsidies to encourage greater consumption. Moreover, only a minority (less than 25%, as seen in Table 3) in each cohort receives university education and should therefore not receive more subsidy than the majority that receives only basic education. This therefore represents a lack of equity in the way education subsidy is being distributed.

In light of the relatively high Gini coefficient (Table 4), more should be done about primary education in Singapore. As seen in a(ii), the lower government expenditure on primary education could be due to lower costs per student. This in turn is due to the large size of each class (large number of students per teacher). Perhaps more should be spent on reducing class sizes and improving the quality of primary education. This will better prepare every child to succeed in life, reducing poverty & income inequality in

the future. According to findings of an Edinburgh University Study, (Extract 2) "basic childhood skills - literacy and numeracy - proved important throughout life".

- Extract 2 also points to the importance of pre-school education in reducing income inequalities. Singapore should therefore increase the direct and indirect subsidies going to pre-school education to ensure that every child receives quality pre-school education.
- The relatively low literacy rate among people aged 15 and above (Table 4) accounting for the low income of low skilled workers, could also have been a factor for the high Gini Coefficient. In light of this, more should also be done about adult education. The government should increase subsidies and funding to make adult education, training & upgrading more accessible to all workers.
- In the US, tertiary education appears to be over-consumed, resulting in the over-supply of college graduates. Extract 4: "tertiary enrolment rate of close to 80%".
- Diagram and explanation
- Americans already have a high MPB for college education. Government subsidy therefore pushes consumption to a level beyond social optimum. There is overallocation of resources into higher education resulting in allocative inefficiency.
- For greater efficiency, the US government should therefore reduce or remove acrossthe-board subsidies for higher education and divert resources into other areas or simply use the subsidy cut to reduce the US government Budget Deficit.
- In view of the possible mismatch between the supply of college graduates and the demands of industry (Extract 1) and as discussed in part (c), the US government should remove subsidies going into "impacted programs" (Extract 4) and increase the rate of subsidy for industry-relevant courses in order to encourage more students to opt for such courses.
- To ensure equitable access to "high quality tertiary education" (Extract 4), government financial aid and interest-free study loans should still be available to poorer students.

Conclusion/synthesis

From the data given, it appears that Singapore's education subsidy should be adjusted for greater equity, while the US should adjust for greater economic efficiency. However, there are other factors which could have caused the problems identified.

In the US, the high rate of unemployment among college graduates is also caused by the slow rate of economic growth. In Singapore, the high Gini Coefficient may not have anything to do with the lack of subsidies for lower level education. The significant number of elderly citizens (especially among the women) who did not receive formal education plus the influx of cheap foreign labour are possible causes.

In the final analysis, whether or not the education subsidy schemes in the two countries should be adjusted depends on whether the root causes of the adverse outcomes and apparent inequities can be reduced by the adjustment. Addressing the root causes with appropriate measures would more effectively move both countries towards achieving their micro-economic goals.

Mark Scheine				
Descriptors	Marks			
Answer contains no economic framework.	1-3			
An answer that does not address the question asked				
Answer is lacking in some aspect:				
• Does not explain how education subsidies are used to achieve				
microeconomic objectives				
Discusses only one microeconomic objective				
Makes no reference to case material				
 Discusses only with respect to one country 				
 Addresses the question but has tendency to be superficial and lacks depth 				
	 Descriptors Inswer contains no economic framework. In answer that does not address the question asked Inswer is lacking in some aspect: Does not explain how education subsidies are used to achieve microeconomic objectives Discusses only one microeconomic objective Makes no reference to case material Discusses only with respect to one country Addresses the question but has tendency to be superficial and lacks depth 			

Mark Schomo

L3	 There is both scope and depth in the answer: Answer is balanced (examines why and how education subsidies are used and the extent to which microeconomic aims are achieved) Discusses at least one aspect of education subsidy in each country that may need adjustment Uses relevant economic framework and diagrams Rigorous development of economic framework Good reference to case data Minor inaccuracies / Antithesis that is not adequately developed 	7-8
E	 For an evaluative conclusion on the differences in outcomes in the two countries and therefore the need for different treatments of education subsidies. Any other evaluation, for example, that the suggested adjustments to subsidies may be at the expense of other economic objectives of government. 	1-2

Case Study Question 2

(a) (i) In which year were consumer prices highest in Greece?	[1]
2012.	
(a) (ii) Calculate UK's real interest rate in 2012.	[1]
Real interest rate = Nominal interest rate – Inflation rate	

= 0.5% - 2.8% = - 2.3%

No calculation: 0 m

Correct formula but incorrect numbers substituted = 0m No % = OK

(b) To what extent were the changes in UK exchange rates affected by changes in its interest rates? [5]

Thesis:

UK interest rates fell in 2009 and remained low thereafter. If interest rates are lower than other countries, it leads to an outflow of 'hot' money. The increased supply of UK pound in the foreign exchange market may cause the exchange rate to depreciate.

If they say fall in demand for UK pound, it must be linked to 'less inflow of hot money'

Anti-thesis:

However, Figure 2 shows an appreciation of the UK exchange rate generally.

In 2009, the exchange rate first appreciated, then depreciated – thus no definite relationship between exchange rate and interest rate.

Possible reason for appreciation: capital account surplus exceeded current account deficit

- From data: huge surge in FDI in 2010
- any other theoretical reason: inflow of hot money (must explain reason)

Conclusion: Simple summation

2 m – thesis

- 1 m identify correctly direction of exchange rate i.e. appreciated
- 1 m explain briefly antithesis
- 1 m simple summarised conclusion
 - (c) (i) Compare the change in the balance on current account for Greece and UK from 2009 to 2012. [2]

Similarity: Both experienced deficits

Difference: But Greece's current account deficit reduced, while UK's current account deficit worsened

No link word: max 1 m Award full credit if similarity is implicit

(c) (ii	ii) Identify and explain one reason for the difference observed.	[3]
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Greece

Factor 1:

Reason: With the recession, the demand for imports fell. Explain: As demand for imports may be income-elastic, the significant fall in import spending assuming unchanged export revenue- may have caused the deficit to reduce

Factor 2:

Reason: Cut in minimum wage (Extract 2)

Explain: It led to a fall in labour costs, thus increasing AS. With the lower inflation, Greece's exports were made more competitive while imports became less attractive. As demand for exports rose and demand for imports fell, the respective rise in export revenue and fall in import spending caused the deficit to reduce [1m].

[not the best answer since Greece's labour productivity was lower but give full credit]

<u>UK</u> Factor 3: Reason: The UK pound appreciated (marginally). Explain: Assuming ML condition fulfilled (PEDx + PEDm) > 1, current account worsens

Other Acceptable Factors:

- Greece lower inflation
- Greece rise in productivity
- Greece "2/3 of competitiveness regained" with 'theoretical' explanation

Any 1 reason:

- reason stated ('Identify') [1m]
- explanation of reason provided [2m]

Candidate attempted 1 reason each for UK and Greece, and as a result, analysis slightly diluted compared to candidate who discussed only 1 reason per se, still award full 3 m

No ML condition: award max 2

(d) Given their current economic conditions, assess whether 'exports can restore growth' in Greece and UK. [8]

Introduction

Objective is to increase economic growth and employment through increased X

Thesis: Exports can restore growth

1. Theoretically, an increase in X increases AD and works through multiplier to increase GDP by more than proportionate

For UK:

Table 1 shows that UK's inflation rate has slowed from 4.5% to 2.8% from 2011 to 2012. If her inflation rate is lower than other countries, this might enhance UK's export price competitiveness in the global market

For Greece

Steps had been undertaken by government to increase X Examples:

- 22% cut in minimum wage \rightarrow lower labour cost may translate into lower Px
- Export procedures simplified halving the no. of days that goods are stuck at ports' (ext 3 para 2) → can export more now for a given time
- Table 1 shows improvement in labour productivity in 2012 → suggests lower unit costs
- Inflation rate also declines steadily from Table 1→ if inflation rate is lower than that of other countries, Greece's exports would be more competitive in global mkt
- As such, Greece had regained 'two-thirds of competitiveness lost in the decade' (Ext 3 para12); X might rise → boost AD

2. It may be increasingly difficult to rely on other components of AD.

- Both countries may be over-reliant on C (Table 1: 74% of Greece's GDP and 66% of UK's GDP). The high unemployment rates especially in Greece may make reliance on C unsustainable. Problem further compounded by Greece's cut in minimum wages.
- As government debt is significantly high for both countries, any further increase in G may also be unsustainable.
 - can also link to need to borrow from public and crowding out of C and I
 - adverse impact on future government spending and future growth or future increase in taxes

Antithesis: Exports cannot restore growth

For UK:

1. Main export markets are weak

Ext 1 para 2 stated that top 10 export destinations are 'depressingly familiar'- mainly Euro-zone which experience slow or negative NY growth \rightarrow slow rise or even fall in DD for UK's exports \rightarrow slowdown or negative NY growth for UK (as shown in Table 1). Further corroborated by UK's worsening current a/c deficit from 2011 to 2012 (fall in X or \uparrow X< \uparrow M)

- 2. UK's appreciating pound (Fig 2) might also reduce X, assuming PEDx>1
- 3. Moreover, UK may lack CA in goods it is producing or goods not competitive enough
 - thus not exporting enough to 'vast and fast-growing' China which has higher NY growth & large population
 - conditions not in place: Ext 1 para 3 mentioned that for UK to shift focus from 'a spendthrift, consumer-led economy to an exporting powerhouse' was 'always going to take time'. Need for supply-side measures to boost competitiveness

For Greece:

- 1. weak EU export mkts
- 2. Compared to UK, Greece might face more problems. Though some level of competitiveness had been regained via cut in min wage, Greece is constrained by her lack of ability to devalue her own currency to gain greater price advantage (Ext 1 para 4)
- 3. Moreover, Greece lacked 'medium and large export-oriented enterprises' → may suggest a lack of IEOS and insufficient export price competitiveness

Synthesis:

The possibility of exports restoring growth may be more pessimistic for Greece largely due to inability to devalue currency and also other 'deep seated problems' such as public finance mismanagement & 'weak administrative capacity' which might hamper development of helpful policies to increase X.

Level	Descriptors
1	Largely irrelevant
(1-3 m)	Smattering of few valid points
2 (4-6 m)	 T-A approach with evidence of theoretical framework and some use of case h/r insuff scope and depth minor conceptual inconsistencies answer tends to be skewed reference to case material can be better
3 (7-8m)	 T-A-S approach with sound use of theoretical framework and ample use of case some attempt to synthesise (egg make comparison btw UK and Greece) showing some awareness of possibly differing problems

(e) To what extent does the evidence show a need for increased government involvement in both economies? [10]

Thesis: Evidence shows a need for increased govt involvement

Data: weak economic performance especially negative or weak GDP growth and higher unemployment rates for both UK and Greece.

- should explain the repercussions of prolonged recession and higher UN if govt doesn't intervene more
 - pessimism, hysteresis, inefficient use of resources
- 1. Need for More Policies/Different Policies
 - For UK, expansionary MP or QE since 2009 seemed to have limited effect to boost UK's econ growth ('little sign in the hard data that the economy has turned the corner', Ext 1 para 2).
 Theoretically, QE, along with very low r/i should boost C+I+X to boost NY and reduce UN.
 - Evidence suggested that UK's X didn't grow.
 - ◆ UK's widening current a/c deficit might imply ↓X. Ext 1 para 2 stated that companies were not 'making rapid inroads into profitable new markets'.
 - ✤ Fig 2 also showed pound appreciating for some time btw mid Jan 2011 2012.
 - All these suggest that UK govt might need to do more to boost NY growth and reduce UN and therefore make further adjustments to current policies/growth strategies.
 - More QE or maintain low/lower r/i to further raise C+I. Also helps to exert downward pressure on pound to help ↑X.
 - Evidence suggested that UK govt aimed to adopt a more export-oriented growth strategy (Ext 1: 'from a spendthrift consumer-led economy to an exporting powerhouse')
 - Egg: target more export markets (non-EU). Perhaps UK govt needs to aggressively export to emerging economies such as China to capitalize on her fast growing economy with large population, rather than to concentrate on the weak (& smaller?) EU export market → Higher X, and higher % of X of GDP.
 →might 'help build up a more sustainable business model for the country'
 - More sustainable because the current low r/i policy which had been prolonged for 3 years (Fig 1) might bring abt detrimental effects on UK's LT growth by punishing savers and encouraging (indiscriminate?) borrowing
 - For Greece, falling real GDP might have been due to fall in C, I and X → calls for more govt involvement to help ↑ these components
 - In particular, her low net FDI inflow (Table 1) poses a cause for concern. Gross fixed K formation also forms a very low% (only 14%) of her GDP.
 - ❖ Greek govt cannot really rely on C to drive econ growth. Cut in min wage is 'squeezed' by higher taxes, in view of austerity drive → reduce C. Currently, C forms a large (74) % of her GDP. Like UK, Greece govt might need to do more to adjust growth strategies → switch to more export-oriented and investment-driven growth strategy
 - Extract 3 also stated that Greece regained 2/3 of competitiveness that was lost in the past. Govt might need to do *more* as her X+I is still not rising enough to bring about ↑ in real GDP and ↓ in UN.
 - To boost X+I: Greek govt might consider doing <u>more</u> to cut inefficiencies associated with bureaucracy ('negotiating Greek bureaucracy is a headache, though some failings are already being tackled.' Ext 3 para 2).
 - →With more simplified procedures, more investors such as export-oriented enterprises would be willing to set up their businesses
 - Higher X+I means more chance of sustained econ growth as both AD and AS can grow. UN can fall too.
 - Like UK, Greek govt should target more export markets: cannot depend on weak Euro area.
 If successful, may help ↑(X+I)'s share of GDP too

Antithesis: Evidence shows less need for increased government involvement

- 1. For UK's exp MP: increased govt involvement may not be needed. There is a limit to how much lower r/i can be cut. Fig 1 shows r/i is already very low at 0.5%.
 - Moreover, cutting r/i further → fear of un-sustainability →may create more problems in future: ' rock-bottom interest rates not without risks...punishing savers and encourage (indiscriminate) borrowing' (Ext 1 para 4) due to possible negative real r/i → may have detrimental impact on LR growth
- 2. For both UK and Greece, increased govt involvement via exp FP to boost NY may not help.
 - Table 1 showed high and generally rising govt debt to GDP ratios btw 2009-2012 → more G and lowering T to boost economy only result in budget deficit → borrowing → crowding out, higher debt
- 3. For Greece: evidence reflected 'deep-seated' problems of govt sector such as 'weak admin capacity, public finance mismanagement', bureaucracy →Suggests that there is less need for increased govt involvement
 - ✤ More government involvement might bring about more costs than benefits → greater inefficiency (govt failure)
 - For example, if Greek govt nationalize the export enterprises, the above weaknesses of govt management might result in greater inefficiency which won't help increase X

Instead evidence hinted at the Greek govt reducing govt involvement →had adopted or looking into more market-oriented policies. Egg:

- Reduced min wage (ext 1 para 1)
 - ✤ Wages allowed to be flexible in accordance to mkt forces; helped lower COP
 - Considering privatization programme (ext 3 last para)
 - ✤ Previously govt-owned enterprises now privately-owned → aim: profit-motivated → firms driven to be productive efficient (lower AC) and improve on quality of g/s to increase DD
 - ✤ Usually accompanied with deregulation → lower BTE to inject more competition → enhance efficiency
 - may improve labour productivity further (Table 1)

Harness the free market forces/signals/incentives to drive economy to achieve efficiency instead of relying more on weak & incapable govt management

Synthesis/Conclusion

Some ideas

- Perhaps need for tweak in polices or changes in policies
- Might also be too premature to tell if austerity measures are working or not working to restore confidence
- Increasing govt involvement poses more challenge for Greece than for UK. Being part of EU means Greece is incapable of adopting its own ER policy and independent exp MP. Even exp FP & interventionist SS-side policies might be difficult due to its very high govt debt (Table 1). As such, Greece govt might turn to more 'market-based' solutions egg privatization.

Level	Descriptors
1	Smattering of few points
(1-3 m)	Irrelevant answer
	No theoretical framework nor use of economic concepts
2 (4-6 m)	Balanced answer but limited scope in terms of economic aims, issues and policies
3 (7-8m)	Sensible, clear, balanced and well-elaborated discussion with respect to whether case evidence & data shows govt should increase involvement for both countries Good scope on economic aims & issues as well as policies (egg QE, austerity, privatization etc.) Able to relate to a full range of data & evidence to develop answer
E1 (1 m)	Mainly unexplained judgment.
E2 (2 m)	Judgment based on analysis; good effort at substantiation.

Essay Questions

3

Analysts predicted that political instability in the Middle East and a possible recession in the European Union would result in greater price volatility in the oil markets.

- Source: The Straits Times, 16 Feb 2013 (a) Explain why prices fluctuate more significantly for some goods and services than others. [10]
- (b) Discuss the usefulness of price elasticities to producers and governments to help them achieve their economic goals. [15]

Suggested Approach:

(a)

- Prices are determined by DD and SS factors.
- Prices change when DD and SS conditions change. The extent to which prices change depends not only on the magnitude of the shift of DD and SS curves, but also PED and PES.

When DD shifts, PES matters.

For example,

- In Singapore, when income increases, DD for big ticket items such as private housing increases.
- When there is a global economic boom, demand for commodities such as oil increases as it is a major source of energy in the production of goods and services.
- When less developed countries such as China and India enjoys strong economic growth, demand for goods such as rice would increase substantially.

Adjustment process (with diagram)

- When DD increases, there will be a shortage at the original price P1, exerting upward prices.
- The extent to which prices increases depends on how responsive producers are to price changes, that is, PES.
- In the SR, resources tend to be immobile. This means that it takes time for profit-driven producers to shift factors of production to a sector where demand is higher and hence prices are higher (in this case, private housing, oil, rice etc.) from sectors where demand is relatively lower and hence less profits can be made. Hence supply tends to be price inelastic.
- Furthermore, PES also depends on length and complexity of production. For example, the
 production of manufactured products textile tends to be relatively simple. The labor is largely
 unskilled and no special production facility or expertise is needed. In contrast, it takes a long
 time to build condominiums and for agricultural products such as rice to growth. Oil
 production is a multi-stage process that requires specialized equipment, skilled labor, a large
 supplier network and large R&D costs. As such the PES tends to be of a much smaller value.
- Moreover, producers may be operating close to full capacity and have limited inventory to cater to sudden increase in demand.
- As such, when SS is price inelastic, producers are less able to respond to price changes that stem from changes in DD. With a steep SS curve, prices tend to increase more than proportionately for a given increase in DD. In contrast, when SS is price elastic, the SS curve is gentler, and prices increase less.

When SS shifts, PED matters.

For example,

When there are supply shocks, production of goods and services will be disrupted, leading to a fall in supply. Examples include political instability in the Middle East and natural disasters such as droughts and floods in major agricultural producing countries such as China, Thailand and Australia.

To maximize their profits, producers such as OPEC may also limit their production.

Adjustment process (with diagram)

- When SS decreases, there will a shortage at original price P1, exerting an upward pressure on prices.
- The extent to which prices increases depends on how responsive consumers are to price changes, that is, PED.
- Demand for goods such as primary products (rice, oil, copper) tends to be price inelastic.
- These products are necessities. For Asians, rice is their staple food. Oil is a major source of energy and copper is needed for the production of wires for example.
- While there are substitutes (other sources of carbohydrates, hydro/nuclear/solar energy, other metals) they are not close ones. Furthermore, it takes time for consumers to change their tastes and preferences, or firms to devise new ways to utilize alternative factors of production as efficiently. Hence, they are less responsive to price changes especially in the SR.
- As such, when DD is price inelastic, consumers are less able to respond to price changes that stem from changes in SS. With a steep DD curve, prices tend to increase more than proportionately for a given decrease in SS. In contrast, when DD is price elastic, the DD curve is gentler, and prices increase less.

Theoretically, prices fluctuate most for products whose PED and PES are of small values. For example, oil. Referring to the preamble, when there is a global economic boom/recession, income level changes and demand for oil will increase/fall. Given that SS is price inelastic, prices would change more than proportionately. At the same time, with political instability in the Middle East, oil production will be disrupted. Given that DD is price inelastic, a fall in supply would lead to a more than proportionate increase in prices. Hence, given their nature, products such as oil would be subject to more price volatility.

L3	A clear and developed economic analysis of DD and SS concepts +	7-10
	both PED and PES + Appropriate examples	
L2	Economic analysis using DD and SS concepts +	5 - 6
	Underdeveloped application of PED and PES; OR	
	Clear but one sided application of PED or PES	
L1	Smattering of ideas why prices change more with no/minimal reference to elasticity concepts. For example, just using DD and SS concepts.	1-4

(b)

Producers are generally profit driven. Since profit is defined by Total Revenue – Total Cost, profitmaximizing producers seek to increase revenue and/or lower costs.

PED is relevant in their pricing decisions.

When the DD of a product is price elastic, producers will lower prices by increasing output. Revenue will increase as Qd increases more than proportionately compared to decrease in price. DD tends to be price elastic when there are many close substitutes available, for example, bubble tea shops or provision stores.

(Show using graph. Gain in revenue is greater than loss of revenue when prices fall)

When the DD of a product is price inelastic, producers will increase prices by withholding output. Revenue will increase as prices increase more than proportionately compared to decrease in Qd. DD tends to be price inelastic when the products are necessities and/or there are few close substitutes available. For example, producers of oil such as OPEC and electricity companies tend to raise prices if there is no government intervention. Florists raise prices of roses as Valentine's Day as draws near. Companies such as M1, Singtel and Starhub or Samsung and Apple will seek to lower the substitutability of their products through advertising and R&D. This will allow them to charge higher prices to earn higher revenue.

(Show using graph. Gain in revenue is greater than loss of revenue when prices increase)

PED is relevant in determining the incidence of taxes/subsidies or rise in COP.

For example, when the government imposes indirect tax, its impact is always on the producer. But the incidence (burden) can be shifted to the consumer through an increase in the selling price. An indirect tax will cause the supply curve S0 to shift to the left and upwards. However, the increase in price of consumers (ab) is less than the tax (ac). The tax incidence on producers will be bc, while consumers bear tax incidence ab.

The more price in elastic the demand, the more the consumers bear and the less producers bear. This is because if the product is a necessity with few close substitutes, consumers could not reduce their consumption substantially. In addition, if the expenditure on that good takes up only a small percentage of consumers' income, an increase in prices would not substantially affect their purchasing power, and hence consumers are less responsive to price increases.

As such, the impact on producers' profits will be less affected by taxes if the PED of its products is of a lower value.



Note:

- This is also application for subsidies or an increase in cost of production.
- For simplicity, the example above centers around PED. For more advanced students, they can explore the relative elasticities between DD and SS

For governments, their objectives include microeconomic goals such as equity and allocative efficiency, as well as macroeconomic ones such as sustainable economic growth, low unemployment and healthy BOP.

<u>MICRO</u>

- Governments may use tax as a tool to make markets internalize negative externalities associated with demerit goods. For example, entrance levies are imposed at casinos to control gambling and taxes are imposed on cigarettes to deter consumption. ERP are also imposed on drivers to address the problem of congestion. This will shift the MPC upwards closer to MPC as the Q falls and approaches socially optimal output Q* where MSC = MSB to arrive at allocative efficient outcome. (show graph).
- The success of using taxes to address overconsumption of demerit goods may depend on PED. Gambling and smoking tend to be addictive in nature. With increasing affluence, driving is regarded more as a necessity than luxury for many Singaporeans. As such, the taxes/charges imposed must be substantially high to reduce consumption appreciably. This can be politically unpopular.

Other micro ideas:

- PED affects amount of tax revenue governments can obtain
- PED and PES affects the outcome of price controls such as price ceilings and floors.

• PED affects the success of cooling measures by the government to make housing more affordable (to achieve equity).

MACRO

- For countries with an exchange rate-centered monetary policy such as Singapore, PED of exports and imports is relevant.
- For example, during a recession, MAS may allow the exchange rate to weaken to boost export revenue (and reduce import expenditure) to correct a worsening current account.
- A weaker currency means export prices fall in foreign currency. How much Qd increases depends on PED. For Singapore, PEDx >1 arguably given that Singapore produces nonessential goods with close substitutes in the global market. As such, export revenue will increase with a weaker ex/r.
- On the other hand, import prices will increase in domestic currency. How much Qd falls depends on PED? For Singapore, PEDm >1 arguably given that Singapore is a resource poor country highly dependent on imported food, fuel and other factors of production. As such, Qd may not fall significantly. Import expenditure may even increase with a weaker currency.
- As such, whether current account will improve with a weaker currency depends on PED of its exports and imports, or more specifically, whether Marshall Lerner condition, that is, PEDx + PEDm>1 is fulfilled.
- In the SR, countries may be subjected to the J-curve effect, that is, BOP may worsen before eventually improving in the LR as ex/r weakens. This is due to producers' contractual agreements and that it takes time for consumers to change their tastes and preference.

Other micro ideas:

• Interest rate elasticity affects the outcome of monetary policies.

However, there are limitations to elasticity concepts.

In general

- Ceteris paribus assumption does not hold in reality. It assumes that only one factor is changing while others are kept constant. In reality, multiple factors are changing and interacting together instead of separately. For example, producers may change prices based on the PED of their products, but other variables such as consumers' taste and preferences, rivals' pricing decisions, and income levels are changing at the same time, influencing the outcome.
- It is difficult to calculate the exact elasticity value. For example, different groups of consumers may have different tastes and preferences or purchasing power. Furthermore, it is challenging to ensure that the data that producers/governments collect is still relevant given the ever-changing tastes and preferences of consumers. As such, any estimation of elasticity values based on this data may not be accurate.

Specific to the policies

- Producers may use elasticity concepts to increase their revenue. However, profits also involve costs issues, and elasticity concept is limited in this regard. For example, while producers seek to lower their PED value through advertising, this inadvertently increases costs. These considerations should also be factored in when producers seek to maximize their profits.
- PED is relevant to governments when they impose taxes to limit the consumption of goods with negative externalities. However, the more important factor that determines the success of the policy is whether the government is able to estimate the marginal external cost (MEC) accurately. An over/under estimation would lead to under/over consumption and hence allocative inefficiency is not rectified fully.

• While Marshall Lerner condition may influence the outcome of a weaker currency, there are other factors that need to be considered too. For example, during a global recession, incomes of trading partners are falling at the same time. With poorer consumer sentiments and lower purchasing power, a weaker currency does not guarantee higher export revenue. Furthermore, other countries may also resort to retaliatory measures such as currency wars or protectionism that undermines the effectiveness of a weaker currency.

Conclusion

- Elasticity concepts are useful to producers and governments to a certain extent
- However, when applying these theoretical concepts to real-world situation, producers and governments must be aware of its (many) limitations.
- At best, they only provide a rough approximation of the outcomes. Other factors should be taken into consideration to help producers and governments better achieve their economic goals in a more comprehensive manner.

L3	For rigorous answers that explain how the specific elasticity concepts will impact on the effectiveness of policies +	9- 11
	Appropriate diagrams +	
	Limitations of elasticity concepts highlighted +	
	At least one issue each from the producers and governments perspective.	
	To obtain higher mark range of 10-11m, students need to explain 3 policies in detail.	
L2	For one - sided answers that explain how elasticity concepts will impact on the effectiveness of policies but with the following problems:	5 - 8
	 Fails to consider limitations of elasticity Considers only either producers' or governments' economic objectives 	
	OR	
	Balanced answers but lacking in rigour in explanation (no diagrams for example)	
L1	For answers that show some understanding of elasticity concepts and attempts to link to producers' and governments' economic goals but with gaps.	1-4
E1	Mainly unexplained judgement	1- 2
	Explained judgement based on analysis that may consider the following:	
E2	 Which elasticity concept is most important? Governments and producers should also take into account other factors that will impact the effectiveness of their policies How important is elasticity concepts relative to these other factors? 	3 - 4

4

a. Explain how a high inflation rate may affect the economic performance of a country. [10]

Introduction:

- Define inflation persistent and sustained increase in the general price level
- Economic performance measured in terms of effect on the 4 macro-economic objectives and perhaps 2 micro-economic objectives of equity and efficiency in resource allocation
- Focus of answer will be on the macro-economic objectives

Development:

1. Effects on domestic Sector

Effect of Falling Investment on Growth and Employment (any 1 idea well discussed)

- Real value of savings eroded drastically by high inflation and very highly negative real interest rates
 - households less likely to place money in fixed assets that could rise in tandem with inflation, instead of savings
 - thus money not channeled to productive activities
 - fall in supply of loanable funds leads to rise in nominal interest rate as banks need to attract more funds
 - This deters borrowing by firms resultant fall in I affects both AD and AS, thus affecting both actual and potential growth, as well as employment
- Difficulty in forecasting profits due to rapid increase in prices
 - prices of raw materials and wages likely to rise, thus increasing production cost
 - overall demand may fall due to pessimism and fall in purchasing power of money (especially when rise in nominal wages is outstripped by the inflation rate)
 - difficulty in gauging factor cost and demand due to rapid changes may deter investment by firms
 - Note: Consumption may also fall since the same basket of goods and services costs significantly more and most income likely to be spent on necessities
 - this may lead to a further fall in investment as firm anticipate fall in d demand
- smaller issues of menu and shoe leather costs
- 2. External effects
 - If country A has a higher inflation rate than trading partners, Cty A's exports will be less competitive and imports will be more attractive to Cty A's residents. Thus the latter switch to imports instead of domestic goods. The respective fall in demand for exports and rise in demand for imports leads to a fall in total revenue from exports and rise in total import expenditure. This could lead to a worsening trade balance and even a deficit. The fall in X-M affect growth and employment.
 - Moreover, the rise in supply of the domestic currency in the foreign exchange market and fall in demand for Cty A's currency leads to a depreciation of the exchange rate.
 - In a freely floating system, a depreciating exchange rate could lead to further depreciation as speculators sell the currency for fear of further weakening.
 - Some negative effects: fall in investment; increase in price of imported raw materials that add to production cost

- If exchange rate is managed, the Central Bank will need to sell foreign exchange reserves to mop up the surplus of domestic currency. This presents an opportunity cost as the reserves will be tied up and cannot be used in reads that could aid development e.g. Infrastructure.
- Effects on FDI
 - rising costs and lack of confidence in the government and business prospects may reduce increase in I by MNCs.

L3	7-10	 Rigorous use of theoretical framework Able to link amongst the macro-economic objectives
L2	5-6	 Use of theoretical framework but with some gaps in analysis Weaker link amongst macro-economic objectives e.g. growth and employment, balance of trade and growth or balance of trade and exchange rate
L1	1-4	No theoretical framework i.e. not linked to components of AD nor AD-AS analysis

b. To what extent is a reduction in government spending the best way to tackle the problem of rising inflation? [15]

Introduction:

best way seen in terms of effectiveness and repercussions

Development:

- Thesis: Reduction in government spending can reduce inflation
 - Explain how it works using an AD-AS diagram
 - fall in G reduces AD, thus AD curve shifts leftwards, thus reducing the demand-pull inflation
- May be a good way:
 - targets demand-pull inflation associated with a booming economy
 - especially if the inflation is domestically induced and the government or if the country is too export-reliant to want to use exchange rate to bring about a fall in X
 - effects more predictable compared to rise in taxes or interest rates as optimism may not reduce private sector consumption significantly
 - does not affect incentive to work and resultant effects on productivity unlike a rise in income taxes

Anti-thesis:

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- A. Problems and repercussions:
 - does not target inflation due to cost factors
 - longer time lag than MP, and reverse problem of recession
 - inflexibility of reduction in government spending
 - less on merits goods and public goods can affect efficiency in resource allocation and welfare
 - less on infrastructure can affect productive capacity and potential growth, and reduce ability of economy to moderate and future increases in AD on inflation
 - repercussion: possible fall in economic growth and employment
- B. Thus need for other measures
 - 1. To tackle demand-pull inflation:

Policy: rise in personal income taxes and rise in interest rates (explain how they work)

- More effective
 - ✤ If C and I large % of GDP
 - use of interest rate shorter implementation lag
 - interest rate has the added effect of reducing X-M in a freely flexible exchange rate and free capital flows
 - ✓ inflow of hot money causes exchange rate to appreciate and this can reduce both demand-pull inflation and imported cost-push inflation
 - less of the problems of fall in G, as discussed earlier
- similarity: fall in economic growth and employment
- C. Policies to target cost-push inflation
 - 1. Appreciation of exchange rate (context of Singapore)
 - explain how it works: Pm fall in local \$ imported raw materials cheaper thus AS rises, reducing imported cost-push inflation Problems:
 - erodes export price competiveness and cause balance of trade to worsen and affects growth (ML condition)
 - in the context of Singapore, can only afford a modest appreciation due to reason above, thus not able to eradicate sharp rises in import prices due world-wide food and commodity shortage

- 2. Incomes Policy
 - wage freeze and wage cuts ensure wage increase lags behind productivity increase: pre-empt fall in AS
 - coupled with reduction in power of trade union
- 3. Use of LT supply-side policies e.g. Education and training and r& d
 - fall in COP and rise in productive capacity increase AS and moderates inflation
 - Benefits: allows for sustained growth
 - Problems:
 - long time lag
 - may not yield results
 - need huge investment
 - take-up rate for government subsides may be low as firms also need to incur expenditure

L3	 3 policies well discussed that address inflation due to both demand and cost factors solid theoretical framework 	9-11
L2	 any 2 polices discussed that address inflation due to both demand and cost factors use of appropriate theoretical framework but some gaps in analysis Response may be slightly skewed 	6-8
L1	Lack of theoretical frameworkSmattering of ideas	1-5
E2	Insightful comments or consistent efforts to compare amongst policies	3-4
E1	Simple opinion e.g. Prescribe appropriate policy to target different root causes Some attempt to compare policies using link words e.g. unlike a fall in G,	1-2