

### **Essay Question 4:**

**During the pandemic, there was a fall in investment and a rise in unemployment. Innovation-based investment is a good way to stimulate the economy but, unless appropriate government policy action is taken, this might lead to another type of unemployment.**

**(a) Explain how a fall in investment might lead to one type of unemployment while a rise in innovation-based investment might lead to a different type of unemployment. [10]**

**(b) Discuss the extent to which a rise in Singapore government spending on investment in major capital projects and in human capital are both required to reduce unemployment in a post-pandemic world. [15]**

Suggested ans (a)

#### **Introduction**

**Define unemployment:** Unemployment level (of labour) refers to the number of people in the working age population who are actively looking for work but are without a job.

A fall in investment would result in **demand-deficient unemployment** which occurs when there is inadequate demand for a country's goods and services, which results in an excess supply of labour at the existing wage rate.

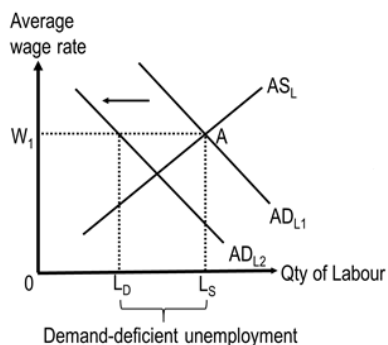
On the other hand, a rise in innovation-based investment would lead to **structural unemployment** which occurs when there is mismatch of skills between the unemployed and the job opportunities available.

#### **Development**

##### **Devt 1: Explain how a fall in investment leads to unemployment**

A fall in investment expenditure leads to a fall in aggregate demand (AD) since  $AD = C + I + G + (X - M)$ . This results in a surplus and a rise in inventories at the original general price level which signals to producers to decrease output. This creates a downward pressure in GPL. The fall in income from the initial fall in AD causes a fall in income-induced consumption resulting in a further decrease in AD. As one's reduction in spending reduces income of another there will be multiple decreases in AD until a new equilibrium is reached, whereby real output falls by a multiplied amount.

The fall in real output would imply that firms cut back on their production. As demand for labour is a derived demand, the aggregate demand for labour falls to  $AD_{L2}$  as shown in Figure 1. Assuming wages are sticky downwards due to contractual agreements, real wage remains at  $W_1$  creating an excess supply of labour. Demand-deficient unemployment results and is represented by the gap  $L_D L_s$ .

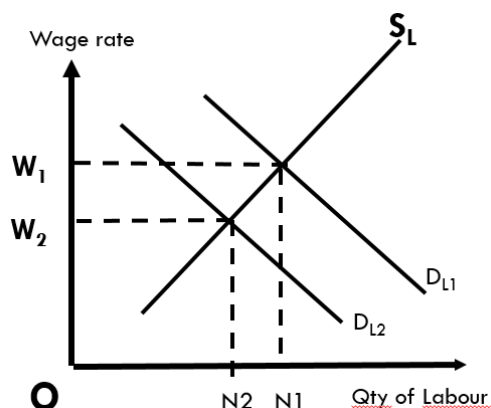


**Figure 1: Demand-deficient unemployment**

**Devt 2: Explain how a rise in innovation-based investment would lead to unemployment**

However, on the other hand, a rise in innovation-based investment would lead to structural unemployment. Innovation-based investment could lead to adoption of more advanced technology and new production processes that would require highly-skilled workers with the specialised knowledge.

There will be an increase in demand for high-skilled workers. At the same time, innovation-based investment would cause some of the existing jobs to be obsolete as technology replaces it. This brings about a fall in demand for low-skilled workers to  $D_{L2}$  as shown in the diagram. The  $N_1N_2$  workers who are retrenched lack the relevant skills and therefore are not able to take up jobs requiring higher skills that are available, giving rise to structural unemployment.



**Figure 2: Decrease in demand for low-skilled workers**

**Conclusion**

Thus, the fall in investment and the rise in innovation-based investment has led to demand-deficient and structural unemployment in Singapore respectively. The Singapore government could intervene by implementing appropriate policies to address the root cause of the problem.

Mark Scheme		
Level	Descriptors	Marks
L3	For a response which shows strong economic analysis and application in terms of how the fall in investment AND the rise in innovation-based investment led to unemployment in SG.	8 – 10
L2	For an under-developed explanation. Appropriate economic concepts and analysis is used but application is lacking.	5 – 7
L1	For an undeveloped answer with a listing of points	1 – 4

**(b) Discuss the extent to which a rise in Singapore government spending on investment in major capital projects and in human capital are both required to reduce unemployment in a post-pandemic world. [15]**

### Introduction

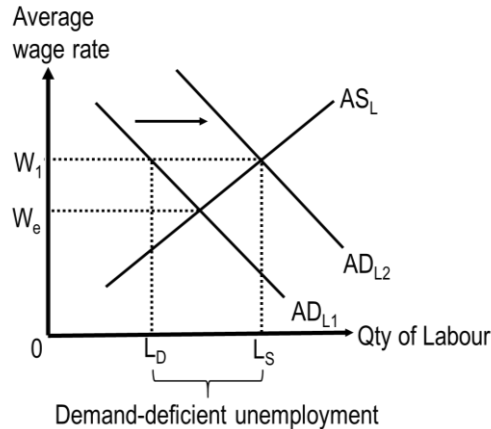
The rise in Singapore government's spending on investment in major capital projects and in human capital are both required to reduce both demand-deficient unemployment and structural unemployment in a post-pandemic world. However, the government could also be facing limitations in doing so.

### Policy 1: Effectiveness of SG gov't's investment in major capital projects in reducing unemployment

**[What it is]** Investing in major capital projects would bring about an increase in government expenditure and thus AD since  $AD = C + I + G + (X-M)$ .

**[How it works]** As AD rises, this results in a shortage and a fall in inventories. This provides an incentive for producers to increase output to meet demand. The rise in income from the initial rise in AD causes a rise in income-induced consumption resulting in a further increase in AD. As one's spending becomes another's income there will be multiple increases in AD until a new equilibrium is reached whereby real output increases by a multiplied amount. The real national income increases by the full multiplied amount assuming spare capacity exists.

Firms will produce more goods and services due to the increase in real output. As such, they need to hire more factors of production like labour resulting in a rise in the aggregate demand for labour rises to  $AD_{L2}$ . This brings about an increase in employment from  $L_d$  to  $L_s$ . Demand deficient unemployment is eliminated, thus unemployment rate falls.



**Figure 2: Decrease in demand-deficient unemployment**

**[How well it works]** In light of a post-pandemic world, Singapore is likely to be operating with a certain degree of excess spare capacity. Thus, the increase in government expenditure will bring about a full multiplier effect, which will therefore help to ensure greater effectiveness in addressing demand-deficient unemployment in Singapore.

**Evaluation: [Criterion]** Nature of SG's economy **[Opinion]** However, in the context of Singapore, a very large increase in government spending would be needed to overcome the limitation of a small multiplier size. **[Reasoning]** Singapore's multiplier size is relatively small as the size of its marginal propensity to withdraw is high. Singapore has high saving rates due to its compulsory savings via CPF contributions by their people and high marginal propensity to import due to its lack of natural resources. For a given increase in income, the amount spent on domestic goods and services to generate subsequent increase in income will be smaller. Hence, for the policy to significantly reduce demand-deficient unemployment, a large increase in government spending will be needed to achieve a large increase in real national income and consequently the large increase in aggregate demand for labour.

#### **Policy 2: Effectiveness of SG govt's investment in human capital in reducing unemployment**

**[What it is]** Investing in human capital could be done via providing or subsidizing education and training programmes in Singapore. This is an example of a supply-side policy.

**[How it works]**

Figure a: Labour market for low-skilled workers

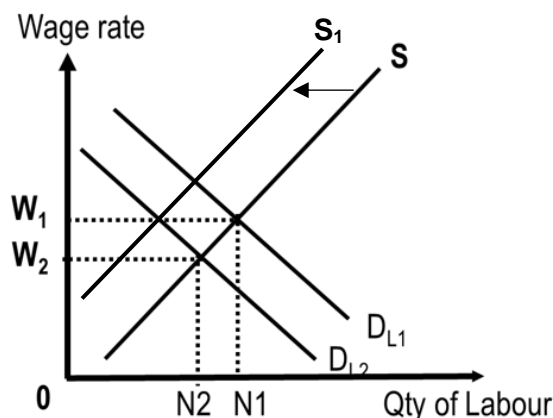
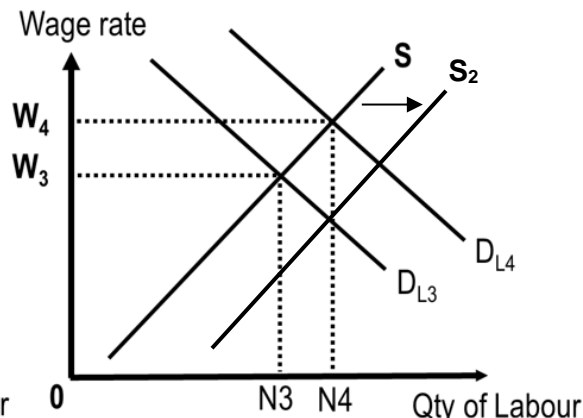


Figure b: Labour market for high-skilled workers



**Figure 4: Decrease in structural unemployment**

With education & retraining, labour productivity and mobility increases, allowing workers to be more employable. Moreover, as workers are equipped with more relevant skills, this will help to reduce the mismatch of skills and thus, improve labour mobility across industries. This leads to a fall in supply of low-skilled workers to  $S_1$  in Figure 4a. At the same time, the supply of high-skilled workers increases to  $S_2$  as shown in Figure 4b as these workers who have undergone training are now able to take on the higher-skilled jobs. This reduces the problem of structural unemployment.

**[How well it works]**

However, education & training takes time to see effect. Thus, it would not be very effective in addressing structural unemployment in the short run. In addition, the effectiveness of this measure is uncertain as it depends on the receptivity of the workers. If workers are less receptive, this would limit the extent of increase in labour productivity and mobility and thus effectiveness in addressing structural unemployment in Singapore.

**Evaluation: [Criterion]** Context – State of Economy **[Opinion]** However, in the context of a post-pandemic world, there might be much motivation for the unemployed to be more receptive to education and training. **[Reasoning]** There are a lot of uncertainties in terms of job availability and even suitability. Businesses may have folded or have reorganised and transitioned to other modes of production to cope with the manpower crunch and changing demands for goods and services during the pandemic. Hence, for those who were retrenched during the pandemic, their skills may no longer be relevant or may not be as in demand as before. Hence there is much motivation to pick up new skills in order to secure a job to ensure their basic needs are met.

### Conclusion

**[Criterion]** Context – Severity of the types of unemployment **[Opinion]** Both policies are required to a large extent to address unemployment in Singapore as it tackles the 2 different causes of unemployment brought about in a post-pandemic world. **[Reasoning]** While in a post-pandemic world, trade and tourism have resumed, recovery of economies are still shaky and hence the related industries may not be recovering to pre-pandemic times yet. Hence, the rise in government spending on investment in major capital projects ensures certainty in outcome as opposed to purely relying on increases in consumer demand and exports. At the same time, to ensure success in addressing structural unemployment in a post-pandemic world where use of new technology such as digitalization is accelerated, the government will need to complement investing in human capital with job market research to identify the skills that would be most relevant in times of a post-pandemic world.

Mark Scheme		
Level	Descriptors	Marks
L3	For a response which shows strong economic analysis and application in terms of how effective the 2 policies are in addressing the 2 different types of unemployment in Singapore in a post-pandemic world.	8 – 10
L2	For an under-developed explanation. Appropriate economic concepts and analysis is used but application is lacking. Recall the 2 requirements: <ul style="list-style-type: none"> <li>✓ Investment in major capital projects in addressing demand-deficient unemployment</li> <li>✓ Investment in human capital in addressing structural unemployment</li> </ul>	5 – 7
L1	For an undeveloped answer with a listing of points	1 – 4
E3	For an answer that builds on appropriate analysis to evaluate the extent to which both policies are needed in addressing unemployment in Singapore in a post-pandemic world.	5
E2	For an answer that makes some attempt at evaluation of a conclusion that answers the question but does not explain the judgement or base it on analysis.	3-4
E1	For an answer that gives superficial evaluative statement(s) without supporting analysis and elaboration.	1-2