

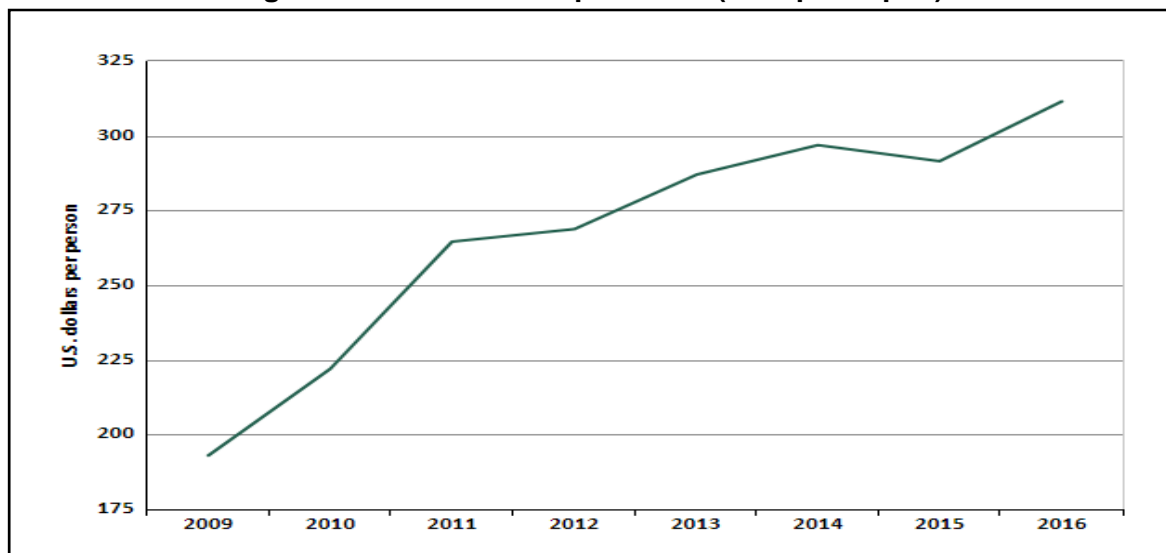
Question 1: India's Troubles

Figure 1: Food price changes in India



Source: Trading Economics, accessed 26 July 2018

Figure 2: India's food expenditure (USD per capita)



Source: Knoema, accessed 7 August 2018

Extract 1: Rising food prices to hit rural India

India's villages will face a sharp spike in food prices in 2016, as a second year of drought drives up the cost of ingredients such as sugar and milk, and poor transport infrastructure stops falling global prices from reaching rural areas.

Prices of vegetables like onions, tomatoes and potatoes have already been rising, with some staples up as much as 20 percent in a month. Palm oil prices have also climbed in the last two months, while milk prices have risen by 10 percent. Food accounts for more than 50 per cent of rural consumer price inflation in India, compared with a third of urban inflation, while categories like fuel, which has seen a considerable price drop, has a much smaller impact in rural areas, where families use firewood or biogas from manure.

Source: Reuters, 10 November 2015

Extract 2: Rising food prices push India's December retail to 17-month high

Rising food prices pushed India's retail inflation to a 17-month high in December, breaching the central bank's medium-term target for the second straight month, which could intensify pressure for it to raise interest rates in the next few months.

India's measure of consumer price inflation, the CPI index, rose 5.21 percent in December from a year earlier, against a backdrop of faster economic growth, the Ministry of Statistics said on Friday. Annual retail food inflation rose 4.96 percent in December from 4.35 percent in the previous month.

The Reserve Bank of India (RBI) held its interest rate steady at 6.0 percent last month and said all possibilities were on the table, depending on how price pressures and growth panned out. The RBI, which has a medium-term inflation target of 4 percent, has raised its inflation estimate to 4.7 percent for the six months through to March 2018. But some analysts feel inflation could overshoot its estimates, forcing the central bank to change its policy stance.

Analysts said any sharp rise in government spending in the budget that fuels inflation could force the central bank to raise rates earlier than expected. The world's seventh largest economy is expected to grow at 6.5 percent in the current fiscal year ending in March but a continued rise in inflation has alarmed policymakers in New Delhi. To make matter worse, crude prices have rallied, sending Brent crude above \$70 a barrel on Thursday for the first time since December 2014, which is a worry since India imports most of its energy needs.

Source: Reuters, 12th Jan 2018

Extract 3: Pollution in India

A recent report from the World Health Organization (WHO), drawing on measurements and calculations as of 2016 from air monitoring stations in 4,300 cities, establishes clearly that air pollution is a global problem. A whopping nine in ten people on Earth breathe highly polluted air, and more than 80 percent of urban dwellers have to endure outdoor pollution that exceeds health standards, according to the WHO's World Global Ambient Air Quality Database.

But there are certain places on the planet where the air is now consistently, epically terrible. India, for instance, is home to 11 of the 12 cities with the highest levels of particulate pollution.

Two-thirds of India's population lives outside of cities, and 80 percent of these households rely on biomass like wood and dung for energy needs. The smoke released from these activities then waft over major cities such as Chennai and Mumbai, where it mixes with traffic exhaust, factory emissions, and construction dust. India's hills and mountains also act as basins that trap such toxic air over the country, leaving few areas in the country where Indians can breathe easy.

An emergency air-quality warning system was created in 2016 to warn citizens residing in the capital territory of Delhi of hazardous levels of air pollution. Delhi residents would receive an alert, warning them that air quality index (AQI) readings were breaching danger levels and that they ought to safeguard their health.

Source: adapted from Vox, 9th June 2018

Extract 4: India to clean up its air

According to Veerabhadran Ramanathan, professor of Atmospheric and Climate Sciences at Scripps Institution of Oceanography at University of California, there are three main solutions that can have maximum impact on air pollution in India. One, cleaner sources of energy need to be subsidised, two, pollution rights need to be issued and three, banning open burning of fossil fuels and biomass. It may take a long time but Ramanathan thinks that this would greatly reduce the air pollution in India, if done correctly.

Source: Adapted from World Health Organisation, 7th July 2016

Extract 5: Singapore not on track to achieve WHO targets

Singapore is not on track to achieve its air quality targets by 2020 which are benchmarked against the guidelines set by the World Health Organization (WHO). According to figures from the Ministry of the Environment and Water Resources (MEWR), in the past two years, Singapore fell short in meeting its targets for pollutants such as fine particulate matter (PM_{2.5}), particulate matter (PM₁₀) and ozone. Industries, power stations, and motor vehicles are the main sources of air pollution. However, these are essential functions we cannot forego. Speaking at a pre-Budget focus group discussion, Minister for the Environment and Water Resources, Mr Masagos Zulkifli, said Singapore is committed to finding ways to address air pollution.

To ensure good air quality, Singapore sets emission standards which have been progressively tightened over the years. Before industries are allowed to operate in Singapore, they are screened to ensure that they do not pose un-manageable pollution problems and health and safety hazards. In addition, they have to incorporate pollution control measures to comply with the National Environment Agency's (NEA) air emissions standards and regulations. All new vehicles in Singapore have to meet minimum emission standards while existing vehicles on the road are required to undergo regular inspections to ensure that they do not emit excessive smoke.

The carbon tax is an important step to sustain Singapore's clean, green and liveable environment. The Minister for Finance announced at Budget 2017 plans to introduce a carbon tax from 2019. The tax will be applied on facilities that emit 25,000 tCO_{2e} or more of greenhouse gas (GHG) emissions annually. To give the industry more time to adjust and implement energy efficiency projects, the tax will start at \$5/tCO_{2e} in the first instance, from 2019 to 2023. The first payment of the carbon tax will be in 2020, based on emissions in calendar year 2019.

Source: www.channelnewsasia.com, 26 January 2017 & National Climate Change Secretariat, 19 February 2018

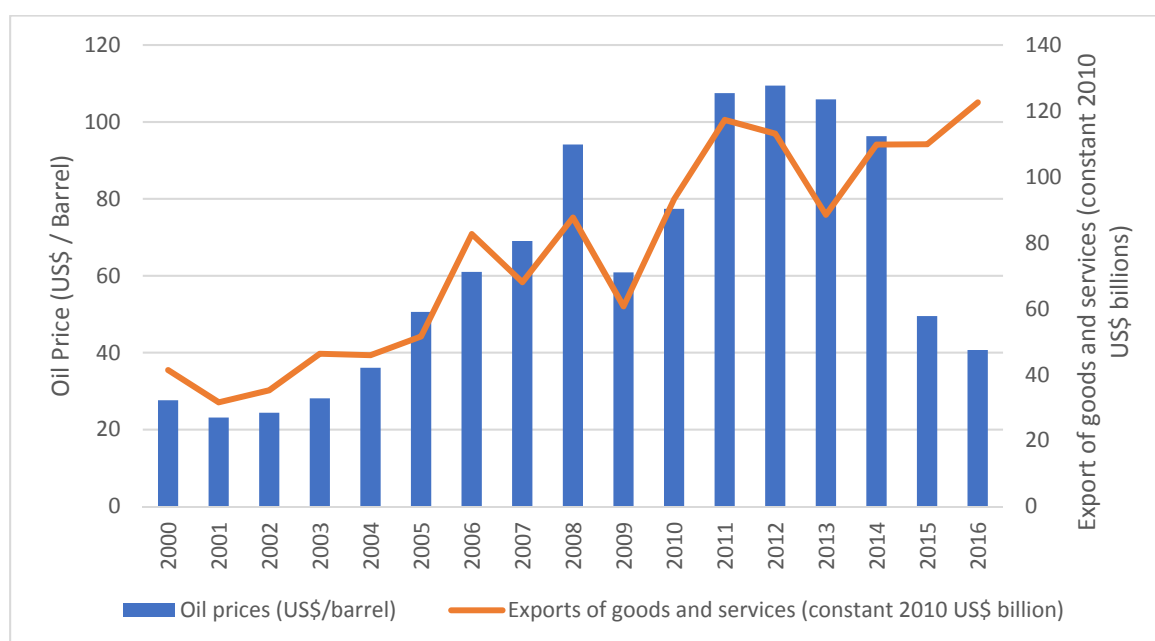
Questions

- (a) (i) Describe the trend in India's food prices from 2012 to 2018. [2]
- (ii) What might Figure 1 and 2 suggest about the price elasticity of demand for food in India? [3]
- (b) With the aid of a diagram, explain and comment on how a food subsidy might affect the consumers, producers and the government in India. [8]
- (c) In the light of rising inflationary pressure, discuss whether the Indian government should raise interest rates. [10]
- (d) (i) Explain how the activities mentioned in Extract 3 results in market failure. [6]
- (ii) Clearly explain why, if left to market forces, "air quality warning services" will not be provided. [4]
- (e) Using evidence from the case study and your own knowledge, discuss whether the Indian government should adopt Singapore's policies to improve air quality. [12]

[45 marks]

Question 2: Africa, out of the ashes into the fire?

Figure 3 – World oil price and Nigeria’s export revenue



Source: World Bank & Statista, accessed 25 July 2018

Table 1 – Selected macroeconomic indicators of Nigeria and South Africa

	2012	2013	2014	2015	2016	2017
	Nigeria					
Real GDP growth (annual %)	4.28	5.39	6.31	2.65	-1.62	0.81
CPI (annual %)	12.22	8.48	8.06	9.02	15.70	15.37
Total unemployment (% of total labour force)	3.76	3.70	4.56	4.31	7.06	7.04
Public Debt* (% of GDP)	10.53	10.60	10.71	11.63	14.32	16.16
	South Africa					
Real GDP growth (annual %)	2.21	2.49	1.85	1.28	0.57	1.32
CPI (annual %)	5.65	5.75	6.07	4.59	6.33	4.40
Total unemployment, (% of total labour force)	24.73	24.57	24.90	25.16	26.55	27.72
Public Debt (% of GDP)	41	44.1	46.98	49.31	51.57	53.04

*Public debt refers to the debt owed by the government (usually in the form of bonds)

Source: World Bank, accessed 25 July 2018

Extract 6: Nigeria and South Africa, recovering but headwinds aplenty

Nigeria's economy is exiting a painful recession. Although growth in Nigeria recovered to 0.8 percent in 2017 following rising oil prices, but policy implementation needs to move quickly and comprehensively to facilitate economic recovery and help the country reap its longer-term potential. Similarly, growth seems to be returning to South Africa, riding on the change in political leadership, reducing some of the political uncertainty which brought back investors, says the International Monetary Fund (IMF) in its latest economic health check of the continent's top two economies.

However, IMF warned that growth in both countries might be hampered by structural bottlenecks and challenging economic situations. As crude oil accounts for more than 90% of its export revenue, Nigeria's economic performance remains highly dependent on the price of this precious commodity. However, there is a growing movement towards developing the agriculture sector within Nigeria to diversify its economy. Inflation, especially of food prices, remains high. Low tax revenues are keeping the fiscal deficit high, leading to more government borrowing that is crowding out private sector activity. Distortions in foreign exchange markets are slowing efforts to attract longer-term investment and diversify the economy. These issues are more deeply entrenched in South Africa where the corruption level is a primary concern for businesses. The IMF says weak educational attainment "contributes to wide income disparities and high unemployment, perpetuates the intergenerational transmission of poverty, and constrains economic growth."

Source: Adapted from International Monetary Fund and BBC, 2018

Extract 7: Growing with a growing burden

On the face of it, 2018 is going to be a good year for Nigeria. Much of her growth will still rely on improving commodity prices and executing economic reforms. But it's all rather delicately balanced. The World Bank thinks a drop in commodity prices, higher-than-expected global interest rate rises and the ongoing debt mismanagement could set the country back.

The World Bank warned that many of Africa's economies—regardless of size or growth rate—need to pay more attention to debt management in 2018. Public debt is approaching critical levels in some countries in the region. Debt was at 56% of GDP on average in 2017 versus 40% in 2013. It exceeded 25% in oil-dependent countries last year.

Christine Lagarde, managing director of the International Monetary Fund, believes there will be tighter monetary policies introduced in advanced economies through rising interest rates, over the coming months, which will have an impact on African economies with both unfavourable foreign exchange rates and existing and future debt becoming more expensive.

Source: Adapted from Quartz, 2018

Extract 8: The road to a better life

A plush new rail service from the capital Ajuba to the northern city of Kaduna was just launched in Nigeria. The new £1 billion commuter service was built with Chinese money as part of its One Belt and One Road (OBOR) initiative, known more colloquially as the new silk road.

In Africa, where China is investing \$52 billion in 10 major infrastructure projects, the vision is to create 'silk roads' that stimulate trade by connecting Senegal on the west coast to Sudan on the east coast and strengthening links between Nigeria and South Africa, two of the continent's most powerful economies. OBOR is already redesigning the global economy: China's trade with Africa has doubled in the past five years – and could double again in the next five. Chinese President Xi Jinping has taken a personal interest in Nigeria, Africa's largest economy and energy producer. In April 2016, at a summit in Beijing, he promised Nigerian President Muhammadu Buhari a \$6 billion infrastructure loan, an \$80 billion investment in oil and gas, and a \$15 million grant to stimulate innovation in agriculture.

China's generosity will improve the daily lives of millions of Nigerians if, invested and managed properly, it modernises a railway system that had been neglected for decades. The heart of this programme is to build three major railway lines – starting with that route from Abuja to Kaduna, which opened in July 2016. To help Nigeria upgrade its infrastructure, China is lending funds to Nigeria on advantageous terms and in return, Chinese companies win the bulk of the construction contracts. Rotimi Amaechi, the Minister of Transport, says the country's poor transportation network is making goods and services more expensive. Nigeria spends around \$90bn a year importing food – better infrastructure could cut that bill substantially.

Having been promised such improvements so often, many Nigerians are sceptical about the latest plans. Corruption is still rife – the UK's Department for International Development (DFID) estimates that the country lost \$32 billion to fraud during the six-year presidency of Jonathan Goodluck.

Source: Adapted from Chartered Institute of Procurement and Supply, 2017

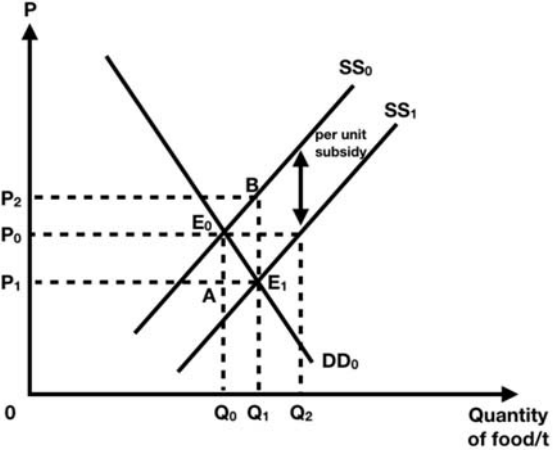
Questions

- (a) (i) Describe the relationship between global oil prices and the export value of Nigeria from 2000 to 2016. [2]
- (ii) Account for the relationship observed above. [4]
- (b) Explain the possible relationship between a country's public debt and economic growth. [4]
- (c) (i) Compare the trend in GDP growth between Nigeria and South Africa from 2012 to 2017. [2]
- (ii) With reference to Extract 7, how likely will the economic growth continue beyond 2017 for Nigeria? [4]
- (d) Discuss if the data is sufficient to conclude that the standard of living in Nigeria has improved. [7]
- (e) Evaluate how "tighter monetary policies introduced in advanced economies" (Extract 7) will impact Nigeria's and South Africa's economic recovery. [10]
- (f) In view of the rising public debt, discuss the appropriateness of various policies the South African government could adopt to achieve sustained and inclusive growth. [12]

[45 marks]

- End of paper -

H1 Prelim Case Study Question 1

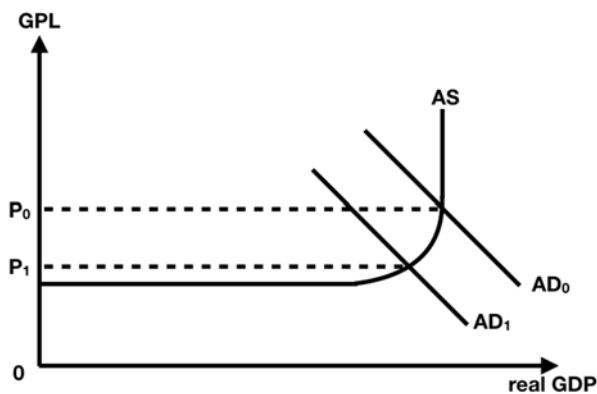
a	(i)	<p>Describe the trend in India's food prices from 2012 to 2018</p> <p>Food prices were generally increasing [1], with the increase slowing down from 2014 onwards [1]</p>	[2]
	(ii)	<p>What might Figure 1 and 2 suggest about the price elasticity of demand for food in India?</p> <p>Price elasticity of demand measures the degree of responsiveness of quantity demanded of a good to a change in its price, ceteris paribus</p> <p>The demand for food is likely to be price inelastic where the increase in price in Figure 1 led to a less than proportionate fall in quantity consumed. As a result, the increase in expenditure from an increase in price is greater than the loss in expenditure from a decrease in quantity demanded, leading to a rise in expenditure as seen in Figure 2.</p> <p>Award 1m for the identification of PED of food Award up to 2m for an explanation of the link between Price and TE using the concept of elasticity</p>	[3]
b		<p>With the aid of a diagram, explain and comment on how a food subsidy might affect the consumers, producers and the government in India.</p>	[8]
		<p>A subsidy is a payment made by the government to producers to encourage the production of certain good and services, but not made in exchange for any goods or services. To analyse the impact on the various economic agents, we will look at expenditure for consumers, revenue for firms and government expenditure.</p>  <p>Before government intervention, the initial equilibrium is at point E_0, where DD_0 intersects SS_0, to give equilibrium price P_0 and quantity Q_0. A subsidy lowers the cost of selling food, therefore producers are willing to offer the more for sale at every price. This is represented by a downward shift of the supply curve, by the amount of the subsidy, from SS_0 to SS_1,</p>	

	<p>At the initial equilibrium price of P_0, quantity demanded is Q_0 and quantity supplied is Q_2, resulting in a surplus of Q_0Q_2. Producers will lower the price in order to get rid of the surplus, which results in a rise in quantity demanded, and a fall in quantity supplied. This will continue until quantity demanded equals quantity supplied to arrive at a new equilibrium point of E_1, with a lower equilibrium price P_1 and a higher quantity Q_1.</p> <p>Impact on Economics Agents</p> <p>Consumers' expenditure decreases from $OP_0E_0Q_0$ to $OP_1E_1Q_1$. Due to the demand for food being price inelastic, the increase in expenditure from an increase in quantity ($Q_0AE_1Q_1$) is less than the decrease in expenditure from a decrease in price ($P_1P_0E_0A$), resulting in an overall fall in expenditure.</p> <p>Producers see an increase in overall revenue from $OP_0E_0Q_0$ to OP_2BQ_1, which is the sum of consumers' expenditure plus the subsidies from the government.</p> <p>The government will see an increase in government expenditure by the area $P_1P_2BE_1$.</p> <p>Evaluation: The extent of the above changes on the various economic agents will depend on the relative price elasticity of demand and supply for food. The more price inelastic the demand/supply is, the greater the impact of the subsidy on the consumer/producer.</p> <p>Up to 1m for a well-labelled diagram</p> <p>Up to 3m for an explanation of the impact of subsidy on the market, this includes a demonstration of what subsidy is /its impact on the supply curve and equilibrium price and quantity via the adjustment process.</p> <p>Up to further 4m for a discussion of the impact on the various economic agents (including evaluative comments on the extent)</p>	
c	<p>In the light of rising inflationary pressure, discuss whether the Indian government should raise interest rates.</p>	[10]
	<p>Inflation is a sustained increase in the general price level of an economy, which can be either demand-pull or cost-push inflation. In India's case, there are both demand-pull (Ext 2 Para 2 and 3: economic growth) and cost-push inflation (Ext 2 Para 1: rising food prices pushed India's retail inflation to...).</p>	

An increase in interest rate addresses inflation in India

When the government raises interest rates, consumers and producers will be affected.

Consumers will consume less as a rise in interest rates means that the cost of borrowing has increased. With a higher cost of borrowing, consumers will borrow less. The returns from saving will also increase, resulting in a higher opportunity cost of consuming. Thus, consumers will reduce their consumption (C). Firms will also borrow less with a higher cost of borrowing as previously profitable investment projects might now be unprofitable, resulting in a fall in investment (I).



A fall in C and I will lead to a fall in AD from AD₀ to AD₁. The fall in AD will create surpluses at existing general price level and hence, there will be an unplanned rise in inventories. Firms will reduce production and hire less factors of production, such as labour. As a result, households' income will fall and this decrease in purchasing power will result in a fall in consumption of other domestic goods and services. Hence there will be lower national income as output decreases further. As a result, there will be less inflationary pressure in the Indian economy, lowering the general price level from P₀ to P₁.

Evaluation:

- *Contractionary Monetary Policy is easy to implement as the revision to interest can be announced by the central bank and effected with almost no time lag.*
- *However, if Indian consumers and producers are optimistic about the economy outlook, a rise in interest rate might not discourage them from consuming and investing. This is likely given the growth of India in the last few years.*
- *The effectiveness of the policy also depends on the proportion of AD that C and I take up. If C and I take up only a small proportion of AD, then the fall in GPL would not be substantial.*

Increased interest rate may not address the inflation in India

An increase in interest rate may raise business costs and producers may pass these increased costs to the consumers in the form of higher prices so as to maintain profitability. The more price inelastic the demand for the goods are (especially for raw materials, food, energy) the more likely it is for producers to pass on higher costs to consumers. In this case, not only will inflation not be solved, the consumers will be worse off with higher prices and falling material well-being than without government intervention.

Furthermore, given that increases in food prices due to droughts (Ext 1 Para 1) are also contributing to inflation, a contractionary monetary policy is unlikely to address this source of inflation.

Evaluation

- Inflation in India seems to be a result of both demand-pull as well as cost-push. In light of the different causes of inflation, raising interest rates, which essentially addresses demand-pull inflation, **would not be sufficient** to tackle inflation in India.
- Complementary policy to address the cost-push inflation e.g. implement supply side policies to help deal with rising food prices. This could come in the form of subsidising R&D efforts to increase crop yield. With an increase in crop yield, it will increase the amount of crops produced with the same amount of land used, thus alleviating the inflationary pressures brought about by rising food prices. One drawback about supply-side policies would be that it takes time for R&D to see results. The results are also not guaranteed and also takes up government funding, which could have been spent on other areas of development.

Conclusion

To effectively address inflation in the country, the Indian government should implement a mixture of demand-management and supply-side policies to tackle the various sources of inflation. While the problem of food price inflation might be temporary, India's growth projection (Ext 2, Para 3), increased government spending, suggests that inflation may be more demand-pull and that would make demand-management policies the more critical of the 2 policies in controlling inflation.

Level	Descriptor	Marks
L3	A well-developed, balanced response on the use of interest rate as a policy tool to address inflation. Answers should include how a higher interest may lower AD and thus demand pull inflation, policy	5-7m

		limitation, as well as a recognition of the presence of cost-push inflation. Use of case materials expected.	
	L2	An underdeveloped answer that explains how raising interest rates would tackle inflation	3-4m
	L1	A vague, list- like answer on inflation or polices	1-2m
		<p>Up to 3 marks can be awarded for a valid evaluative conclusion that examines the appropriateness of raising interest rates to tackle inflation in India with consideration for the root cause, possible trade-off (inequity since the burden of the increased interest could fall on the low income), nature of the economy and the suggestion of possible alternatives to address inflation in India.</p>	
d	(i)	Explain how the activities mentioned in Extract 3 results in market failure.	[6]
		<p>In Extract 3, the activities mentioned includes burning of wood and dung for energy needs, factory productions, use of vehicles and construction. All these activities result in market failure as they generate air pollutants.</p> <p>Market failure occurs when the free market fails to allocate resources in an efficient manner.</p> <p>When carrying out activities such as burning of wood for energy and use of vehicles, consumers only consider their marginal private cost (MPC) such as the cost of wood and petrol and the marginal private benefit (MPB) such as the utility derived from getting energy or the convenience of driving from one place to another. Market equilibrium occurs at $MPC = MPB$, where output is at Q.</p> <p>However, these actions generate negative externalities, costs borne by third parties who are not involved in the above-mentioned activities. The</p>	

		<p>above-mentioned activities generate air pollutants, resulting in lower air quality (Ext 3: highly polluted air). When the third parties inhale the polluted air, their health gets negatively affected and have to incur additional medical costs, which are the forms of marginal external cost (MEC) that they have to bear. The presence of MEC would cause marginal social cost (MSC) to diverge from marginal private cost (MPC). Assuming no positive externalities, $MPB = MSB$. Social equilibrium occurs where $MSB = MSC$, at output Q^*.</p> <p>There is an overconsumption of QQ^* units. The additional benefit of consuming QQ^* units is $Q^*E_1E_0Q$ whereas the additional cost of consuming QQ^* is Q^*E_1AQ, resulting in a welfare loss of area AE_1E_0.</p> <p>Up to 2m for the identification of the source of market failure with reference to the case materials (pollutants released generate negative externalities)</p> <p>Up to a further 4m for a clear analysis of how the market fails with a <i>specific context</i> ($MSC > MPC$, equilibrium output vs socially ideal output, deadweight loss identification)</p>	
d	(ii)	Clearly explain why, if left to market forces, “air quality warning services” will not be provided.	[4]
		<p><i>Air quality warning services is likely to be a public good</i>, which means that it is non-excludable and non-rivalrous in consumption.</p> <p>Air quality services is non-rivalrous - the usage of air quality warning services by one person will not diminish the availability of the service for another person and so the marginal cost of providing for an additional user is zero. Using the marginalist principle, good should be consumed up to $MB=MC$, and so effective price is zero price. But at zero price, no private producers would be willing and able to supply the good.</p> <p>Air quality warning services is non-excludable as it is impossible or extremely difficult to exclude someone from using the air quality warning services even if they do not pay for it, once it is produced. Thus, it leads to free rider problem for which there will be no effective demand for the good.</p> <p>With no expression of demand, there will be no production of the good as firms will not be able to price the good to cover the cost.</p> <p>1m for identification of public good</p> <p>3m for explanation of how public good characteristic results in non-provision by the private market</p>	

e	<p>Using evidence from the case study and your own knowledge, discuss whether the Indian government should adopt Singapore's policies to improve air quality.</p>	[12]
	<p>Industries, power stations and motor vehicles are main sources of pollution in Singapore (Ext 5 Para 1) somewhat similar to the sources of pollution in India due to energy needs, traffic exhaust and factory emissions in India (Ext 3 Para 3). India could consider the use of the 2 policies used in Singapore, namely the setting of emissions standards and the imposition of carbon taxes.</p> <p><i>Body 1: Explain the working of the policies</i></p> <p><u>Measure 1: Emission standards</u> Singapore “sets emission standards which have been progressively tightened over the years” (Ext 5 para 3).</p> <p>Setting of emission standards is a form of <i>command and control policy</i>. The government could influence consumers' or firms' behaviour through imposing regulations, which uses the law to compel certain actions to be taken by consumers or firms. In this case, emissions standards on automobiles and factories that emit polluting gasses directly controls the level of pollutants allowable, thereby limiting the externalities and the welfare loss as a result of these activities.</p> <p><u>Measure 2: Carbon tax</u> A carbon tax (Ext 5 para 4) is a compulsory levy imposed on the production of the goods and services where the producer has to pay the government a fixed fee per unit of pollution (carbon) generated from the production.</p> <p>The implementation of a carbon tax will increase the marginal cost of production and makes the firms internalise the external costs. Rational firms will choose to lower pollution as long as the marginal private benefit of lowering pollution (avoidance of carbon tax) outweighs the marginal private costs of lowering pollution (e.gg. installing equipment or improved production process). By reducing the pollutants emitted the extent of negative impact on third party is reduced and hence there is reduced welfare loss.</p> <p><i>Body 2: Appropriateness for India</i></p> <p><u>(i) Effectiveness of outcome</u> By setting emission standards, the government can <i>guarantee the desired outcome</i> as the total amount of pollution is determined by the government. Furthermore, emissions standards may stimulate the firms to undertake more innovation to reduce emissions to the maximum permissible level.</p>	

Since carbon tax is based on the amount of pollution generated, the firms have the incentive to actively find cleaner production methods or engage in R&D that allows them to reduce the amount of pollution tax it needs to pay. This lowers pollution **and addressed the root cause of the problem**. However, the **government may not have perfect information** on what MEC is. Thus, the amount of tax implemented might not be the most accurate amount.

Carbon tax **encourages the firms to lower the amount of carbon generated from their production processes in the least costly method**, resulting in less externalities generated. The firms may be able to do so by developing methods that lowers the externality.

Regulations using the emissions standards can be more effective i.e. with greater certainty of outcome than carbon taxes especially since carbon taxes is dependent on the producers' responsiveness to the carbon tax. The less price elastic the demand for the product is, the more likely that the firms would pass on the increased cost to the consumers, rendering the carbon tax less effective at reducing the level of pollutants emitted. In the case of necessity, it is likely that increased in costs will be borne by the consumers.

(ii) Costs of implementation and monitoring

In order for emissions standard to be successful, the government **must have the resources and capability to ensure compliance by consumers and firms**. In the case of Singapore, it is relatively easier since it's a small country, resulting in lower monitoring costs. In the case of India, it might be challenging as the **country is much bigger, making it difficult to monitor** every area effectively. The Indian government needs to incur high monitoring costs, and they may not have the required resources to effectively enforce the regulations (e.g. police force lacking manpower). This high **costs of monitoring may outweigh the benefit of intervention**, causing society to be worse off than in the free market outcome.

Between emissions standard and **carbon tax**, the latter **is probably costlier** to implement and enforce since it requires the government to measure the pollution levels that arise from an additional unit of production and possibly levy different tax rates based on the types of pollutants.

(iii) Unintended Consequences

Both policies are likely to raise the cost of production for firms. In the case of emissions standards as factories have to spend on cleaner equipment/methods of production to meet the emissions standards. In the case of carbon taxes, the costs of emissions directly raise the cost of supplying the good. This may in turn translate into higher prices of other

goods and services for consumers. For example, if energy provider has to ensure cleaner energy is released with lower pollutants, there may be additional steps to filter the energy thereby raising energy prices for the producers of other goods.

However, a **carbon tax can lead to greater inequity**. If the industry being taxed produces necessities, it would lead to a fall in the affordability of goods/services, particularly for the poor. This could be a huge problem in India as there is a **greater proportion of the population that is living in poverty as compared to Singapore**, as India is still a developing country. Also, it might worsen the cost-push inflation as prices of more goods and services also experience increased price due carbon taxes.

Conclusion

Apart from the difference in the **nature of the country** discussed earlier, which might pose some difficulties for the Indian government to adopt Singapore’s policies, a bigger consideration may be the source of the pollution. Ext 3 Para 3 suggest that the main source of pollution came from 80% of the two-thirds of India’s population who rely on biomass for energy. The Indian government should target her policies at this primary source of pollution by subsidising cleaner energy production, building infrastructure needed such as piping to so that these households outside city also have access to energy without needing to burn biomass in the open. Although this will only effect in the longer run, in the meantime, the government may have to use carbon tax on factory emissions for revenue needed for the subsidy of clean energy.

Level	Descriptor	Marks
L3	A well-developed and balanced response that examines the strengths and limitations of the 2 measures (adopted by Singapore) policies for India	6-9m
L2	An underdeveloped answer that explains how the 2 measures adopted by Singapore can tackle market failure in India.	3-5m
L1	A vague description of the policies.	1-2m
E	Evaluative comment focusing on the suitability of the policies based on differences between India and Singapore e.g. source of pollution, nature of the economy/country. Suggestion of alternative policy	1-3m

H1 Prelim Case Study Question 2

(a)	(i)	<p>Describe the relationship between global oil prices and the export value of Nigeria from 2000 – 2016</p> <p>There is a positive/direct relationship between global oil prices and export value from 2000 to 2013. [1] and an inverse relationship from 2013 to 2016 [1]</p>	[2]
	(ii)	<p>Account for the relationship observed above.</p> <p>The positive relationship from 2000 to 2013 is due to the high dependency (90% Extract 6) on oil as a source of export revenue for Nigeria. Hence, with a price inelastic demand, the rise in oil prices would have led to a less than proportionate fall in the quantity, giving rise to export revenue for Nigeria. [2]</p> <p>The inverse relationship from 2013 onwards might be due to the diversification of the Nigerian economy towards agriculture (Extract 6), thereby reducing the reliance on oil as a source of export revenue. Even when the price of oil decrease, Nigeria was able to generate higher revenue from other agricultural products exported [2].</p>	[4]
(b)		<p>Explain the possible relationship between a country's public debt and economic growth rate of a country?</p> <p>There might be an inverse relationship between public debt and economic growth. [1] The data in Table 2 from 2015 – 2016 in Nigeria and 2013 – 2016 in South Africa, where public debt levels rose while economic growth slowed down.</p> <p>This inverse relationship could be explained by the crowding out effect. As the government increase her borrowing, the demand for loanable funds increases thus driving up interest rates in the private market. An increase in interest will increase opportunity cost of consumption and increase cost of borrowing. This will lower the C and I, thereby exerting a contractionary effect on the economy, slowing the economic growth. [3]</p> <p>OR</p> <p>With increasing public debt, consumer and business confidence might be reduced, reducing consumption due to lower expected future income and lowering firms' expected rate of return and thus investment expenditure; this in turn leading to a slowdown (fall) in economic growth. [3]</p>	[4]

(c)	(i)	<p>Compare the trend in GDP growth between Nigeria and South Africa from 2012 to 2017</p> <p><i>Both countries experienced a falling trend in real GDP growth [1] while GDP growth in South Africa remains positive throughout the period [1]</i></p>	[2]
	(ii)	<p>With reference to Extract 7, how likely will the economic growth continue beyond 2017 for Nigeria?</p> <p>Candidate can make a prediction based on a combination of the following factors raised in Extract 7.</p> <p>Whether Nigeria continues to grow beyond 2017 depends on a mix of internal and external factors/ AD-AS factors:</p> <p>(a) Improving commodity prices If oil prices continue to rise, export revenue for Nigeria is expected to rise, increasing her AD and in turn sustaining the economic growth. This is likely to be significant given Nigeria's reliance (Extract 7, Para 1) on oil exports.</p> <p>(b) Success of her economic reform Economic reforms to restructure the Nigerian economy raises the efficiency and workings of institutions e.g. banking institutions, making it easier to do businesses. This can increase the expected rate of return for investment projects in Nigeria and in turn the level of investment expenditure, encouraging growth</p> <p>(c) Management of public debt With rising levels of public debt, investors' confidence might be adversely affected, thereby limiting growth in Nigeria. Depending on how the Nigerian government finances the public debt, the outcome may be favourable or not. If the Nigerian government chooses to reduce debt level by reducing government spending, there will be a contractionary effect on the economy, stunting economic recovery.</p> <p>(d) Global interest rates rising A rise in foreign interest rate (Extract 7, Para 1) might affect the inflow of foreign direct investment into Nigeria as well as her exports, thereby slowing her growth. However, economic growth might not continue if the rise of interest rate</p> <p>Award up to 2m for each argument raised in support of a position taken – growth or contraction.</p>	[4]
(d)		<p>Discuss if the data is sufficient to conclude that standard of living in Nigeria has improved.</p> <p>Standard of living refers to well-being of the residents in a country. There are two aspects - material and non-material well-being. Material well-being can be measured by the quantity of goods and services consumed over a period of time, like a year. Non-material well-being is the intangible</p>	[7]

	<p>aspect and it relates to the quality of life, such as the environment, leisure and economic freedom.</p> <p>Data shows improvement in material SOL</p> <ul style="list-style-type: none"> • Overall, Nigeria's <i>economy is larger</i> from 2012 to 2017 (Table 2) in real terms despite the recession in 2016. This signifies that households are able to consume more goods and services across this time period across the same time period, <i>improving the material SOL of Nigerians</i>. • In addition, with the <i>upgraded rail infrastructure</i> (Extract 7, Para 3), consumers are better able to gain access to essential services and transportation. This suggests the <i>improvement of the material SOL of Nigerians</i>. <p>Data might not be sufficient to conclude improved SOL in Nigeria</p> <ul style="list-style-type: none"> • <i>Data evident of a fall in the material SOL of Nigerians.</i> The economic growth experienced might not be evenly distributed with the <i>rising unemployment rate</i> (Table 2). Hence, the improvement in material SOL might only be concentrated within certain groups of the population especially those working the oil industry. • Data does not reflect non-material SOL of Nigerians We cannot conclude that there is an overall improvement in the SOL of Nigerian without sufficient data on the non-material SOL. Essential data on the air pollution levels and stress level/leisure hours are not available for us to make an assessment/conclusion on the overall SOL of Nigerians. <p>Conclusion: Hence, the data provided is only sufficient to determine a certain increase in material SOL but not a conclusive stance on the overall SOL of the Nigerian, given the lack of data on non-material SOL.</p> <p>Up to 4 marks for an interpretation and assessment of the data on the SOL of Nigerians having improved</p> <p>Up to a further 3 marks for possible insufficiency of data to suggest improvement in SOL (availability of data on non-material well-being, data pointing to possible lower material SOL)</p>	
(e)	<p>Evaluate how “tighter monetary policies introduced in advanced economies” (Ext 6) will impact Nigeria’s and South Africa’s economic recovery.</p> <p><i>Approach</i> Analysis of how a tighter monetary policy (rising interest rates) would affect the Nigerian and South African economies should be done through the outflow of hot money/FDI, decrease in business confidence with a possible decrease in ability for debt repayment and through exchange rates</p> <p>Thereafter, comparison between the impact of the rising interest rate is needed based on the nature of the economies and state of the economies</p>	[10]

Introduction

A tighter monetary policy in developed economies such as the US is carried out by raising their domestic interest rates. While this might be done in US in a bid to rein in the possible inflationary pressure, the increase in global interest will have a contractionary effect on Nigeria and South African economies.

Body 1: Tighter MP in developed economies impede economic recovery in Nigeria and South Africa

- (1) Tighter monetary policies in developed countries **slows AD growth** and thus slows down the economic recovery in Nigeria and South Africa

The higher interest rates in the developed countries contracts their economy and may lower national income. Since imports is a function of income, a fall in income will reduce the level of imports, which could be export demand for Nigeria and South Africa.

In addition, the FDI outflow may slow down as firms consolidate their operations and reduce overseas investment. This lower demand for Nigeria and South Africa's exports contributes and Investment expenditure leading to the decline in AD.

Overall, we can **expect AD to fall/slowdown and in turn the slowdown of the economy recovery for both countries.**

- (2) Tighter monetary policies in developed countries results in higher domestic interest rates in Nigeria and South Africa, slowing domestic expenditure and growth

A tightening MP in developed countries in the form of higher interests will lead to an **outflow of hot money** from Nigeria and South Africa as investors are more willing to **purchase assets in developed countries** with lower risks. Hence, this reduces the supply of loanable funds in both Nigeria and South Africa, increasing the interest rates in both countries as well.

This **increases the cost of borrowing** for both consumers and investors which raises the marginal cost for investments and projects will now be less profitable for firms, **reducing the investment levels** for both Nigeria and South Africa. On the other hand, consumers will find it more expensive to borrow for durable goods such as cars and household electronics, leading to the **fall in consumption expenditure** as well.

- (3) A rise in interest rate increases debt burden of the governments of Nigeria and S. Africa, limiting their ability to implement growth policies

Instead of using tax revenues for government expenditure on essential goods and services, an increasing amount of tax revenue is now needed to pay off the higher interest. This limits the government's ability to undertake expansionary fiscal policy to facilitate economic recovery.

The fiscal debt burden for S. Africa (53.04%, Table 2) will increase more than that of Nigeria (16.16%, Table 2) given the higher public debt level. As such, the impact on S. Africa's consumption, investment and government

expenditure might be more significant, resulting in a larger slowdown in its economic recovery.

Body 2: Tighter MP in developed economies may not impact economic recovery in Nigeria and South Africa significantly

- (1) Tighter monetary policies in developed countries will lead to a depreciation of domestic currencies which boosts economic growth.

With the **outflow of hot money** from Nigeria and South Africa, there will be a corresponding increase in supply of the Nigerian Naira and South African Rand in the foreign exchange market. Assuming that demand of the currencies remains constant, there will be a **depreciation** of the currencies with respect to foreign currencies (i.e. USD).

Hence, exports will be relatively cheaper in USD, leading to an increase in demand for Nigerian and S. African exports. Similarly, imports will be relatively more expensive in Naira and Rand, leading to the fall in quantity demanded of imports. Assuming that demand for import is price elastic ($PED_M > 1$), net export value for both countries is expected to rise, leading to the rise in AD. This will strengthen the economic recovery for the economies.

This will have a **more significant impact on Nigerian** as it is more dependent on the trade of oil (commonly priced in USD) relative to S. Africa for economic growth.

- (2) Potential inflow of FDI from China can sustain the economic recovery for both countries.

With the Chinese OBOR investment for infrastructure in Nigeria (Extract 7), we can expect an increase in investment expenditure for both countries. Hence, AD for Nigeria and S. Africa is expected to increase, possibly offsetting the slowdown of economic growth from the rise in interest rates.

However, given the high levels of corruption in both countries (Extract 5, Para 4 & Extract 7, Para 4), much of the FDI injected into the economy might not trickle down to the larger population. This might stifle the extent of increase of AD and NY from China's FDI.

Conclusion

Higher interest rates might hamper economic recovery more in S. Africa relative to Nigeria. Given Nigeria's extensive reliance on oil for export revenue, the depreciation of the Naira can outweigh the contractionary impact on consumption and investment expenditure. In addition, the high public debt level of S. Africa coupled with its structural bottlenecks might prove to a stumbling block for its economic growth and recovery.

Mark Scheme		
Level	Descriptor	Marks
L3	A balanced and well-explained response that considers how tighter monetary policies can affect the economic recovery of both economies, supported by case evidence.	5-7m
L2	A brief 2-sided discussion of how tighter monetary policies can affect the economic recovery of both economies but lacks rigour and/or support by case evidence. Or A balanced discussion of how tighter monetary policy can affect one of the two countries (including unemployment and growth via inventory adjustment process)	3 - 4m
L1	A vague, list-like response on the possible effects of rising interest	1-2m

Up to 3 marks can be awarded for a valid evaluative conclusion; candidate may consider the **relative impact** on both countries or the **criteria/condition** of both countries which would make the impact severe (nature and state of the economies). To get the full credit, evaluative statement should be well-substantiated and with case evidence.

(f)	<p>In view of the rising public debt, discuss the appropriateness of various policies the South African government could adopt to achieve sustained and inclusive growth.</p> <p>Approach: Given that the question specifically stated 'In view of rising public debt', answers should consider the impact of rising public (fiscal) debt on the appropriateness of the policies, the S. African government can adopt. Candidates will need to discuss at least two policies explicitly making links to how these policies work to achieve sustained and inclusive growth. It will be essential that candidates take note of the structural issues S. Africa is facing, hence, the analysis of supply-side policies should be a primary measure.</p> <p>In discussing the appropriateness of these policies, candidates should also take note of the nature of the S. African economy and trade-offs which may incur.</p> <p>Introduction From Table 2, we notice that S. African economic growth remains positive but remains weak due to structural bottlenecks as well as a rising public debt level that might hinder economic growth. This means that aggregate demand (AD) and aggregate supply (AS) are rising but at a slower rate. The S. African government can aim to achieve sustained economic growth which is defined as non-inflationary growth where a country is able to achieve an increase in national output, yet able to keep the inflation rate low. It also can aim to achieve inclusive economic growth which is growth that is broad-based</p>	[12]
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across sectors and creates employment opportunities for the majority. Inclusive growth takes into consideration income distribution.

Body – Supply Side Policy

The S. African government may adopt supply-side policies to achieve sustained and inclusive economic growth.

She could improve the quality of the education that is delivered across levels. With higher levels of literacy, the South Africans would be able to work on complex tasks or operate high tech capital equipment thereby increase productivity. With higher output per man hour, there would be reduced unit labour costs, shifting the horizontal AS down. Assuming no change in AD, the lower general price levels will induce higher consumption as well as export expenditure, reflected by a movement along the AD curve. This increases the real output, giving rise to actual growth.

Although spending on improving education service is essentially a SS-side policy, in the short run, it will increase government expenditure. Government spending to engage teaching staff for the school, construction of new school facilities contributes to the aggregate demand and increase in real GDP.

At the same time, the expansion of productive capacity in the country with the improved quality of the labour force also means that it raises the AS. At every price level, the output the economy can produce has now increased, potential growth. Expansion of productive capacity is crucial for the economy as it allows for non-inflationary growth as AD rises.

In addition to the sustained growth investment in the education and providing a relevant education for the population, there will be a higher possibility for the labour force to be gainfully employed. This increases their income level and a larger proportion of the population will be able to enjoy the fruits of S. Africa's economic growth, thereby achieving inclusive growth.

Evaluation of the use of SS-Side policies

- The funding for establishing the education system will place a *significant burden* on the fiscal position of the government, possibly increasing its short run public debt levels further.
- Nonetheless, this will be an important policy to implement as a weak education system has prevented a significant percentage of the S. African population from being gainfully employed (Extract 5, Para 4 & Table 2). Hence, it is essential that a formal, rigorous and recognised education system be establish in S. Africa, funded by the government.
- Supply-side policy will have a significant lag time before the fruits of the policy can be seen. As such, we have to consider other policies as a stop gap measure in the short run to maintain sustained economic growth and improve inclusivity of income generation.

Additional supply side policies that students can consider using:

The S. African government can undertake anti-corruption measures to reduce the level of corruption in the country. By reducing the level of corruption, there might be an *improvement in the business confidence*, especially so for foreign investors. This will increase the expected rate of

returns for investors. As the MB of investment increases beyond the MC, investors will then increase their level of investment in S. Africa, boosting economic growth.

Body: Demand-management policy

Another policy that the S. African government can adopt is the expansionary monetary policy i.e. the reduction of interest rates

The reduction of interest rates will reduce the cost of borrowing for both consumers and firms. Hence, consumers will find it cheaper to borrow to purchase consumer durable goods such as household appliances, increasing domestic consumption expenditure. Similarly, firms will find more capital investment projects to be more profitable given the lower cost of borrowing. This encourages them to increase their investment expenditure. Together, we expect AD and hence NY to increase.

As there will be an unplanned fall in inventory stocks, firms will demand more factors of production (e.g. labour) in order to fulfil this shortfall. This increase in demand for labour can alleviate the high unemployment levels in S. Africa, increasing the income levels for the average households, creating the opportunity for wealth and income to be shared across the population.

Evaluation of the use of demand management policy:

While theoretically sound, rising global interest rates might hinder the extent to which the S. African central bank can raise interest rate. Hence, the contractionary impact from the rise in interest rate might hold greater sway relative to this expansionary monetary policy.

In addition, the rising public debt level will be a major consideration for firms and consumers. The potential for a government default limits the interest rate sensitivity for both firms and consumers where they are less willing to invest and consume, reducing the effectiveness of the monetary policy.

Alternative policy:

Consider expansionary fiscal policies but this will have a severe limitation of funding this increase in government expenditure given the rising public debt levels.

Conclusion

Supply-side policies should be the primary policy that the S. African government should consider adopting to achieve sustained and inclusion growth. Major structural issues (high levels of corruption and low levels of education) is a stumbling block for sustained and inclusive economic growth in S. Africa. In addition, the rising public debt levels should be a cause of concern and should be address the soonest. While short run expansionary policies can be considered to achieve sustained growth, long run structural changes needs to be done in order to ensure the growth remains inclusive and sustained.

Mark Scheme

Level	Descriptor	Marks
L3	A well-developed discussion of at least <u>2 types of policies</u> the South African government could adopt to achieve sustained and inclusive economic growth, and considers the state of the economy. Answer has to be well-supported by case evidence to obtain the max 9m.	6-9
L2	An underdeveloped explanation of the various policies the S. African government could adopt to achieve sustained and inclusive economic growth <i>Or</i> <i>A robust explanation of how the policies can attain sustained growth.</i>	3-5
L1	An answer that merely states/lists the likely policies the S. African government would consider to adopt with little to no linkage to sustained and/or inclusive growth. Answer may contain conceptual errors.	1-2

Up to a further 3 marks can be awarded for a valid evaluative comment/conclusion. This should focus on appropriateness of the policies suggested with reference to the state and nature of the S. African economy and the key economic issues that it is facing.