

## Exercise 7

### AD-AS Model

1. Explain why AD is downward-sloping (that is, how AD is derived), using the money market diagram and the IS-LM.
2. What is Sticky Wage Theory? Explain why SRAS is upward-sloping (that is, how SRAS is derived), using the sticky wage theory, labor demand diagram, and production function.
3. Explain why LRAS is vertical.
4. **Ceteris Paribus** (other things equal), how will each variable/event affect each curve – shift (to which direction?) or movement?

Variable/Event	AD	SRAS	LRAS
P↑			
G↓			
T↓			
Autonomous C↑			
Autonomous I↓			
M↓			
i↑			
Temporary epidemic (assuming AD unchanged)	No effect		
Permanent increase in population growth rate (assuming AD unchanged)	No effect		
W↑			
Bad seasonal weather			
Permanent loss in agricultural land due to climate change			
Discovery of new technology			
Short-term worker training			
Permanent education reform			

5. Suppose the economy faces a negative AD shock (e.g. loss in consumers' confidence).
  - What output gap do we have? Draw the AD-AS diagram to show the output gap at the new short-run equilibrium.

- If the government wants to correct such output gap, what policies can it implement? Give examples.
  - If there is no government intervention, explain with the AD-AS diagram how the economy will return to the long-run equilibrium.
6. Suppose the economy faces a temporary, positive AS shock.
- Give one example of a temporary, positive AS shock.
  - If there is no government intervention, explain with the AD-AS diagram how the economy will return to the long-run equilibrium.
7. Suppose the economy faces a permanent, negative AS shock.
- Give one example of a permanent, negative AS shock.
  - If there is no government intervention, explain with the AD-AS diagram how the economy will return to the long-run equilibrium.
8. In macroeconomics, **Money Neutrality** is the idea that a change in the stock of money ( $M$ ) does not affect real variables, like employment and real GDP. Is this true in the AD-AS model?  
(**Hint:** When the central bank changes money supply,  $M$ , does this affect output in the long run, i.e. full-employment  $Y$ ?)
9. Based on Question 8 above, what can the government do to change output in the long run?  
(**Hint:** Monetary and Fiscal Policies are demand-side policies, but do we have other alternatives?)
10. Economists usually have macroeconomic goals of low employment and low inflation. It is also believed that economists face the trade-off between these goals, especially in short run. Use relevant diagrams to explain the trade-off. Why does the trade-off no longer exist in long run?
11. \*\*\* The IS-LM is for short-run analysis, while the AD-AS is for long-run analysis. Now, let's link them together. Suppose the government implements expansionary fiscal policy. Use the IS-LM and AD-AS models to show the policy effect in both short run and long run.  
(**Hint:** In long run, what happens to  $P$  in the AD-AS model? How will this change in  $P$  affect the IS-LM model?)