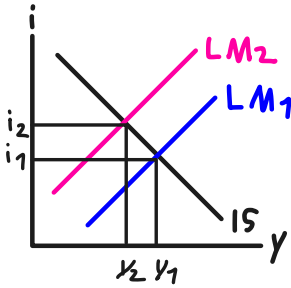


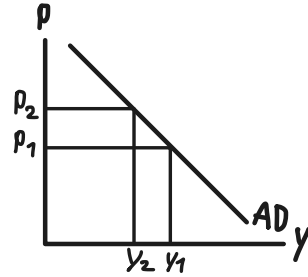
Exercise 7

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.

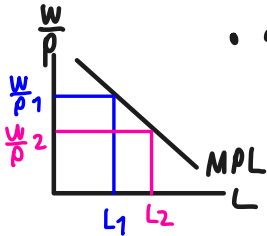


$P \uparrow \rightarrow LM \text{ SHIFT LEFT} \rightarrow i \uparrow$   
 $\rightarrow I \downarrow \rightarrow AE \downarrow \rightarrow y \downarrow$

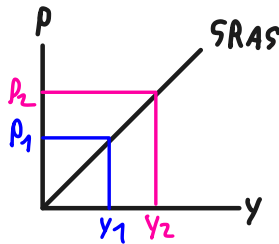
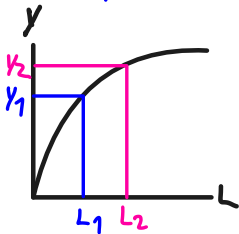


SLOPE OF AD IS DOWNWARD  
 BECAUSE  $P \uparrow \rightarrow y \downarrow$

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.

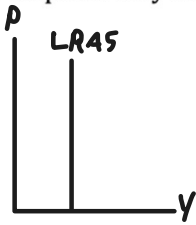


• STICKY WAGE IS SHORT-RUN  $\rightarrow$  NOMINAL WAGE IS STICKY DUE TO LABOR CONTRACT



• SRAS DERIVED FROM LABOR MARKET AND PRODUCTION FUNCTION  
 $P \downarrow \rightarrow \text{REAL WAGE} \downarrow \rightarrow \text{FROM HIRING MORE LABOR} \rightarrow y \uparrow$

3. Explain why LRAS is vertical.



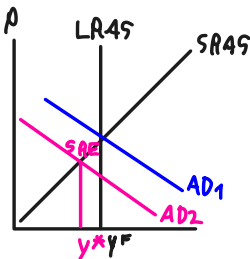
LRAS doesn't depend on price because wage is flexible, it will adjust to clear labor market in long run.

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

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.



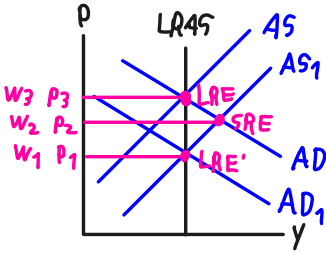
$$y^* < y_F$$

Recessionary gap

- If the government wants to correct such output gap, what policies can it implement? Give examples.

By correcting the recessionary gap, govt. can use expansionary fiscal & monetary policy e.g. raise  $G$ , cut  $T$ , lower  $i$

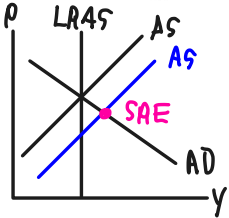
- If there is no government intervention, explain with the AD-AS diagram how the economy will return to the long-run equilibrium.



firm hires less labor  $\rightarrow Y \downarrow$   
 $\rightarrow$  firm negotiates to have large wage  
 $\rightarrow$  firm hires more labor  $\rightarrow$  produce more  
 $\rightarrow$  SRAS shifts to SRAS<sub>2</sub>  
 at  $e^3$  is the new LRE

6. Suppose the economy faces a temporary, positive AS shock.

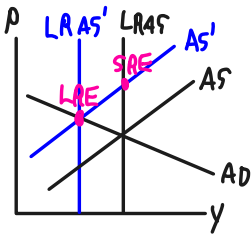
- Give one example of a temporary, positive AS shock.  $\rightarrow$  good weather for harvestment
- If there is no government intervention, explain with the AD-AS diagram how the economy will return to the long-run equilibrium.



The SRAS curve will shift rightward due to the higher output, but it is temporary effect. When time passes, it will go back to normal.

7. Suppose the economy faces a permanent, negative AS shock.

- Give one example of a permanent, negative AS shock.  $\rightarrow$  permanent increasing of death rate
- If there is no government intervention, explain with the AD-AS diagram how the economy will return to the long-run equilibrium.



SRAS will shift leftward to the SRE, but it is a permanent problem causes the problem in long run, so the LRAS curve will shift leftward as well, creates new LRE.

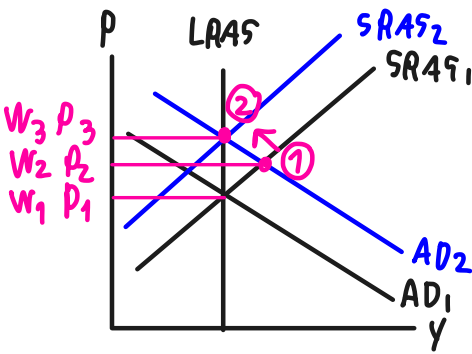
8. In macroeconomics, **Money Neutrality** is the idea that a change in the stock of money ( $M$ ) does not affect real variables, like employment and real GDP. Is this true in the AD-AS model?  
 (Hint: When the central bank changes money supply,  $M$ , does this affect output in the long run, i.e. full-employment  $Y$ ?)

Yes, because in the long run, the output turns back to equilibrium due to the flexibility.

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?)

Quantity & Quality of Fop → supply side } education  
 infrastructure

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**?

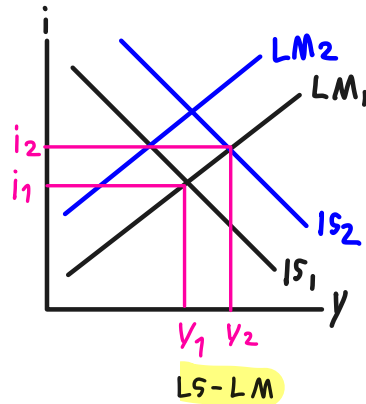
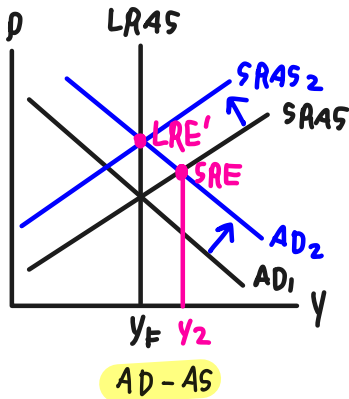


When aggregate demand is higher, it will reach point ① where is short run equilibrium, the employment is low unemployment rate but the price level is high, hence, inflation.

In short run the wage is sticky due to labor contract as time pass, with higher cost of living, labor will ask for more wage, the firm will reduce production, hence less aggregate supply. Therefore, it will reach ② which is new long run equilibrium. So, there is no inflation and trade-off is no longer exist.

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?)



When govt. use expansionary fiscal policy, the IS curve will shift rightward and AD curve shifts rightward as well, reach  $SRE$ . In the long run, with higher cost of living, the wage will be increased the production will be decreased. so the  $SRAS$  shifts leftward toward new  $LRE$  with higher price. It will affect money supply in money market, the  $MS$  curve shifts leftward, make the  $LM$  curve shift rightward in long run.