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. **<u>Cetaris Paribus</u>** (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↑	-	shift left	-
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 right	-
Permanent education reform	-	-	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.

- 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?)

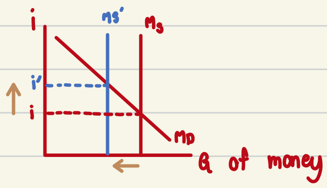
10. Economists usually have macroeconomic goals of low employment and low inflation. It is also believed that economists face the trade-off between these goals, especially in short run. Use relevant diagrams to explain the trade-off. Why does the trade-off no longer exist in long run?

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?)

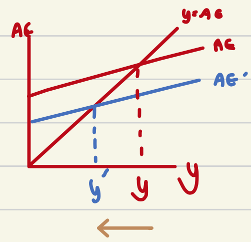
1. Explain why AD is downward-sloping (that is, how AD is derived), using the money market diagram and the IS-LM.

AS $P\uparrow \rightarrow Y\uparrow$

money mkt



G&S mkt

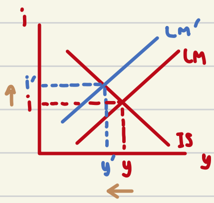


AS $P\uparrow$

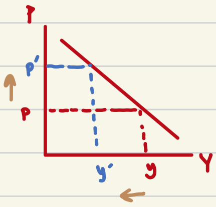
MM : $P\uparrow \rightarrow M_s\downarrow \rightarrow i\uparrow$ (shift left)

GM : $i\uparrow \rightarrow I\downarrow \rightarrow Y\downarrow$ (movement)

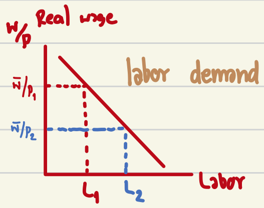
Due to the $P\uparrow \rightarrow Y\downarrow$

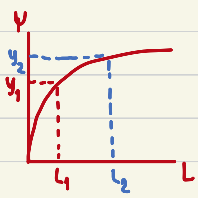


IS - LM



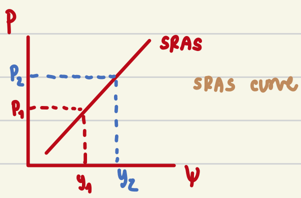
2. What is Sticky Wage Theory? Explain why SRAS is upward-sloping (that is, how SRAS is derived), using the sticky wage theory, labor demand diagram, and production function.



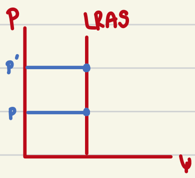


Production Function

From this diagram when $P\uparrow \rightarrow \frac{\bar{W}}{P}\downarrow$ which is labor contract that fix wage that mean the real wage that firm pay for labor is decrease, so firm hire more Labor. it can produce more output $(Y_1 \rightarrow Y_2)$ that mean SRAS has a positive slope.



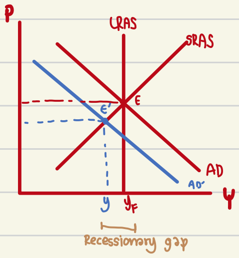
3. Explain why LRAS is vertical.



In long-run wage is flexible that mean it can adjust and not sticky. $(P\uparrow \rightarrow W\uparrow)$ which mean real wage is unchange when real wage unchange, Y will be same

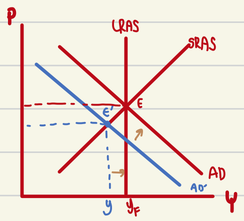
∴ In long-run, AS $P\uparrow \rightarrow Y$ stay same

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.



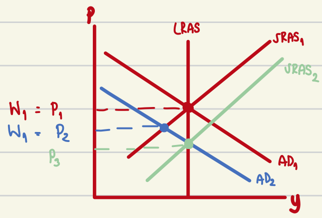
Due to the economy losing consumers' confidence that is negative demand shock that make (AD shift left) So E → E' that is lower P, Y. After E change Y is lower that cause Recessionary gap ($Y < Y_F$) in SR

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



Govt. need to use Expansionary fiscal policy to boost economy, by ($G\uparrow$). As a result, AD shift right from $AD_2 \to AD_1$, so the economy is return to eqbm at red point and y_2 return to y_1.

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



Without intervention of Govt., the economy will slowly adjust by itself. Due to in LR, wage is flexible and now economy is produce at $Y < Y_F$ and $U > U_n$. So the firm need to lower wage follow $P\uparrow$ to production to Y_F and hire more labor to capture maximizing profit

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.

- Good weather, decreasing of price of input.
  Ex decrease in oil price, lower unior pressures, great crop season.

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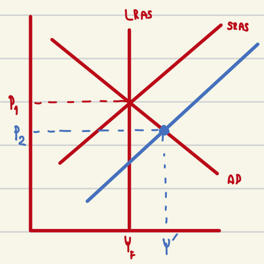

Temporary positive as shock make SRAS shift to the right from $SRAS_1 \to SRAS_2$. Due to the shock, at blue point price level will decrease from $P_1 \to P_2$. And $Y\uparrow$ ($Y_F \to Y'$) After the shock disappear, In LR, $SRAS_2$ will move back to $SRAS_1$ again.

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.

- Ex stricter regulation on production, permanent loss in population growth rate.
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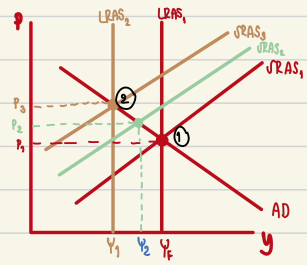

Permanent supply shock shift both LRAS leftward and SRAS upward. Then economy return to Long-run eqbm with output permenently lower from $Y_F \to Y$ and higher P permenently at point 2

A permanent negative AS shock will making the economy to stagflation since the price level increasing significantly.

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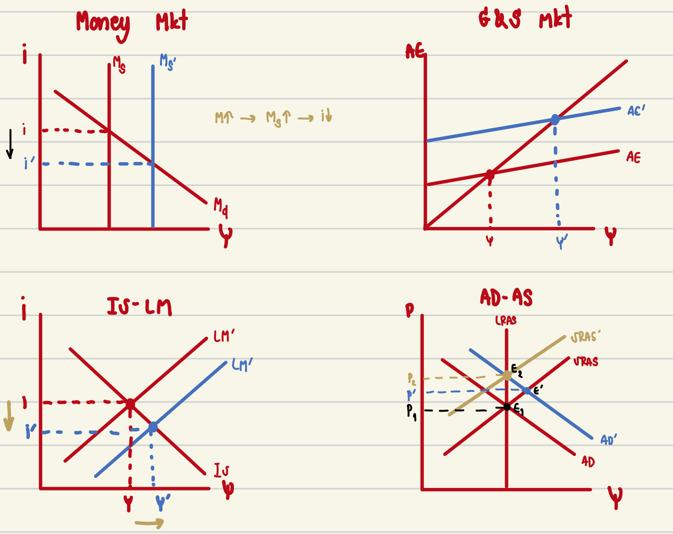
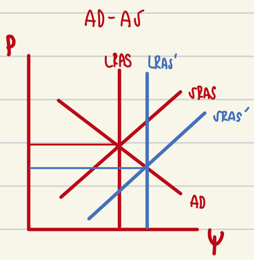


- MM : M↑ that make M_s↑ follow then the interest rate decrease
  GM : when i↓ that make I↑ so AE↑ . finally (Y↑)
  IS-LM , Due to i↓ from MM that make LM shift right ∴ Y↑

- Due to LM shift right but P still constant. So AD shift right, SRE at E'. In short-run wage is sticky that mean frim pay wage at $\bar{w}$ but $P_1 \to P'$ that mean real wage↓, firm hire more labor from $Y_F \to Y'$. At E' output is over Y_F $(Y > Y_F)$ that inflation gap occured at E'

- In long-run wage is flexible that make firm need to pay higher wage than SR when w↑ the production cost is higher.
  So, firm lay-off some labor and Y are slowly decrease from $(Y' \to Y_F)$ (inflation gap gone). When labor decrease mean SRAS slowly shift left untill E_2 that $Y = Y_F$ and $P_1 \to P_2$

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?)



LR, if Govt. want to increase Y, they can use supply-side policy to boost output by the quality of Factor production such as education due to it will improve quality & quantity of FoP to be more producivity that make labor can produce more output For the whole economy price level will decrease and Y will increase.

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?

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