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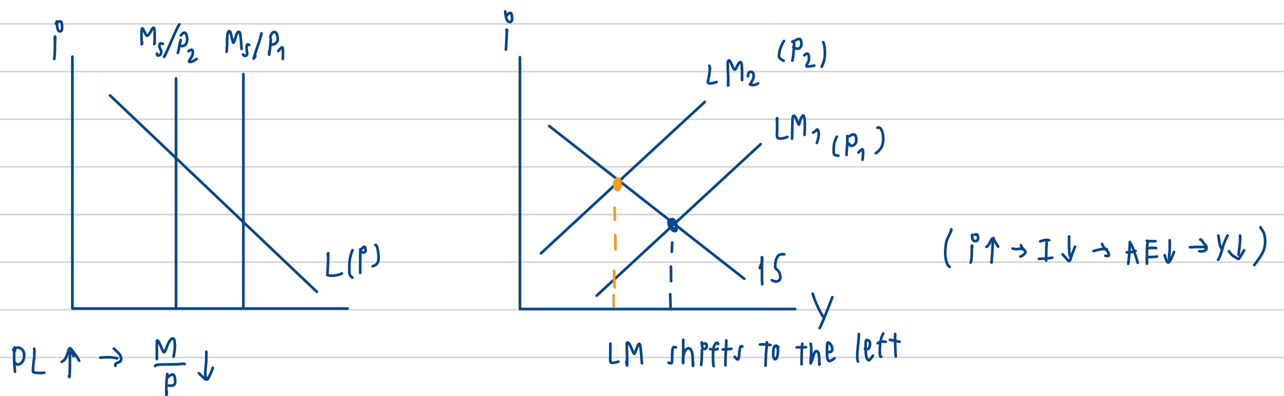
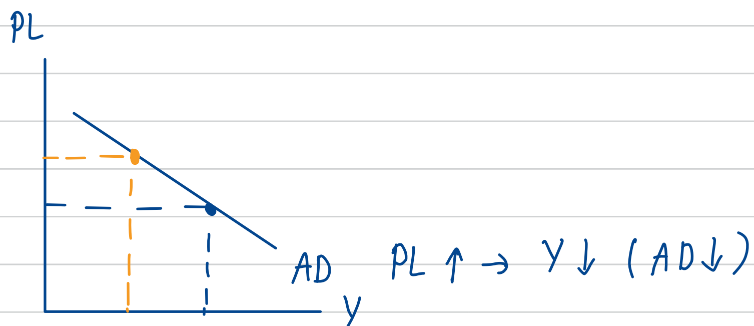
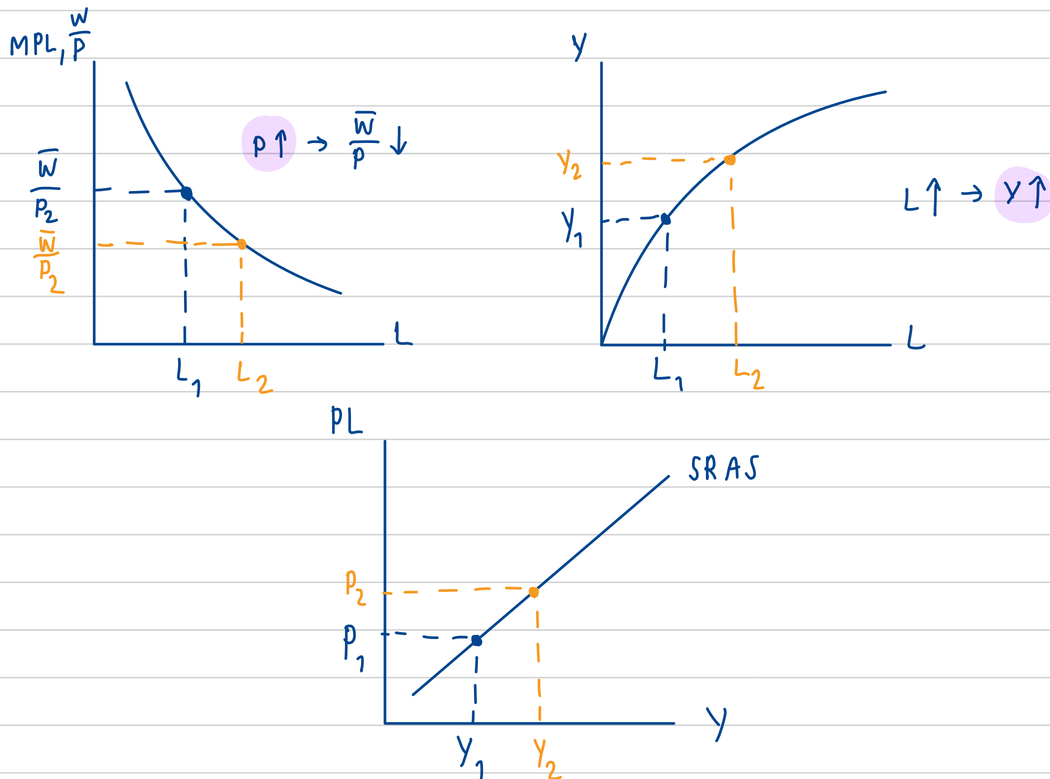
1. Explain why AD is downward-sloping (that is, how AD is derived), using the money market diagram and the IS-LM.





LM curve is directly related to P but IS curve is not. When the price level increases, the LM curve shift to the left. This means that the interest rate will increase and the investment will reduce. So the output will be reduce. Then, it leads to a movement on the IS curve.

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.



In the short run, wages are fixed because of the labor contract. So when the price increases, firms will have a lower cost of production which means that the output increases.

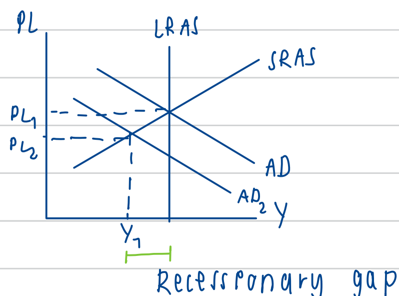
3. Explain why LRAS is vertical.

When the price goes up, the wage also adjusts. Therefore, there is no change in output.

4. **Cetaris Paribus** (other things equal), how will each variable/event affect each curve – shift (to which direction?) or movement?

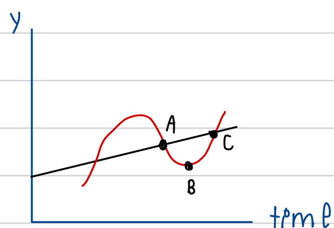
Variable/Event	AD	SRAS	LRAS
P↑	movement	shift right	no affect
G↓	shift left		
T↓	shift left		
Autonomous C↑	shift right		
Autonomous I↓	shift left		
M↓	shift right		
i↑	shift right		
Temporary epidemic (assuming AD unchanged)	No effect	shift left	shift left
Permanent increase in population growth rate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



   - If the government wants to correct such output gap, what policies can it implement? Give examples. demand-side policies e.g. fiscal and monetary policy
   - If there is no government intervention, explain with the AD-AS diagram how the economy will return to the long-run equilibrium.

Self-correcting Mechanism

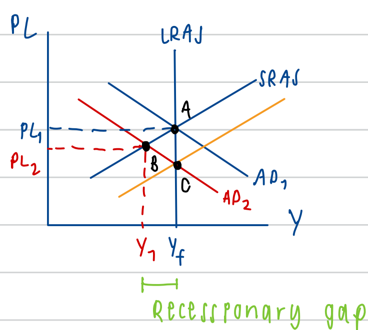


⓪ Economy original at LRE at A.

① Negative AD shock → fall AD
→ move to the SRE at B with lower PL.

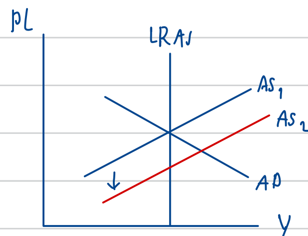
② At B, W is sticky but real wage increase.
$\left(\frac{\bar{W}}{PL\downarrow}\right)\uparrow$

⇒ cost of hiring ↑ and firms' profitability ↓
Therefore, they hire less & produce at Y_1.

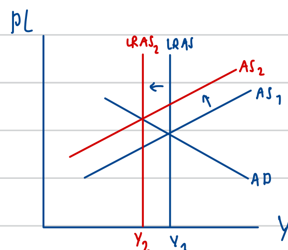


③ Self-correcting machanism
W is flexible in the long run.
unemployed → nominal wage ↓
Then, the cost of production decreases.
The firm hire more & produce more at Y_2.

6. Suppose the economy faces a <u>temporary, positive</u> AS shock.
   - Give one example of a temporary, positive AS shock. discovery of very large natural resources
   - If there is no government intervention, explain <u>with the AD-AS diagram</u> how the economy will return to the long-run equilibrium.



7. Suppose the economy faces a <u>permanent, negative</u> AS shock.
   - Give one example of a permanent, negative AS shock. bad weather
   - If there is no government intervention, explain <u>with the AD-AS diagram</u> how the economy will return to the long-run equilibrium.

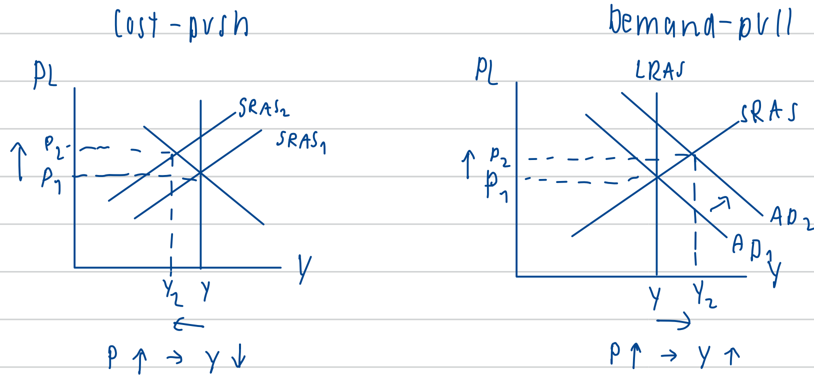


Overtime, AS_2 will return to its original position.

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? No
   (**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? using supply-side policies
   (**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?



In the long run, all prices and wages are flexible. So there is not a long run trade-off between inflation and output.

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?)