Chapter 12: Applying the IS-LM Model

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Chapter 12: Applying the IS-LM Model

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   - Shocks in the IS-LM model
   - How fiscal policy shifts the IS curve and changes the short-run equilibrium
   - How monetary policy shifts the LM curve and changes the short-run equilibrium
   - The interactions between monetary and fiscal policy
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   - From the IS-LM model to the aggregate demand curve
4. 12.3 The Great Depression
   - The spending hypothesis: Shocks to the IS curve
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Introduction

The IS-LM model

- has played a central role in the history of economic thought, and
- it offers a powerful lens through which to view the economic history
- but it has much modern significance as well.

1. Potential causes of fluctuations in GDP.
2. IS-LM should explain the slope and position (= shifts) of the AD curve.
3. Examination of the Great Depression.

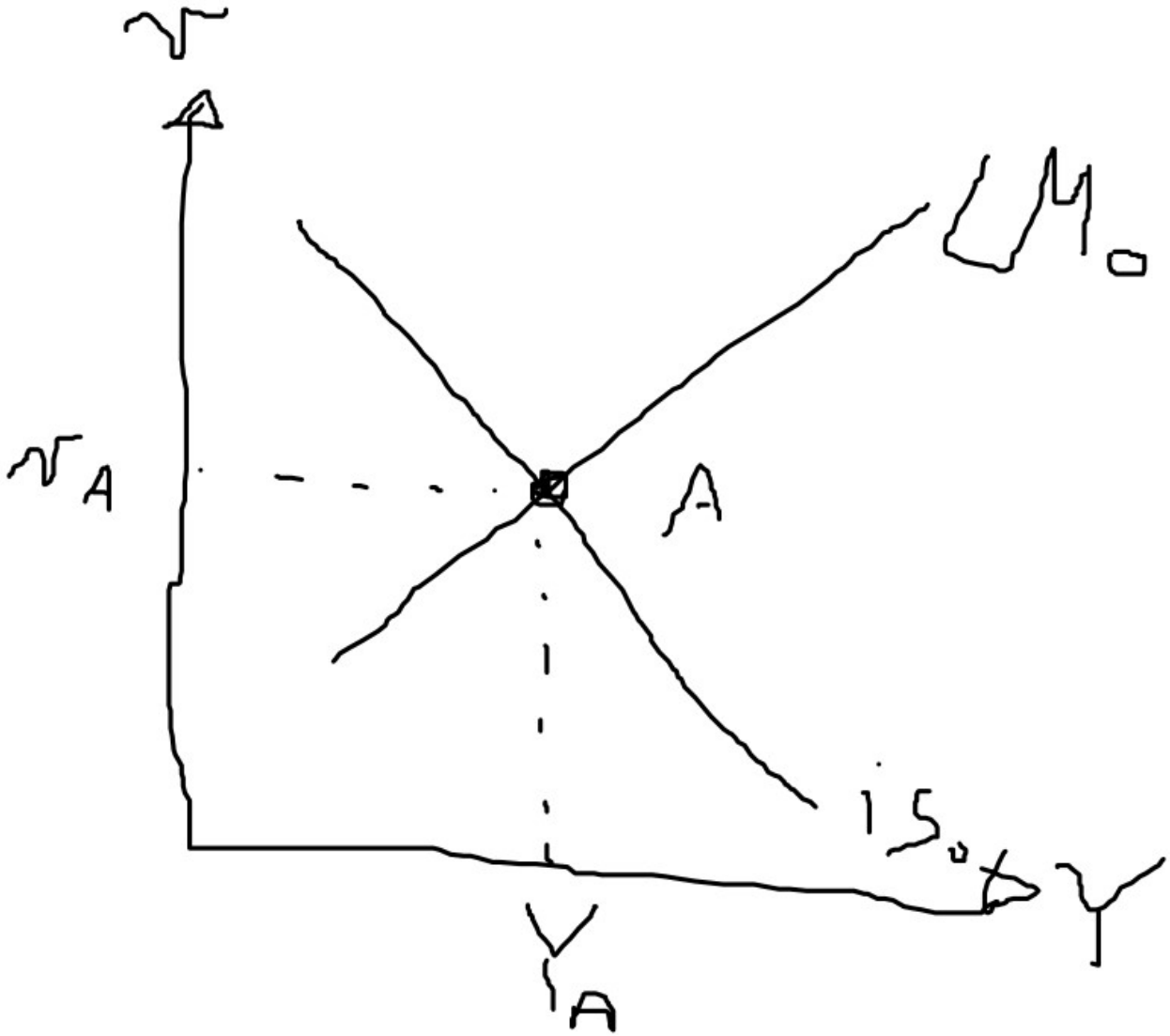
I reverse the order within subsection 12.1

- I will first discuss the part *"Shocks in the IS-LM model"*.
- Afterwards, I will discuss how fiscal or monetary policy affect GDP!
- WHY?
- Because, this allows me to pick a negative shock which causes a recession.
- Afterwards we can check, whether fiscal or monetary policy is the right *"medicine"* in order to cure the *"disease"*.

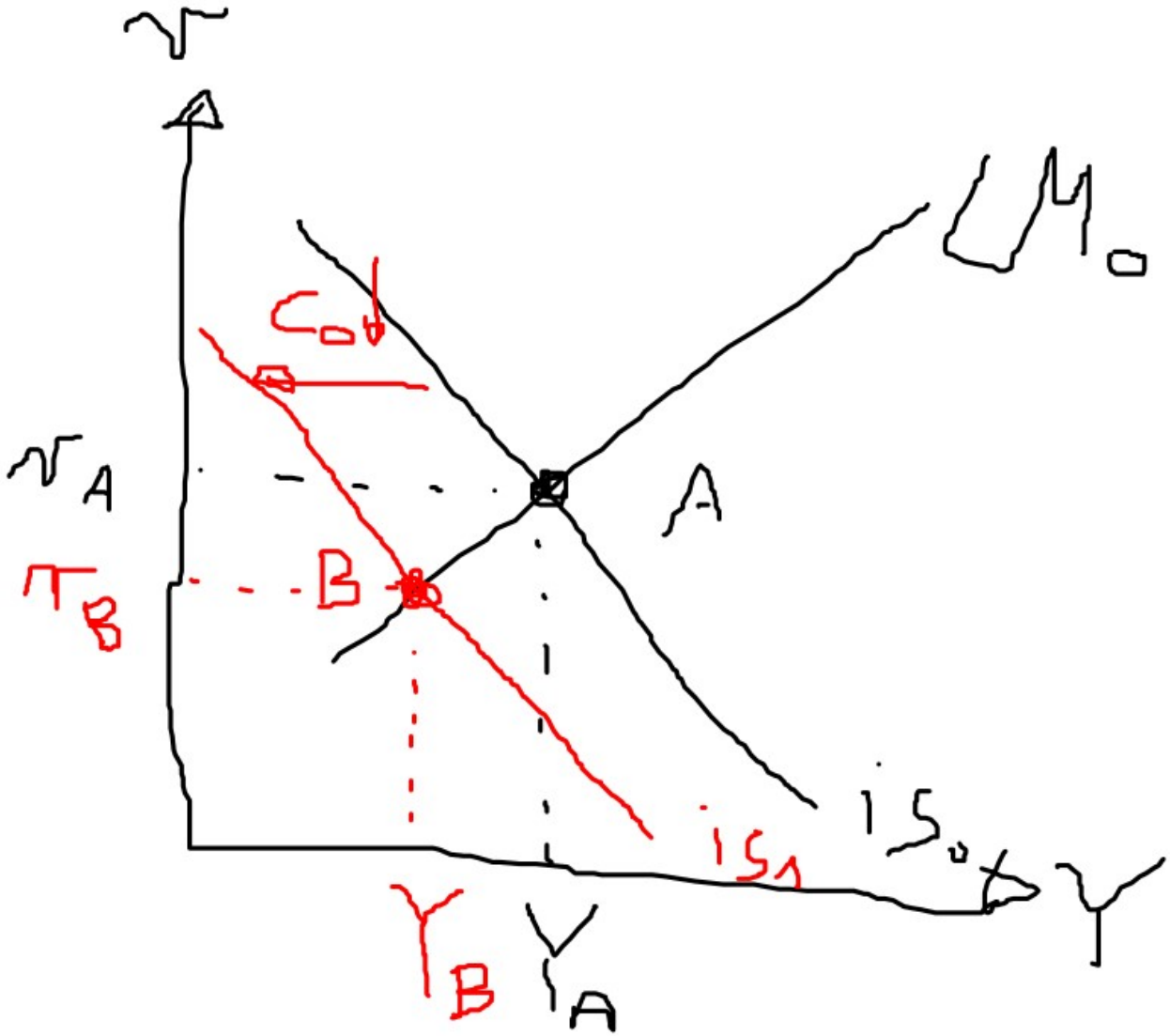
Shocks to IS or LM

- Keynes: Changes in demand can arise from investors' *"animal spirits"*.
- Exogenous and perhaps *self-fulfilling* waves of optimism and pessimism.
- Managers are pessimistic: Lower investment ($b_0 \downarrow$) $\Rightarrow$ IS to the left.
- Consumer confidence down: Lower consumption ($c_0 \downarrow$) $\Rightarrow$ IS to the left.
- Private households believe that the commercial banking sector is instable and increase money demand and *'store it under the pillow'*: ($d_0 \uparrow$) $\Rightarrow$ LM to the left.

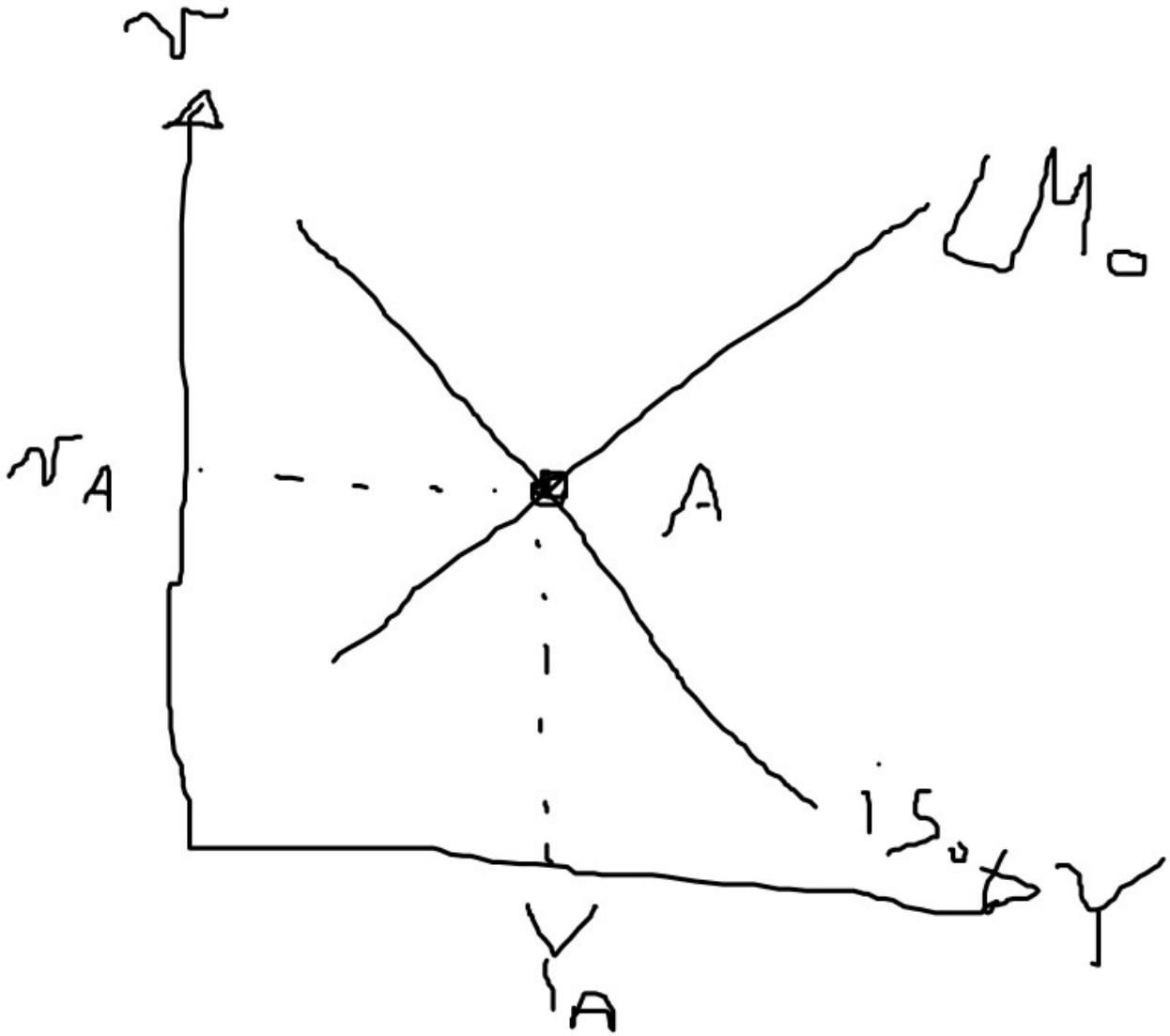
Initial equilibrium before negative goods demand shock



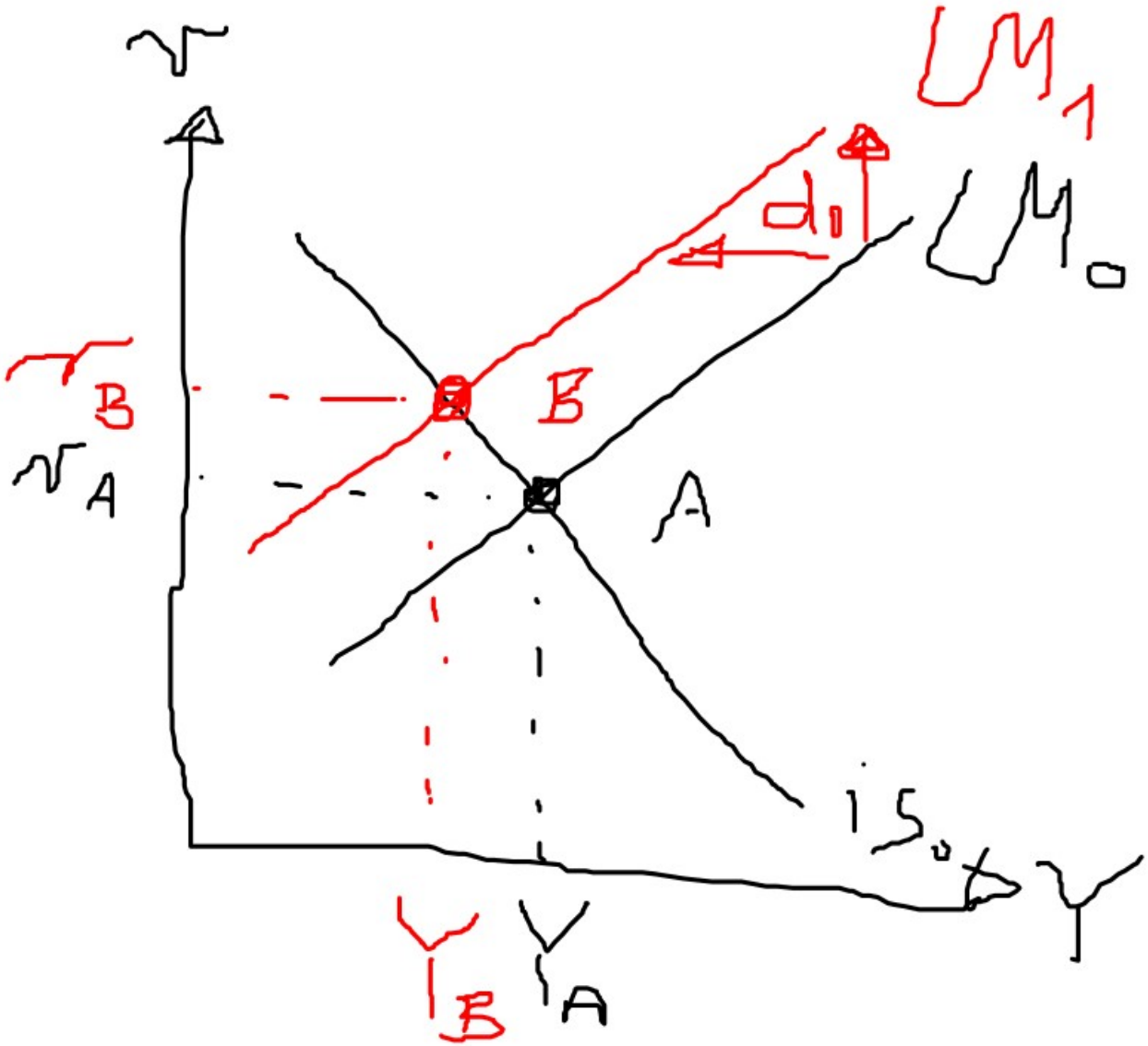
New equilibrium after negative goods demand shock



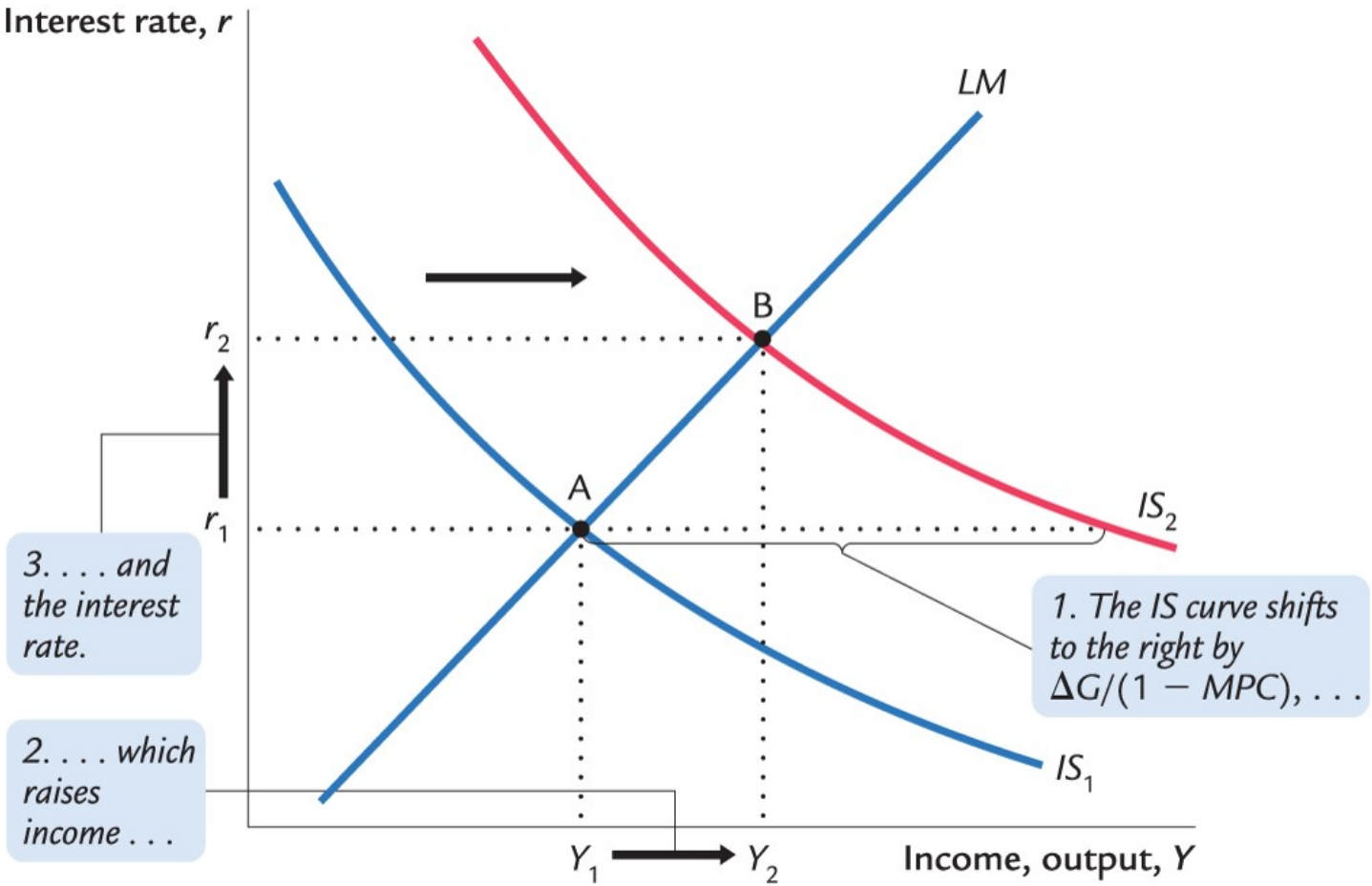
Initial equilibrium before increase in money demand



New equilibrium after increase in money demand



Increase in government spending



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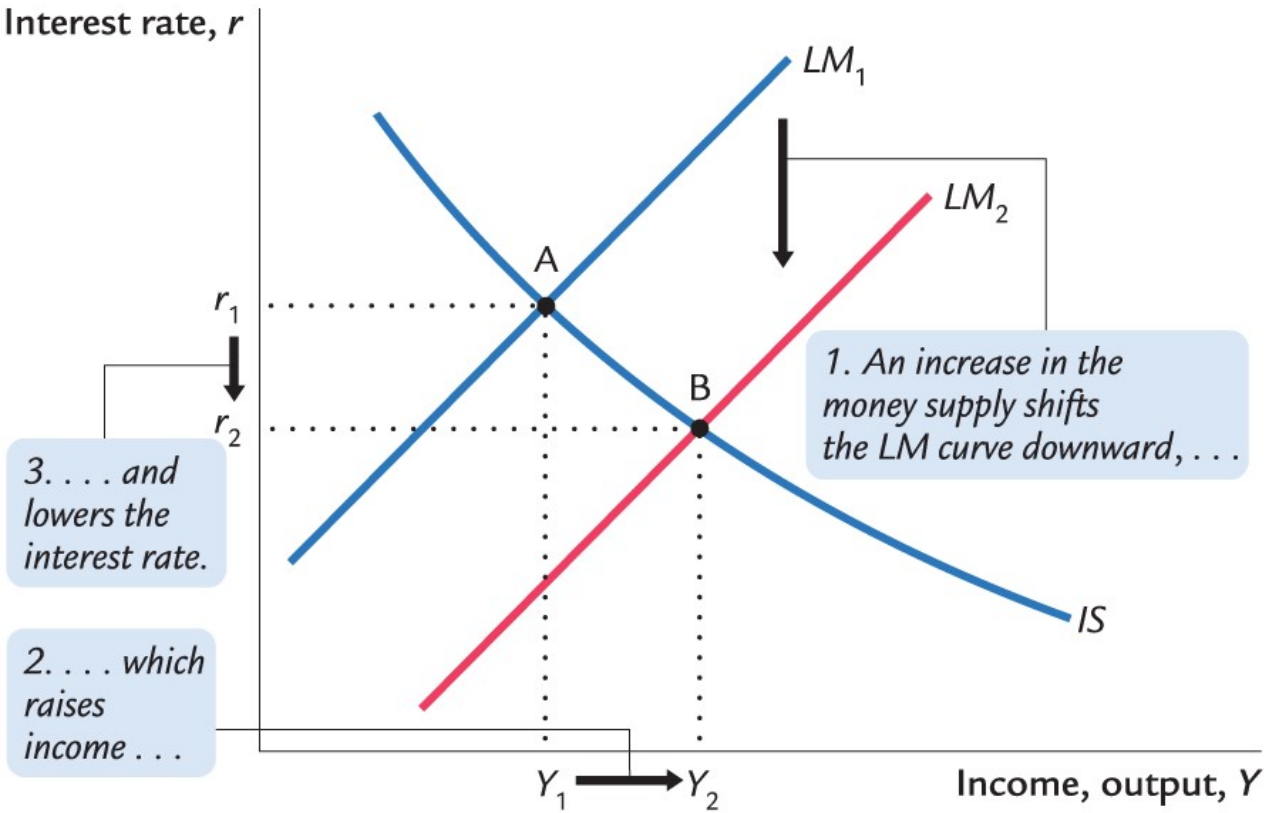
Expansionary fiscal policy: The dynamic adjustment process

- $G \uparrow \Rightarrow Y^D \uparrow \Rightarrow Y^D > Y^S \Rightarrow Y \uparrow \Rightarrow C(Y) \uparrow \Rightarrow Y \uparrow\uparrow\uparrow\uparrow\uparrow$
- Spillover effect from the goods market to the money market:
- $M^D \uparrow \Rightarrow M^D > M^S \Rightarrow B^S \uparrow \Rightarrow B^S > B^D \Rightarrow BP \downarrow \Rightarrow i \uparrow \Rightarrow M^D \downarrow$
- Due to the increase in the interest rate:
- Spillover effect from the money market to the goods market:
- $(-b_2 \cdot i \uparrow) \downarrow \Rightarrow Y^D \downarrow \Rightarrow Y^D < Y^S \Rightarrow Y \downarrow \Rightarrow C(Y) \downarrow \Rightarrow Y \downarrow\downarrow$
- Interest rate induced crowding-out effect reduces the impact on GDP.

Increase in money supply



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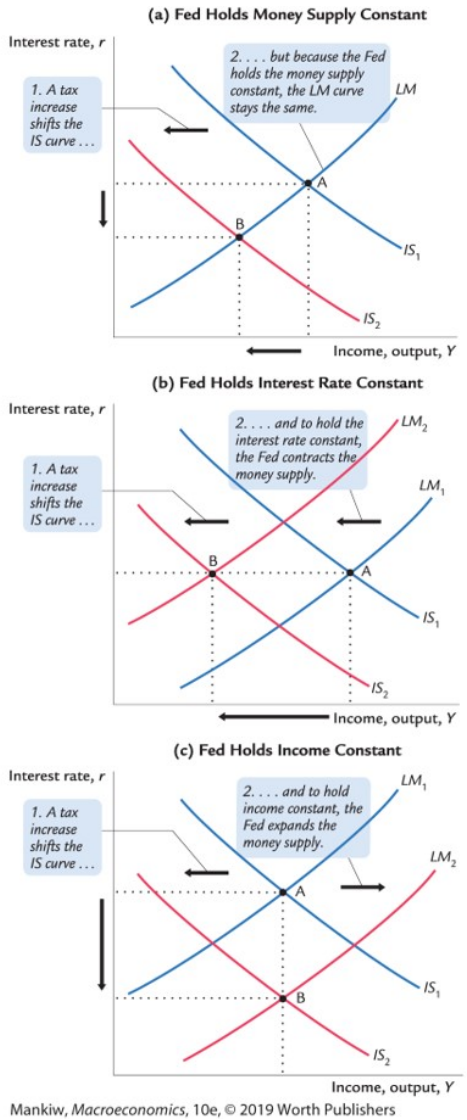
Expansionary monetary policy: The dynamic adjustment process

- $M^S \uparrow \Rightarrow M^S > M^D \Rightarrow B^D \uparrow \Rightarrow B^D > B^S \Rightarrow BP \uparrow \Rightarrow i \downarrow \Rightarrow M^D \uparrow$
- Due to the decrease in the interest rate: Spillover effect from the money market to the goods market:
- $(-b_2 \cdot i \downarrow) \uparrow \Rightarrow Y^D \uparrow \Rightarrow Y^D > Y^S \Rightarrow Y \uparrow \Rightarrow C(Y) \uparrow \Rightarrow Y \uparrow\uparrow\uparrow$
- Due to the increase in GDP: Spillover effect from the goods market to the money market:
- $M^D \uparrow$

Interactions



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Interactions

- The impact of fiscal policy depends
- on the policy the FED implements.
- It depends on the *reaction* of the central bank.
- It depends on whether the central bank keeps
  - money supply,
  - the interest rate,
  - or income constant.

Case study: The U.S. recession of 2001

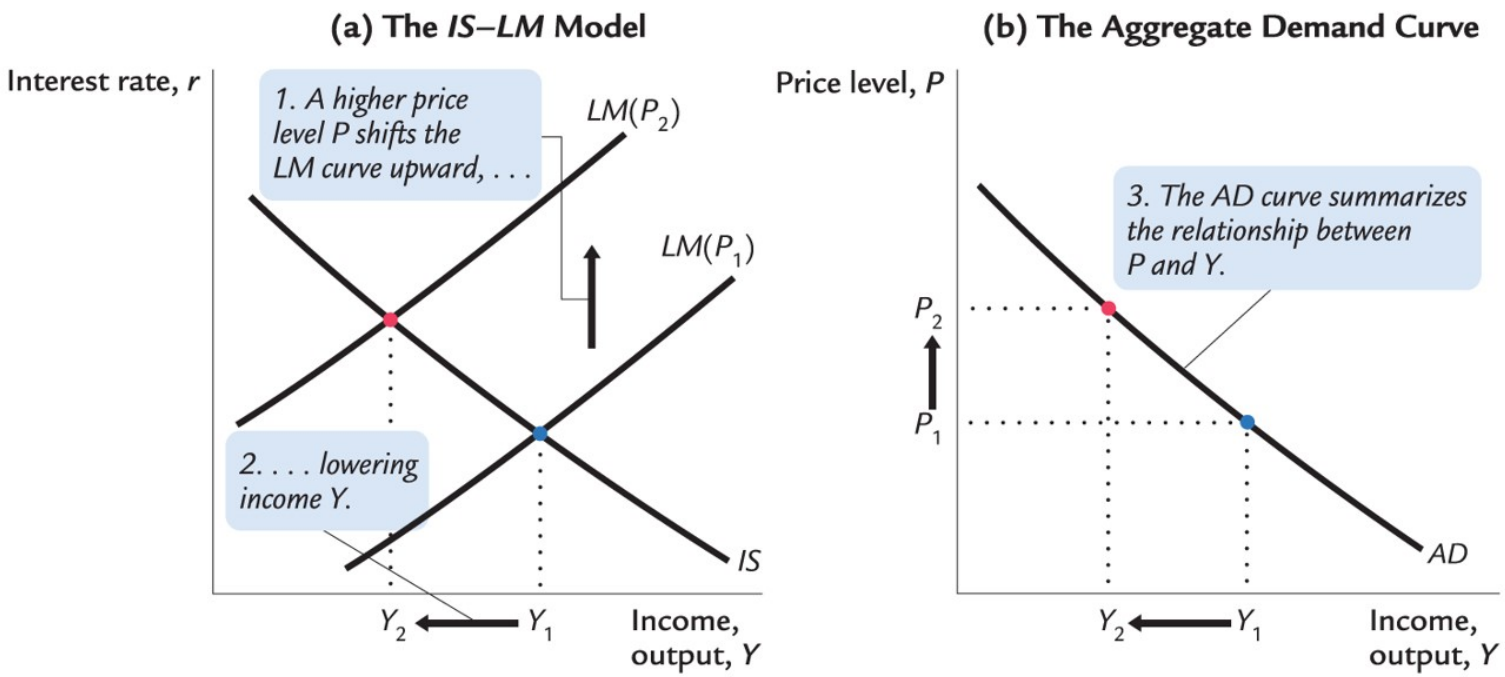
Shocks

1. Drop of stock market (dot-com bubble): Wealth is down $\Rightarrow$ consumption down.
2. 9/11 attacks: Uncertainty for managers and households $\Rightarrow$ consumption & investment down.
3. Series of accounting scandals (Enron WorldCom): Depress stock price & wealth. Lower investment.

Policy responses

- Government: Tax cuts
- Central bank: Expansionary monetary policy.

Deriving the AD curve with the IS-LM model



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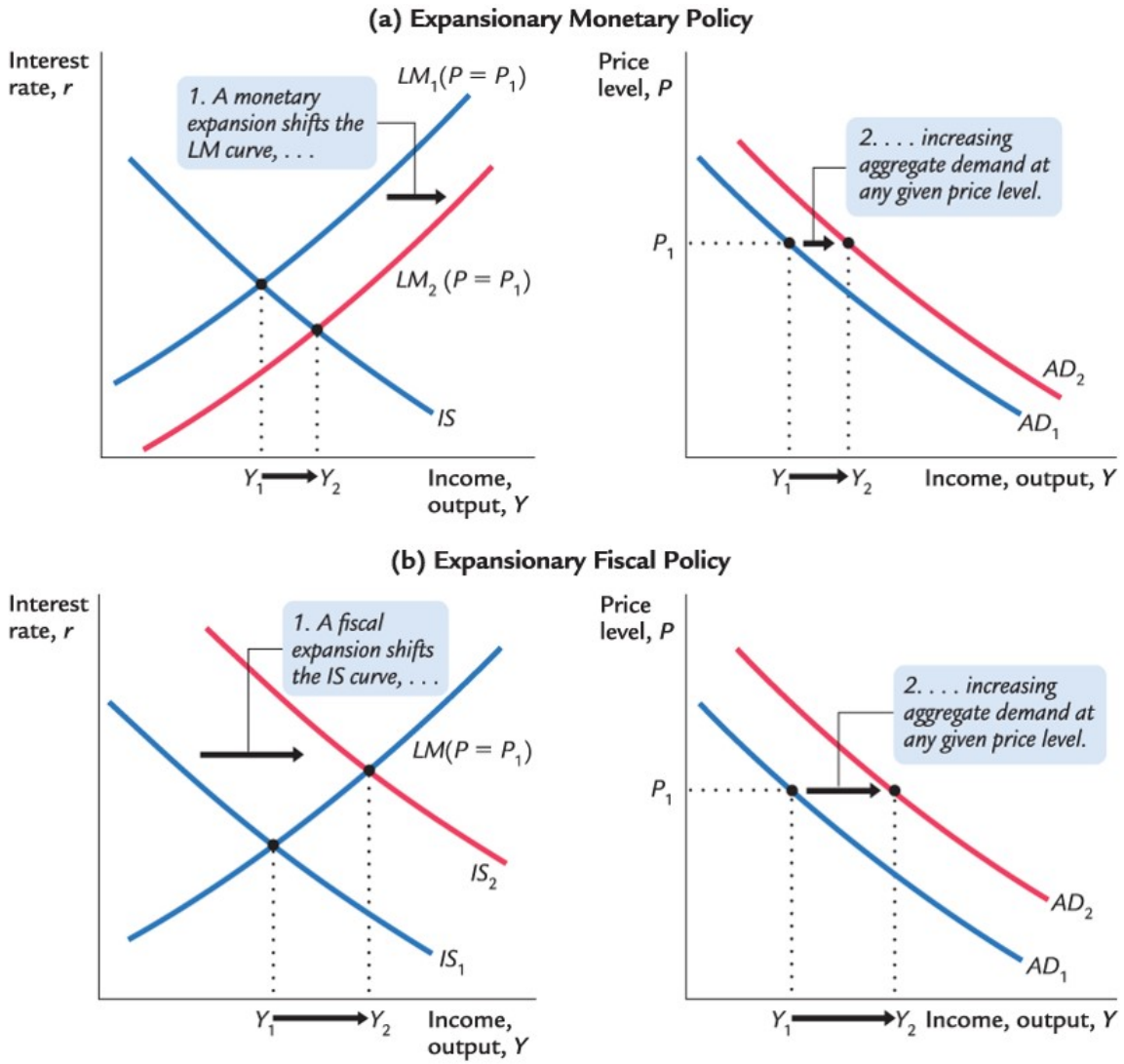
How monetary and fiscal policies shift the AD curve



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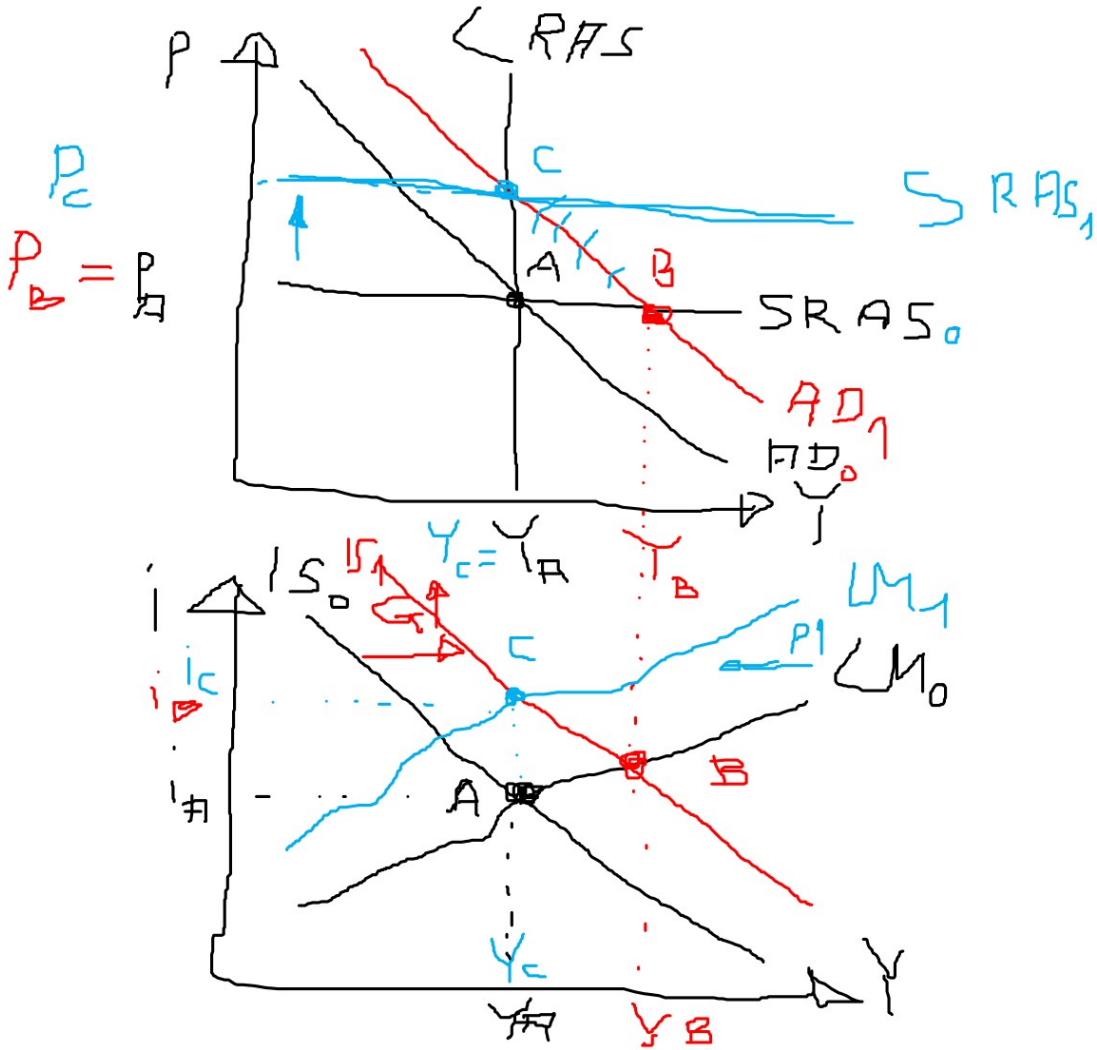
I do not understand...????

- The subchapter *"The IS-LM model in the short run and long run"*
- Figure 12-7 does not make sense to me!



What happened during the great depression?

Year	Unemployment Rate (1)	Real GNP (2)	Consumption (2)	Investment (2)	Government Purchases (2)
1929	3.2	203.6	139.6	40.4	22.0
1930	8.9	183.5	130.4	27.4	24.3
1931	16.3	169.5	126.1	16.8	25.4
1932	24.1	144.2	114.8	4.7	24.2
1933	25.2	141.5	112.8	5.3	23.3
1934	22.0	154.3	118.1	9.4	26.6
1935	20.3	169.5	125.5	18.0	27.0
1936	17.0	193.2	138.4	24.0	31.8
1937	14.3	203.2	143.1	29.9	30.8
1938	19.1	192.9	140.2	17.0	33.9
1939	17.2	209.4	148.2	24.7	35.2
1940	14.6	227.2	155.7	33.0	36.4

What happened during the great depression?

Year	Nominal Interest Rate (3)	Money Supply (4)	Price Level (5)	Inflation (6)	Real Money Balances (7)
1929	5.9	26.6	50.6	—	52.6
1930	3.6	25.8	49.3	−2.6	52.3
1931	2.6	24.1	44.8	−10.1	54.5
1932	2.7	21.1	40.2	−9.3	52.5
1933	1.7	19.9	39.3	−2.2	50.7
1934	1.0	21.9	42.2	7.4	51.8
1935	0.8	25.9	42.6	0.9	60.8
1936	0.8	29.6	42.7	0.2	62.9
1937	0.9	30.9	44.5	4.2	69.5
1938	0.8	30.5	43.9	−1.3	69.5
1939	0.6	34.2	43.2	−1.6	79.1
1940	0.6	39.7	43.9	1.6	90.3

Shocks to goods demand

- Stock market crash of 1929 reduces wealth and impacts consumption ($c_0 \downarrow$).
- Drop in investment in housing.
- Failure of commercial banks: Lower investment.
- Revenue Act of 1932: Increase taxes ($T \uparrow$).
- Still government budget deficit: Decrease government spending ($G \downarrow$)

Shocks to money supply

- Nominal money supply decreases by 25 % (1929: 26.6 to 1933: 19.9).
- Does it shift LM to the left? No! Because real money supply is important which still increases – at least from 1929 to 1931.
- Decrease in nominal money supply is not in line with a shift of the LM curve to the right.

Positive effects of a falling in the good price

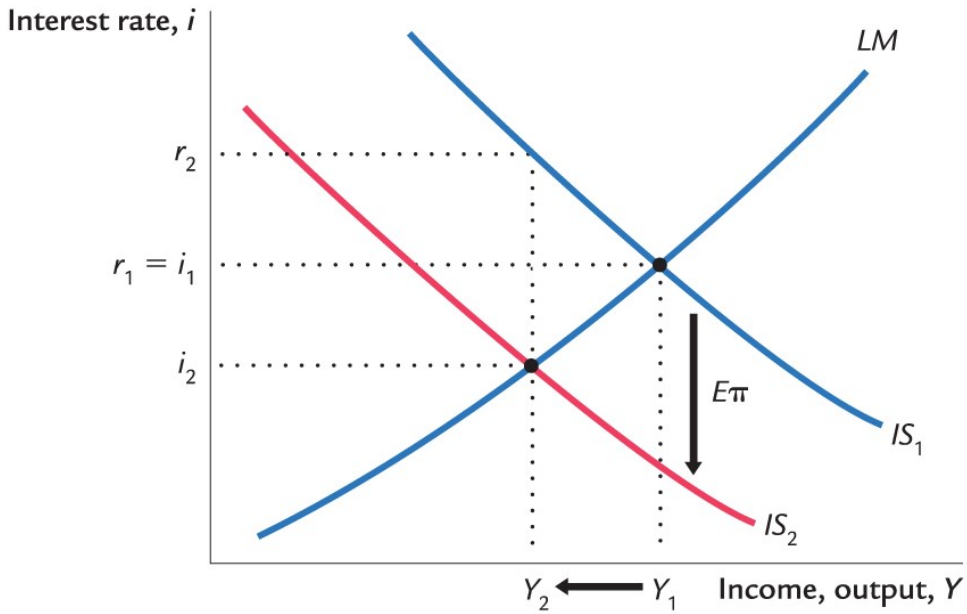
- A decrease in price increases real money supply and shifts the LM curve to the right $\left(\frac{M}{P\downarrow} \uparrow\right)$.
- Pigou effect: Lower prices increases the real value of money, which should stabilize consumption.

Negative effects of a falling in the good price

- Debt-deflation theory.
- Decrease in price leads to deflation expectations, which increases the expected real interest rate.

$$r \uparrow = i - E\pi \downarrow \quad \textit{and} \quad I = I(i - E\pi) \tag{1}$$

Expected deflation in the IS-LM model



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Could the depression happen again?

Today

- Fed would never ever allow nominal money supply to decrease by 25 % (1929: 26.6 to 1933: 19.9).
- Only few economist would opt for a balanced government budged in times of massive unemployment.