Where does aggregate demand come from?

Same dollars, different prices: IS and LM at every price level draw the demand curve of Macro 4, and show what shifts it.

1 Real money

what the money buys

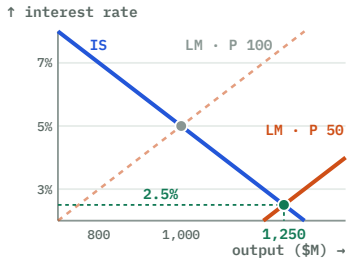
- **Real money supply** = money ÷ price level, in today's prices · Coralia: `200 × 100 ÷ P` · $200M put out at P = 100
- Prices ↓ ⇒ each dollar buys more ⇒ real money ↑ · **no help from the Bank** · prices ↑ ⇒ real money ↓

PRICE LEVEL P	250	200	125	100	50
Real money ($M)	**80**	**100**	**160**	**200**	**400**

2 Keynes effect

lower prices, lower rate

- LM `i = 0.01 × Y − real money ÷ 40` (rate the money market sets at each output · m = 200 ⇒ Lesson 3's `i = 0.01 × Y − 5`) · IS `Y = 1,500 − 100 × i` (output each rate brings)
- P 100 → 50 ⇒ real money 200 → 400 ⇒ LM **down** ⇒ crossing slides down IS ⇒ **2.5%** · **$1,250M** · investment I = 250 − 20 × 2.5 = **200** (+50 × 5 = +250)
- **Keynes effect** = prices ↓ ⇒ real money ↑ ⇒ rate ↓ ⇒ investment ↑ · John Maynard Keynes, English economist, *The General Theory*, **1936**
- **Wealth effect** = prices ↓ ⇒ savings buy more ⇒ spending ↑ even with the rate unchanged · Arthur Pigou, English economist, *Economic Journal*, **1943** · exchange-rate effect ⇒ Lesson 10

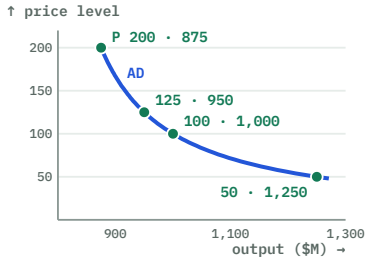


3 AD curve

IS–LM at every P

- **Aggregate demand** = output buyers want at each price level = IS–LM crossing at that real money
- `Y = 750 + 1.25 × real money = 750 + 25,000 ÷ P` · a **curve**: 200 → 100 adds 100 of real money, 100 → 50 adds 200 ⇒ flatter toward bottom right
- Macro 4's straight line (4 per point) ≈ the curve near 100 · P 90: line 1,040, curve 1,028

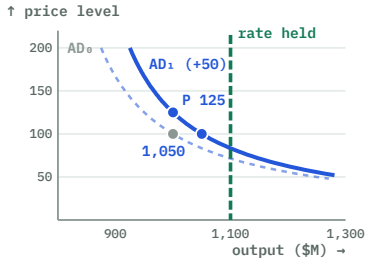
PRICE LEVEL P	250	200	125	100	50
Rate	6.5%	6.25%	5.5%	5%	2.5%
Output ($M)	**850**	**875**	**950**	**1,000**	**1,250**



4 Shifts of AD

how far, set by the Bank

- G (Treasury spending) +$20M ⇒ IS → 100 · **money fixed** ⇒ half crowded out ⇒ AD → **$50M** at every P: `Y = 800 + 25,000 ÷ P` · on it, P 125 ⇒ back to 1,000 (rate 6%, I −20)
- Hotels +$30M at every rate ⇒ IS → 150 ⇒ AD → **75** · Bank buys $40M of bonds ⇒ AD → (at P 100: **+50**)
- **Rate held at 5%** ⇒ the price level cannot move the rate ⇒ AD **vertical** · with G +20: **$1,100M** · without: $1,000M at any P (P 50 ⇒ Bank leaves out only **$100M**, sells $100M of bonds)
- Real banks raise the rate when inflation rises ⇒ demand slopes down again (Lesson 7) · drawn against **inflation** = the **MP curve** (monetary policy)



5 Along or shift

one rule

- ALONG AD the **price level** changes (and what the rate does because of it) · P 100 → 125 ⇒ real money 160 ⇒ 5.5% ⇒ I 140 ⇒ **$50M**
- AD RIGHT G ↑, taxes ↓, confidence ↑, rate cut, money ↑ · AD LEFT G ↓, taxes ↑, saving ↑, confidence ↓, money ↓
- Watch out: a fall in the price level is a **move along** AD, never a shift

6 Japan

when the rate is stuck

- Consumer prices (OECD, 2015 = 100): **100.1** (1998) → **96.9** (2005) → **96.2** (2012) ≈ −4% · Bank of Japan overnight rate ≈ **0** from Feb **1999**, at or near zero most of 13 years
- Rate at the floor ⇒ Keynes effect has no room ⇒ lower prices, little extra investment (zero lower bound ⇒ Lesson 7) · one reading: aging population and bad bank loans also mattered, debated
- University next: IS–LM–Phillips model with expectations (Olivier Blanchard, French, *Macroeconomics*)

Eleven ideas behind the big picture · 1 Spending decides output · 2 A lower interest rate means more spending: the IS curve · 3 The Bank picks the rate; the IS curve then picks the output · **4 Aggregate demand is IS–LM at every price level**