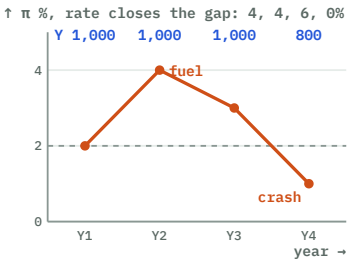
Can you run the Bank of Coralia?

The whole model of the course on one dashboard: four shocks, what an interest rate can fix and what it cannot, expectations that catch up, the floor at zero, rules against discretion, lags and mandates.

1 The dashboard

three rules at once

- `Y = 1,300 − 100 × r − shortfall` spending decides output (L2, L7) · `u = 5 − (Y − 1,000) ÷ 50` Okun (L5) · `π = πᵉ − 0.5 × (u − 5) + shock` Phillips (L6)
- **Real rate** `r = i − πᵉ` = Bank's rate − expected inflation · at rest: 5% − 2% = **3%** ⇒ Y **1,000**, u **5%**, π **2%**
- 1 point of real rate ⇒ output ±**100** · rate that closes the gap: `i = πᵉ + (300 − shortfall) ÷ 100`
- **Expectations half-update**: next π^e = halfway between π^e and π (Lesson 6: full update)



2 Four shocks

one per year · IS = output at each rate · gap = % off 1,000

SHOCK	WHAT MOVES	THE ARITHMETIC
1 Tourists leave	spending −100	cut 5% → **4%** (r 2%) ⇒ 1,000
2 Fuel doubles	prices +2, one year	π 2 → **4%** at 1,000 · next year π^e 3 ⇒ π **3%**
3 Treasury +$20M	IS +100 (L3)	1,100 at 5% · raise to **6%** ⇒ 1,000 (policy mix)
4 Crash	spending −800	Taylor (L7: π 1%, gap −10): 3 + 1 − 0.5 − 5 = **−1.5%** ⇒ stuck at 0%

- Practice: storm −200 ⇒ at 5%: Y 800, u 9%, π 0% · rate **3%** · boom +200 ⇒ at 5%: Y 1,200, π 4% · rate **7%**

3 What a rate can fix

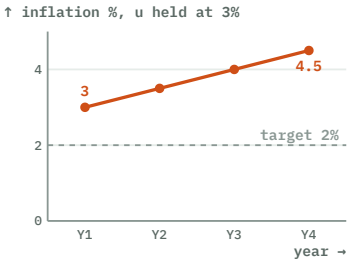
and what it cannot

- **Demand shock** = change in spending ⇒ Y and π move the **same way** ⇒ one rate fixes both · π^e 2%: floor of 0% offsets a fall of ≤ **500**
- **Supply shock** = jump in costs (fuel, drought) ⇒ prices up, spending unchanged ⇒ **trade-off**: hold output ⇒ inflation stays up · cut inflation ⇒ jobs lost (Macro 4 SRAS = short-run supply · History 5)
- Drought +4: π **6%** ⇒ π^e 4 ⇒ π **4%** and stays 4% at u 5% · 2% at once ⇒ 4 − 0.5 × (u − 5) = 2 ⇒ u **9%**, Y 800
- **Zero lower bound** (L7) = rate cannot go below ≈ 0% · crash −700 at 0%: Y 800 ⇒ Treasury **$40M** (100 per $20M) · bond purchases

4 You can't buy jobs

expectations

- Hold u at **3%** (< natural 5%) ⇒ `π = πᵉ + 1` ⇒ **3, 3.5, 4, 4.5%** ⇒ never settles
- u < 5% → π beats π^e → π^e rises → same u, higher π · Friedman 1968 & Phelps 1967, US (L6)
- Phillips curve ≠ a **menu** · true in the model; running hot for a while = a policy choice the model does not make



5 Rules or judgment

lags, mandates

- **Rule** = Bank commits in advance (Taylor rule: John Taylor, American, **1993**, `i = 3 + π + 0.5 × (π − 2) + 0.5 × gap`) · **discretion** = decides case by case · **mandate** = goal set by law
- **Time inconsistency** = promise the Bank is tempted to break once believed: surprise inflation ⇒ jobs for a while ⇒ people foresee it ⇒ inflation, no gain · Finn **Kydland** & Edward **Prescott**, "Rules Rather than Discretion", **1977**, Nobel 2004 · Robert Barro & David Gordon, **1983**
- For rules: steady expectations ⇒ cheap disinflation · for judgment: four new shocks in four years, no formula foresees the next
- **Lags**: Milton Friedman, **1961**: a rate works after a long and variable delay · Bank sees last quarter, bites in 1-2 years
- US Federal Reserve (law of **1977**): maximum employment, stable prices, moderate long-term rates · European Central Bank (treaties): price stability first · facts, no verdict

6 Watch out

the classic mistakes

- Watch out: "a rate fixes every shock" × ⇒ supply shock = trade-off, crash = floor at 0% · nominal rate ≠ real rate (subtract π^e) · Phillips curve ≠ menu
- **This lesson shows what the model says; it does not tell you which policy is right.** · toy numbers: 1 point of rate ≠ 10% of real GDP
- Next at university: **New Keynesian** (heirs of Keynes) three-equation model (IS, Phillips, rule) · **DSGE** models (dynamic stochastic general equilibrium)

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 AD is IS–LM at every price level · 5 Full employment is where wage setters and price setters agree · 6 Inflation is expected inflation plus the gap: you cannot fool everyone twice · 7 The Bank moves the real rate, and at zero it runs out of room · 8 Debt grows with the interest rate and shrinks with growth · 9 Saving raises the level of income; only ideas raise its growth · 10 Across the border, the interest rate moves the exchange rate too · **11 Policy is a choice under uncertainty: rules, discretion and lags**