

# Lecture 22: The IS-MP-AD-PC Model and Optimal Policy

ECON 30020: Intermediate Macroeconomics

Prof. Eric Sims

University of Notre Dame

Spring 2026

# Readings

GLS Ch. Appendix E

# Optimal Monetary Policy

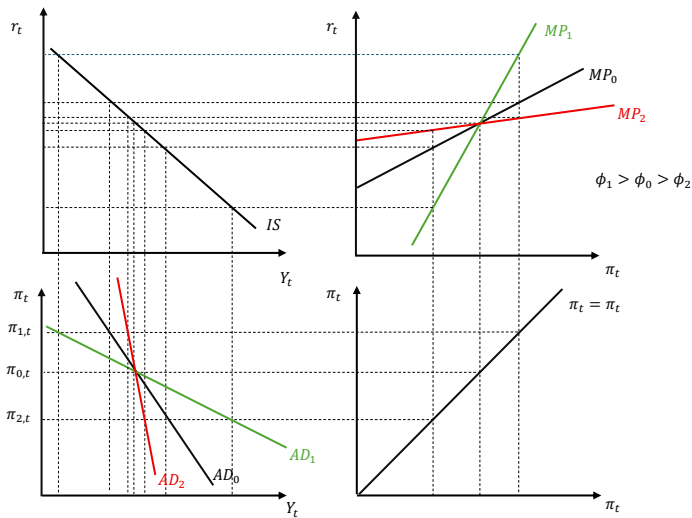
Recall the Fed's "dual mandate"

- Price stability: constant inflation rate
- Full employment: no output gap ( $Y_t = Y_t^f$ )

Absent price shocks, monetary policy is "easy" in this model: want a big  $\phi$

A large  $\phi$  makes the AD curve relatively flat

# MP Responsiveness to $\pi$ and the AD Curve



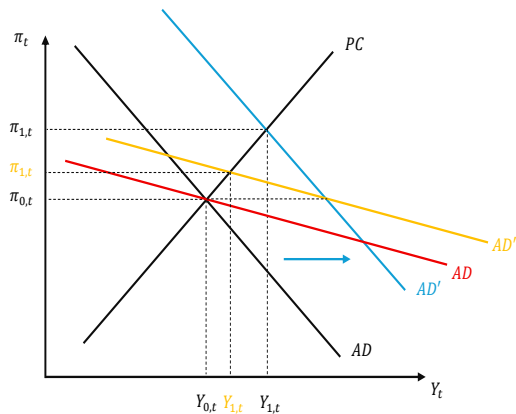
# Benefits of a Flatter AD

A larger value of  $\phi$  makes the AD curve flatter

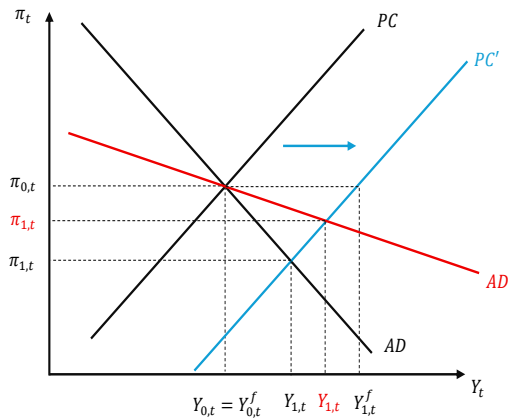
Why is this good?

- Demand shock: horizontal shift of AD curve doesn't depend on  $\phi$ . Larger  $\phi$  / flatter AD: smaller movement in both  $\pi_t$  and  $Y_t$  (and hence small movement in  $Y_t - Y_t^f$ )
- “Efficient” supply shock (change in  $Y_t^f$ ). Shifts PC horizontally by the change in  $Y_t^f$ . Larger  $\phi$  / flatter AD: smaller movement in  $\pi_t$  and larger movement in  $Y_t$  (but therefore smaller movement in  $Y_t - Y_t^f$ )

## Demand Shock: Bigger $\phi$ (flatter AD)



## Efficient Supply Shock: Bigger $\phi$ (flatter AD)



# The MP Curve and the Money Supply

We previously framed policy in terms of  $M_t$

The conclusions here aren't any different. In background, given target  $i_t$ , the money supply has to endogenously adjust to meet money demand

- Positive demand shock: raise nominal rate, cut the money supply (i.e., counteract the shock)
- Positive (efficient) supply shock: cut nominal rate, raise the money supply (i.e., accommodate the shock)

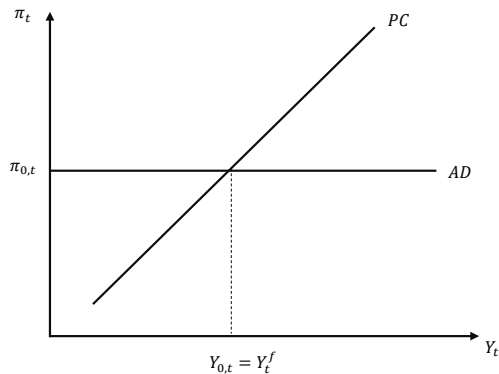
# Divine Coincidence

Blanchard and Gali (2007): no tradeoff between stabilizing inflation and the output gap

Theoretical underpinning for inflation targeting

- Let  $\phi \rightarrow \infty$ : AD becomes horizontal
- Inflation fixed at target

# Inflation Targeting and the AD Curve



# The Natural Rate of Interest

The natural rate of interest (or “r-star”): the real interest rate consistent with the economy operating at potential

Potential:  $Y_t = Y_t^f$ .  $r_t^f$  is the real rate that solves the IS equation at  $Y_t^f$

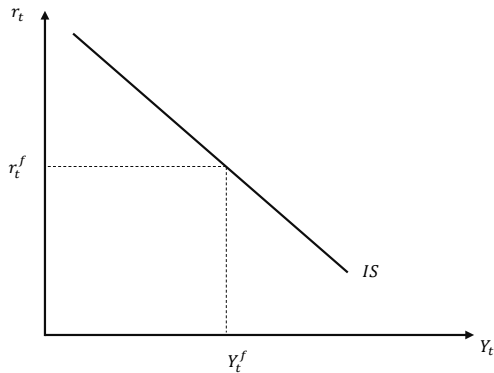
$$Y_t^f = D(\bar{A}_t, r_t^f)$$

$r_t^f$  is endogenous: it changes in response to real demand (anything that shifts the IS curve) and supply shocks (anything that changes  $Y_t^f$ )

In the MP rule,  $\phi \rightarrow \infty$  implements this

- Note,  $\infty \times 0 \neq 0$ !

# The Natural Rate of Interest



# Breakdown

Divine coincidence does not hold conditional on price shocks

Large  $\phi$ : small inflation response, but large output response

To extent to which price shocks were important post-COVID, seems the Fed had a relative low  $\phi$

## Price Shock: Bigger $\phi$ (flatter AD)

