The Phillips Curve and Policy Debates

ECON201 - Winter, '24

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18 January 2024

This Lecture

– Last lecture, we discussed how the government can increase aggregate demand in the short run and, thus, stabilize the economy.

– Today, we will take another look at monetary policy and the tradeoff between inflation and unemployment.

– The Phillips Curve describes this tradeoff.

– Once again, distinction between short run and long run is crucial.

– Finally, we will apply what we learned to real policy debates.

– **Please fill out the course evaluation. Thank you!**
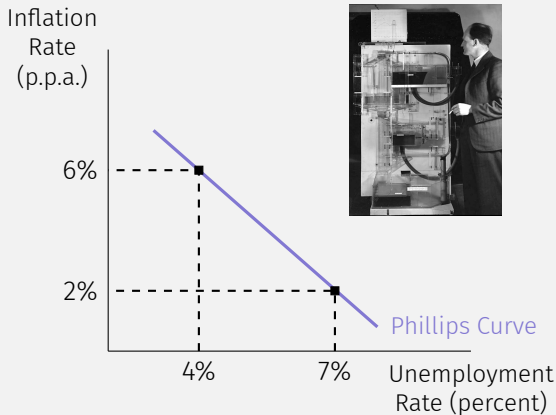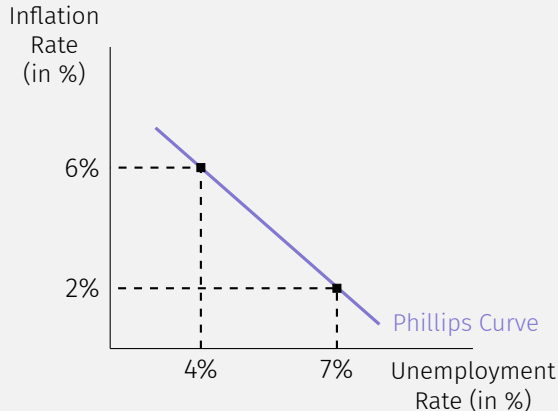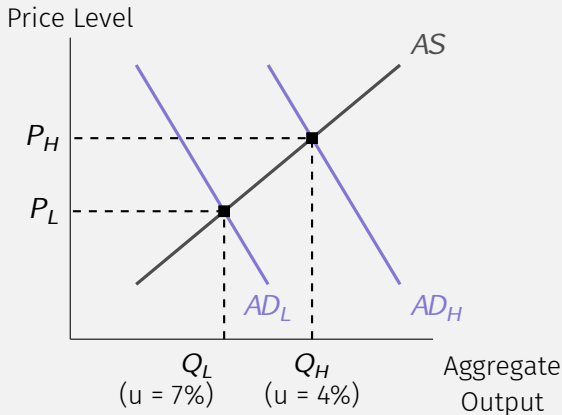
Outline

The Phillips Curve

- *The Phillips Curve:*
  Short-run negative correlation
  between inflation/nominal wages
  and unemployment.
- Originally studied in the UK by New
  Zealand economist A.W. Phillips.
- Low unemployment → High AD →
  Upward pressure on prices.
- Policy menu in terms of
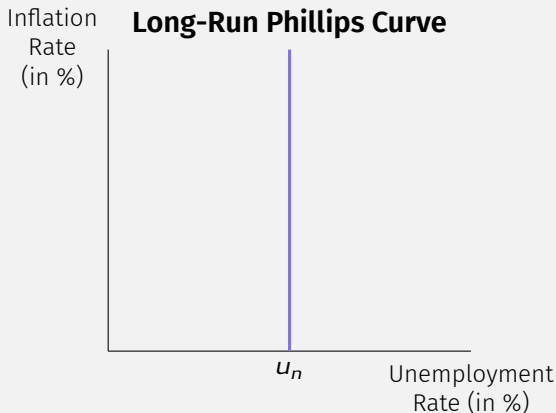 inflation/unemployment tradeoffs?

Policy Tradeoff

– Shifts in AD move the economy along the Phillips Curve.

– Fiscal and monetary policy can choose a point along PC.
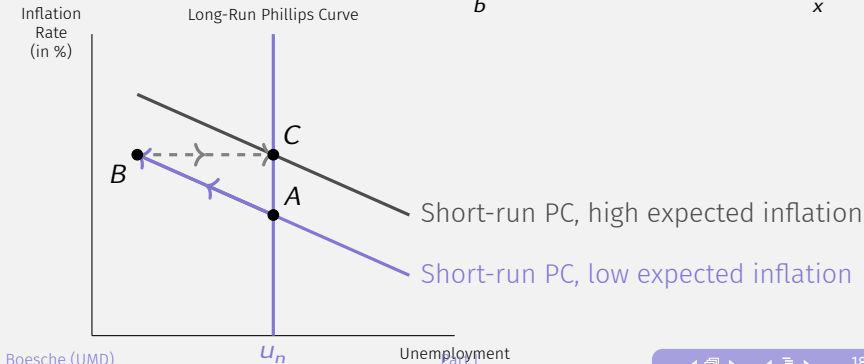
Is The Phillips Curve Stable?

- Phillips Curve is short-run relationship!
- In long-run, inflation expectations adjust.
  $\rightarrow$ Long-run PC is vertical.
- **Reason:** Monetary neutrality.
- Long-run PC = unemployment at natural rate.
- So, policy's ability to exploit PC depends on *unexpected* inflation.

Long-Run Phillips Curve

Inflation Rate (in %)

u_n

Unemployment Rate (in %)

A Formula for the Phillips Curve

$$\text{Unemployment rate} = \frac{\text{Natural rate of}}{\text{unemployment}} - a\left(\frac{\text{Actual}}{\text{Inflation}} - \frac{\text{Expected}}{\text{Inflation}}\right)$$

$$\underbrace{\text{Unemployment rate}}_{y} = \underbrace{\frac{\text{Natural rate of}}{\text{unemployment}} + a \times \frac{\text{Expected}}{\text{Inflation}}}_{b} \underbrace{-a}_{+m} \times \underbrace{\frac{\text{Actual}}{\text{Inflation}}}_{x}$$

Inflation Rate (in %)

Long-Run Phillips Curve

C

B

A

Short-run PC, high expected inflation

Short-run PC, low expected inflation
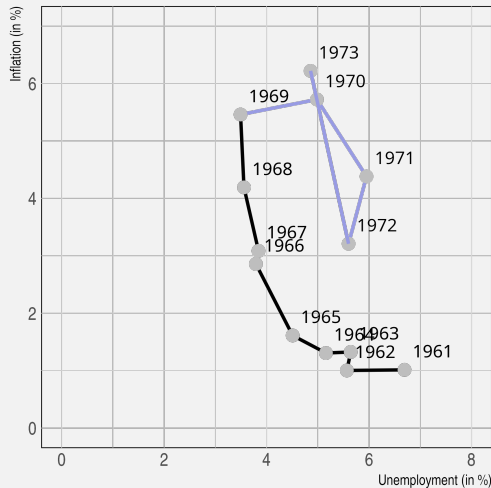
u_n

Unemployment

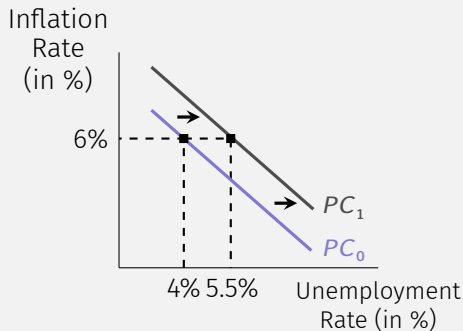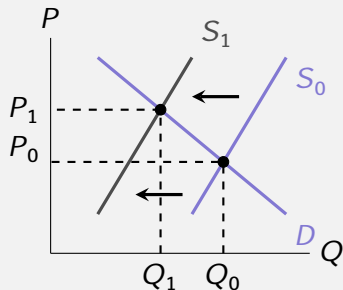# Outline

A Case Study: The 1970s

– In late 1960s, the expansionary fiscal and monetary policy increased aggregate demand.[a]

– This led to substantial inflation.

– Initially, unemployment fell.

– But, starting in 1970, unemployment rates increased.

→ People expected high inflation, PC shifted up.

_____

[a]Data: Bureau of Labor Statistics

A Case Study: The 1970s

– Another reason for shifts in the PC are *adverse supply shocks*.

– In 1974, OPEC reduced global oil supply. This increased oil prices.

– U.S. economy relied on imported oil.

– Natural rate of unemployment $\uparrow$ $\rightarrow$ PC $\uparrow$

Outline

Outline

Sacrifice Ratio

– *Disinflation:* Reduction in the rate of inflation.

– *Sacrifice Ratio:*
  The number of percentage points of annual output lost in the process of reducing inflation by 1 percentage point.

– Typical estimate of the sacrifice ratio = 5.

– **Example:**
  To reduce inflation from 10% to 4%, sacrifice 30% of annual output.

Wait! We just experienced this amount of disinflation. But, surely, output is not 30% lower...

Outline

Rational Expectations

- *Rational Expectations:*
  People optimally use all the information they have, including information about government policies, when forecasting the future.

- Based on work of Barro, Sargent and Lucas. See *Lucas Critique.*

- *Credible commitment* is all that is necessary to shift back the PC/expectations.
$\rightarrow$ If policymakers are credible, sacrifice ratio may be much lower.

Outline

Outline

The Problem

– Recessions are associated with weak aggregate demand.

– Monetary policy can alleviate shortfalls in aggregate demand.

– However, monetary policy acts with a lag, may not be enough, and may be limited by ZLB.

– Thus, fiscal stimulus is needed.

– But what is more effective, tax cuts or spending hikes?

Spending Hikes

– Spending hikes should have a higher multiplier.

– Initial spending adds to aggregate demand one-for-one.

– Tax cuts are attenuated by how much households save of the additional disposable income.

– Three types of quick government spending:
  i. "shovel-ready" projects,
  ii. compensation for state and local govt's fall in tax revenue, and
  iii. increased unemployment benefits.

Tax Cuts

– Tax cuts are a quick way to increase aggregate demand.

– Lower taxes may also increase supply, especially corporate tax cuts.

– Tax cuts require less granular decisions/planning by the government. The potential waste is smaller.

– Different taxes can be cut to incentivize different behavior (e.g. decentralizing investment).

Outline

The Problem

– We learned that the Fed is independent. It has a lot of discretion and influence over the economy.

– The only constraint on the Fed is its mandate to "promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

– Politically, this is undemocratic.

– Economically, it leaves a lot of ambiguity/uncertainty—not good for economic outcomes.

– Should the Fed is constrained by tighter rules?

Rules-Based Policy

- **Problems of Discretion:**

  i. Political influence (e.g. Nixon reelection 1972).

  ii. Time inconsistency may lead to higher inflation.
  People could expect central bankers to exploit Phillips Curve by reneging
  on policy announcements.

- **Potential Policy Rules:**

  i. Fixed money supply growth rate.

  ii. Simple rule based on nominal GDP.

  iii. Explicit formula weighing different measures of policy objectives.

Discretionary Policy

– Discretionary policy allows fast and creative problem solving.
- Oil price shocks of 1970s.
- Quantative easing in 2007/2008.
- Corporate bond purchases during Covid pandemic.

– Institutional design can minimize political influence.
- Central bank independence (coventions).
- Senate confirmations and long tenures.
- Large, bipartisan committees (e.g. FOMC).

– Time inconsistency depends on perceptions of Fed's goals.
- Since 2012, the Fed is committed to *inflation targeting*.
- Price stability is perceived as Fed's primary goal.
- Central bankers know how important credibility is.

Outline

Costs of Inflation

– Previously, we have seen that inflation is costly:

    i. Shoeleather costs,

    ii. menu costs,

    iii. distortions of relative prices and tax thresholds,

    iv. arbitrary redistribution of wealth related to nominal debt.

– The Fed's mandate is about price *stability*.

– Then, why does the Fed aim for 2% inflation, rather than none at all?

Zero Inflation Policy

– To achieve price stability, the Fed would first need to reduce inflation $\rightarrow$ sacrifice some output.

– As expectations adjust, costs would fall.

– Price stability would have permanent benefits:
  i. Less shoeleather and menu costs,
  ii. make prices and related policies more predictable,
  iii. reduce need for (costly) inflation-adjusted debt.

– Finally, 0% inflation is less arbitrary than 2%...

Moderate Inflation Target

– Moderate inflation costs relatively low:
  i. Expectations will adjust to stable inflation, and
  ii. potential gains from "gaming" inflation are low.

– Central bank can undershoot target without risking deflation.

– With inflation, real prices/wages can be cut without decreasing them nominally.

– Zero Lower Bound and negative real interest rates:
  i. Nominal interest rates cannot fall (much) below zero.
  ii. **Fisher equation:**

     Real interest rate = Nominal interest rate – Inflation rate

  iii. But, negative interest rates may help in recessions.

Outline

Debt-to-GDP
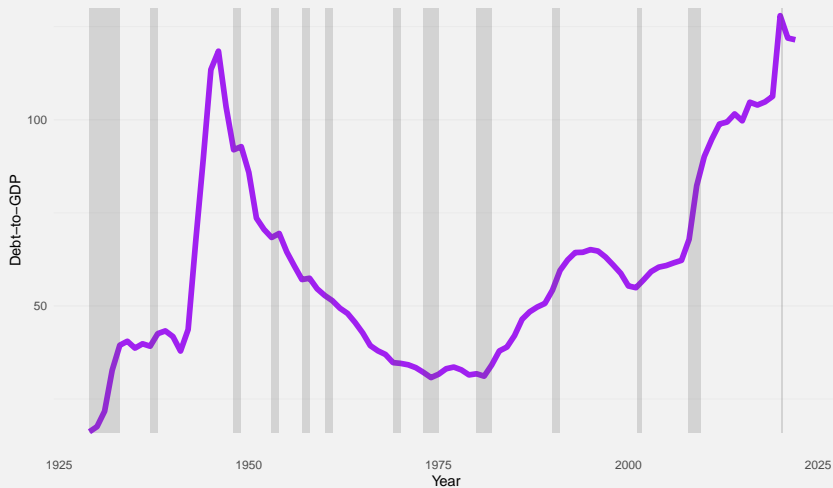
Debt data from the U.S. Treasury. Annual GDP data from FRED. NBER recessions underlayed in grey.
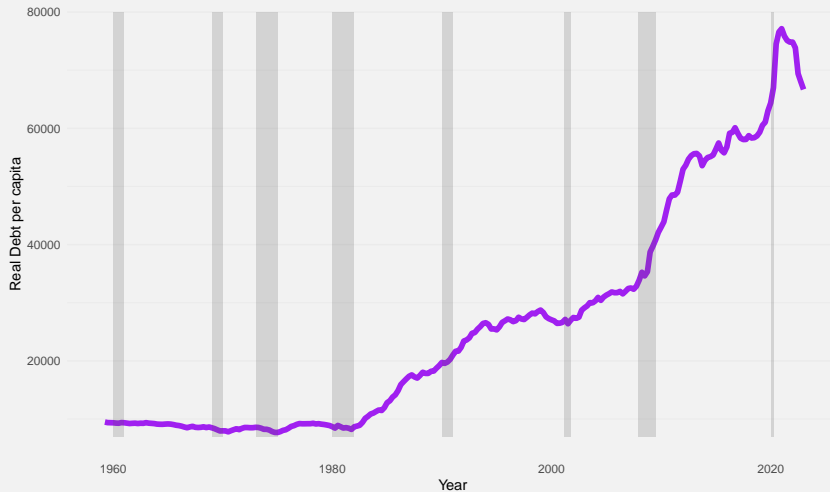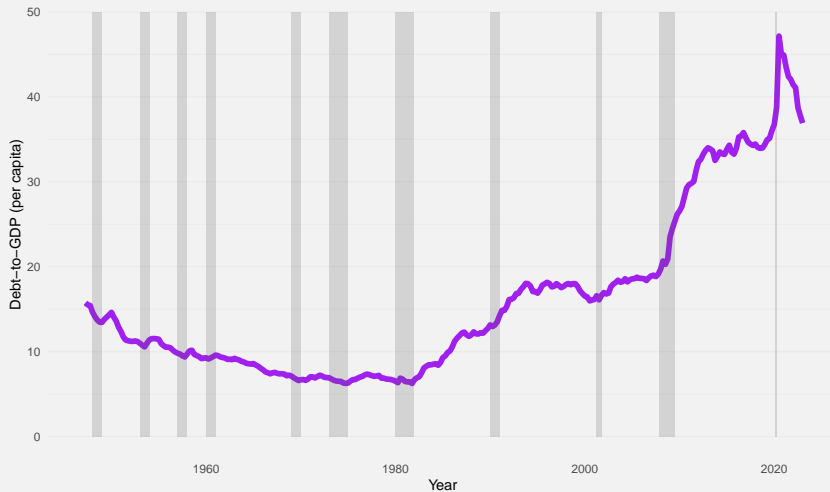
Real Debt per Capita

Debt data from the U.S. Treasury. Annual GDP data from FRED. NBER recessions underlayed in grey.

Debt as % of GDP per capita

Debt data from the U.S. Treasury. Annual GDP data from FRED. NBER recessions underlayed in grey.

The Problem

– We have seen that budget deficits *crowd-out* private investment and reduce the fiscal multiplier.

– *Austerity* would reduce aggregate demand. Cause a recession?

– Reducing spending or increasing taxes will always harm someone's priorities.

– The U.S. had large deficits for a long time. How important is this really?

Why Austerity?

– Running budget deficits decreases national saving → reduces private capital accumulation and future growth.

– Fiscal stimulus in recessions works best if the government can borrow cheaply. High debt makes debt more expensive.

– The higher the debt, the greater the share of taxes used to pay interest.

– High debt makes government more vulnerable to rising interest rates.

How I Learned to Stop Worrying and Love the ~~Bomb~~ Debt

- Costs of debt cannot be seen in isolation. Debt may finance high-return spending (e.g. education).

- The costs of a austerity-caused recession may be much higher than the costs of the debt.

- Even debt of 100% of income is not actually that high relative to many private household debt.

- The U.S. should make use of its hegemony in international financial markets (i.e. low interest rates).

A Note on Generational Justice

– The textbook argues that debt transfers financial burden from current generations to older generations.

– This is slightly misleading.

– No debt is truly intertemporal. While cashflows may only occur in the future, bonds are traded between currently living people.

– The true benefactors of government debt are bond holders, who get compensated for lending to the government.

– In the case of the U.S. government, these are wealthy individuals, financial institutions (esp. pension funds), and foreign governments.

Outline

Conclusion on Debates

– Spending hikes require more planning but tax cuts are less targeted.

– The Fed benefits from self-imposed rules but the strictures of simple rules would be harmful.

– Moderate but stable inflation is not much more costly, less risky and more flexible than zero inflation.

– High levels of debt are not bad *per se* but debt has real tradeoffs and distributional effects.

Lecture Conclusions

– We have seen how monetary and fiscal policy can affect aggregate demand.

– Explored whether the Phillips Curve is a menu of unemployment/inflation tradeoffs.

– Phillips Curve is only stable in the short-run. In the long run, natural unemployment rate and inflation expectations matter.

– Credible policy commitment is crucial due to *rational expectations*.

Thank You!

Thank you for your participation!

Please fill out the course evaluation and good luck for the final!