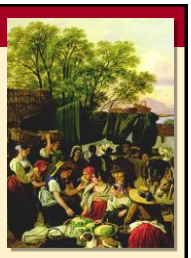
N. Gregory Mankiw

Principles of Economics

Sixth Edition



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The Short-Run Tradeoff Between Inflation and Unemployment

Premium PowerPoint Slides by Ron Cronovich

In this chapter, look for the answers to these questions:

- How are inflation and unemployment related in the short run? In the long run?
- What factors alter this relationship?
- What is the short-run cost of reducing inflation?
- Why were U.S. inflation and unemployment both so low in the 1990s?

Introduction

- In the long run, inflation & unemployment are unrelated:
  - The inflation rate depends mainly on
  - Unemployment (the "natural rate") depends on
- One of the Ten Principles:
  In the short run, society faces a trade-off between inflation and unemployment.

The Phillips Curve

- **Phillips curve**:
- 1958: A.W. Phillips showed that nominal wage growth was negatively correlated with unemployment in the U.K.
- 1960: Paul Samuelson & Robert Solow found a negative correlation between U.S. inflation & unemployment, named it "the Phillips Curve."

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Deriving the Phillips Curve

- Suppose ***P*** = 100 this year.
- The following graphs show two possible outcomes for next year:
  - **A.** Agg demand low, small increase in ***P*** (i.e., low inflation), low output, high unemployment.
  - **B.** Agg demand high, big increase in ***P*** (i.e., high inflation), high output, low unemployment.

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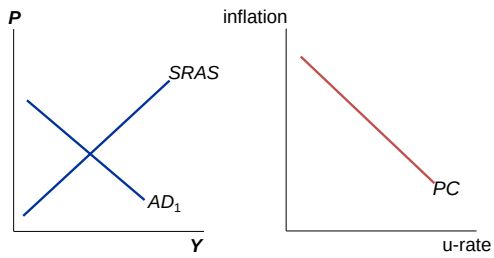
Deriving the Phillips Curve

A. Low agg demand, low inflation, high u-rate



B. High agg demand, high inflation, low u-rate

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The Phillips Curve: A Policy Menu?

- Since fiscal and mon policy affect agg demand, the *PC* appeared to offer policymakers a menu of choices:
  -
  -
  - anything in between
- 1960s: U.S. data supported the Phillips curve. Many believed the *PC* was stable and reliable.

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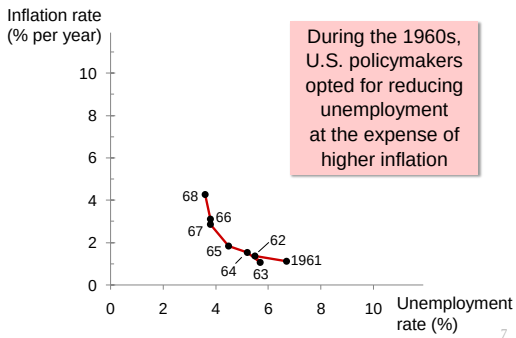
Evidence for the Phillips Curve?



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The Vertical Long-Run Phillips Curve

- 1968: Milton Friedman and Edmund Phelps argued that the tradeoff was temporary.
- **Natural-rate hypothesis**: the claim that
- Based on the classical dichotomy and the vertical *LRAS* curve

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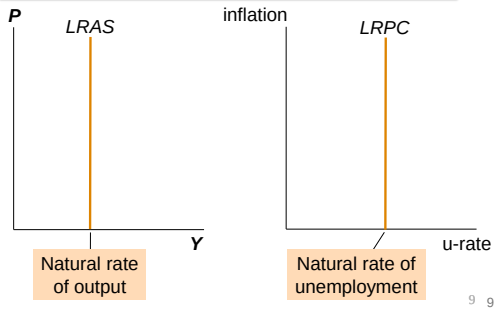
The Vertical Long-Run Phillips Curve

In the long run, faster money growth only causes faster inflation.



Reconciling Theory and Evidence

- Evidence (from ’60s):
  PC slopes downward.
- Theory (Friedman and Phelps):
  PC is vertical in the long run.
- To bridge the gap between theory and evidence, Friedman and Phelps introduced a new variable: **expected inflation** –

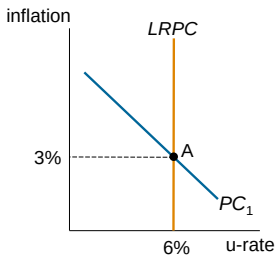
The Phillips Curve Equation

Short run
Fed can reduce u-rate below the natural u-rate by

Long run
Expectations catch up to reality,

How Expected Inflation Shifts the *PC*

Initially, expected & actual inflation = 3%, unemployment = natural rate (6%).



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ACTIVE LEARNING 1

A numerical example

Natural rate of unemployment = 5%
Expected inflation = 2%
In *PC* equation, $a = 0.5$

A. Plot the long-run Phillips curve.

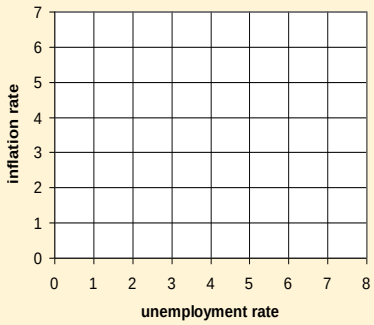
B. Find the u-rate for each of these values of actual inflation: 0%, 6%. Sketch the short-run *PC*.

C. Suppose expected inflation rises to 4%. Repeat part B.

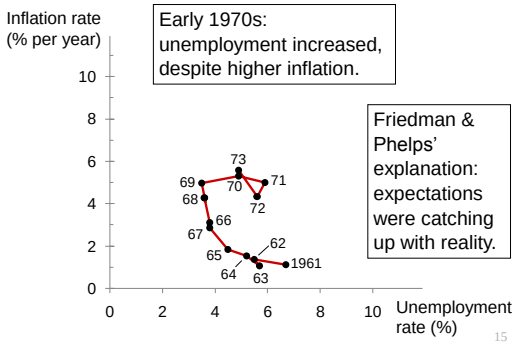
D. Instead, suppose the natural rate falls to 4%. Draw the new long-run Phillips curve, then repeat part B.

ACTIVE LEARNING 1

Answers



The Breakdown of the Phillips Curve

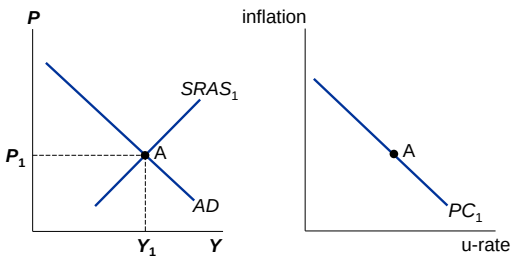


Another *PC* Shifter: Supply Shocks

- **Supply shock**:

- Example: large increase in oil prices

How an Adverse Supply Shock Shifts the *PC*



The 1970s Oil Price Shocks

Oil price per barrel	
1/1973	$ 3.56
1/1974	10.11
1/1979	14.85
1/1980	32.50
1/1981	38.00

The Fed chose to accommodate the first shock in 1973 with faster money growth.

Result:

1979:
Oil prices surged again, worsening the Fed's tradeoff.

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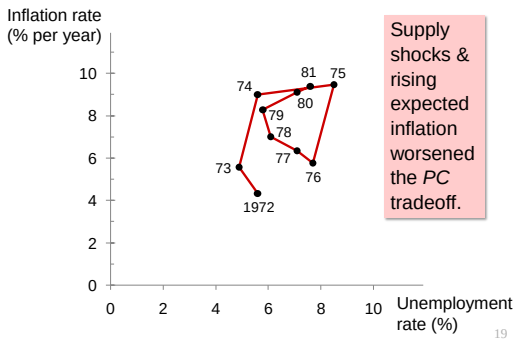
The 1970s Oil Price Shocks



Supply shocks & rising expected inflation worsened the *PC* tradeoff.

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The Cost of Reducing Inflation

- **Disinflation**:
- To reduce inflation,
- Short run:
- Long run:

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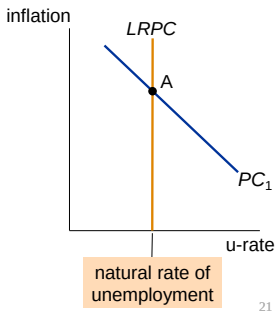
Disinflationary Monetary Policy

Contractionary monetary policy moves economy from A to B.

Over time,



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The Cost of Reducing Inflation

- Disinflation requires enduring a period of
- **Sacrifice ratio**:
- Typical estimate of the sacrifice ratio: _____
  - To reduce inflation rate 1%, must sacrifice
- Can spread cost over time, e.g. To reduce inflation by 6%, can either
  - sacrifice
  - sacrifice

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Rational Expectations, Costless Disinflation?

- **Rational expectations**: a theory according to which
- Early proponents: Robert Lucas, Thomas Sargent, Robert Barro
- Implied that disinflation could be

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Rational Expectations, Costless Disinflation?

- Suppose the Fed convinces everyone it is committed to reducing inflation.
- Then,
- Result:

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The Volcker Disinflation

Fed Chairman Paul Volcker

- Appointed in late 1979 under high inflation & unemployment
- Changed Fed policy to disinflation

1981–1984:

- Fiscal policy was expansionary, so Fed policy had to be very contractionary to reduce inflation.
- Success:

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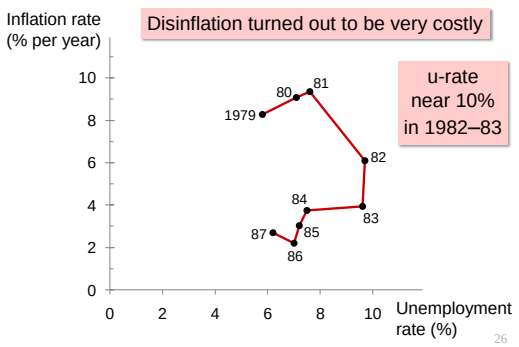
The Volcker Disinflation



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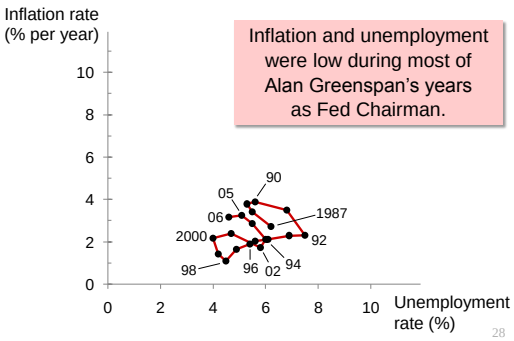
The Greenspan Era

- 1986: Oil prices fell 50%.
- 1989–90:
  Unemployment fell, inflation rose.
  Fed raised interest rates, caused a mild recession.
- 1990s:
  Unemployment and inflation fell.
- 2001: Negative demand shocks created the first recession in a decade. Policymakers responded with expansionary monetary and fiscal policy.

Alan Greenspan
Chair of FOMC,
Aug 1987 – Jan 2006

The Greenspan Era



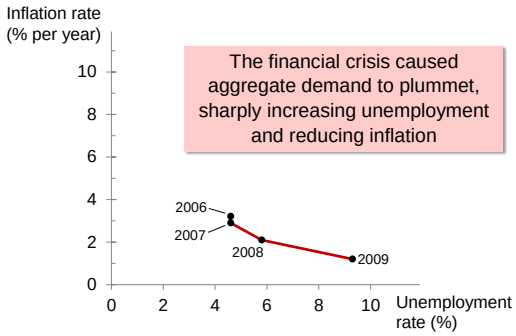
Inflation and unemployment were low during most of Alan Greenspan's years as Fed Chairman.

The Phillips Curve During the Financial Crisis

- The early 2000s housing market boom turned to bust in 2006
-
- Result:

Ben Bernanke
Chair of FOMC,
Feb 2006 – present

The Phillips Curve During the Financial Crisis



The financial crisis caused aggregate demand to plummet, sharply increasing unemployment and reducing inflation