Inflation: Its Causes and Cures

Inflation

• Real GDP, the Inflation Rate, and the Short-Run Phillips Curve
  – Introduction
    • A continuous increase in AD pulls the price level up continuously
      » Figure 8-1
    » Key assumption: nominal wages do not adjust instantaneously

Inflation

• Real GDP, the Inflation Rate, and the Short-Run Phillips Curve (continued)
  – Effects of an Increase in Aggregate Demand
    » Figure 8-1

Inflation

• Real GDP, the Inflation Rate, and the Short-Run Phillips Curve (continued)
  – How Continuous Inflation Occurs
    • A One-Shot Increase in Aggregate Demand
      » Figure 8-1 (top)
    • A Continuous Increase in Aggregate Demand
      » Figure 8-1 (bottom)
Inflation

- Real GDP, the Inflation Rate, and the Short-Run Phillips Curve (SP) (continued)
  - The SP Curve
    - Figure 8-1 (bottom)
      - For Y > Y(n) the economy is not in long-term equilibrium because p > nominal wages
      - Nominal wages keep rising because workers have failed to correctly anticipate future inflation
        - p(e) = 0
      - Position of SP curve depends on expected p
        - Expectations-augmented Phillips curve

Inflation

- The Adjustment of Expectations
  - Changing Inflation Expectations Shift the SP Curve
    - Figure 8-2
      - Once the SP shifts upward with higher p(e), Y cannot exceed Y(n) unless p accelerated
      - Long-run equilibrium exists only when there is no pressure for change

Inflation

- The Adjustment of Expectations (con’t)
  - The LP “Correct Expectations” Line
    - The LP line shows all possible points where p(e) = p
      - Long-run Phillips line
      - “correct expectations” line
    - To the right of the LP line, p > p(e), p(e) will rise
    - To the left of the LP line, p < p(e), p(e) will fall
    - Y cannot be permanently raised beyond Y(n)

Inflation

- Nominal GDP Growth and Inflation
  Nominal GDP (X) = Price Level (P) times Real GDP (Y)
  or
  \[ X = P \times Y \]

In growth rate terms

\[ x = p + y \]
Figure 8-3  The Adjustment Path of Inflation and Real GDP to an Acceleration of Nominal GDP Growth from Zero to 6 Percent When Expectations Fails to Adjust

Inflation

• Effects of an Acceleration in Nominal GDP Growth (continued)

  – Adjustment process
    • Nominal GDP grows because \( x > p \)
    • Inflation accelerates
      – move back to the \( SP \) curve
      – \( y < x \) and \( p > 0 \)
      – Short-term equilibrium established

  – The Continuing Adjustment
    • Because not in long-term equilibrium
      – \( x > p \) and \( p(e) < p \)
    • Because \( x > p \), \( y > 0 \)
      – economy must continue to grow until \( x = p \)
    • Because \( p(e) < p \)
      – \( p(e) \) must rise, shifting \( SP \) curve up
    • Process continues until long-term equilibrium is re-established

Inflation

• Expectations and the Inflation Cycle (con’t)

  – Forward-Looking, Backward-Looking, and Adaptive Expectations (continued)

    • Backward-Looking Expectations
      – Based on the past behavior of economic variables
      – Rationality:
        » Forecasts are difficult and often incorrect
        » The adjustment process is often gradual
    • Adaptive expectations
      – Expectations are adjusted to the difference between what was expected to happen and what actually happened

  – How far \( Y \) can be increased depends on how fast \( p(e) \) responds to higher \( p \)

    • Forward-Looking Expectations
      – Based on forecasts of economic variables

Inflation

• The Adjustment of Expectations (continued)

  – Adjustment Loops
    • How the economy actually responds to higher demand growth will depend on the speed of the adjustment of expectations
    » Figure 8-4

    • Characteristics of the inflation process
      – An acceleration in demand raise \( p \) and \( Y \) in the short-run
        – If \( p(e) \) adjusts to \( p \) then \( x = p \) and rise in \( Y \) is temporary
        – During adjustment \( p > x \)
**Inflation**

- Recession as a Cure for Inflation
  - How to Achieve Disinflation
  - The “Cold Turkey” Remedy for Inflation
    - Sudden reduction in demand growth
      - Divided between inflation and real output
      - Leads to a recession

**Inflation**

- Recession as a Cure for Inflation (con’t)
  - The Adjustment Process to the New Long-Run Equilibrium
    - Introduction
    - Long-run equilibrium exists when
      - $p = x$
      - $p(t) = p$
      - “Missouri” effect and the adjustment process
    - Figure 8-6

**Inflation**

- Recession as a Cure for Inflation (con’t)
  - The Adjustment Process to the New Long-Run Equilibrium (continued)
    - The Downward Spiraling Loop
      - Mirror image of Figure 8-4
      - Economy overshoots long-run equilibrium
    - A Fatter Loop
      - Shape of the loop and length of the adjustment process depend on the shape of the SP curve
      - Flatter SP curve implies flatter, deeper, and slower adjustment process
**Inflation**

- Recession as a Cure for Inflation (con’t)
  - The Output Cost of Disinflation
    - The Sacrifice Ratio
    - The cumulative output lost to achieve a permanent reduction in inflation
  - Cumulative output lost / inflation improvement

**CASE STUDY: Why Inflation Declined in the 1980s and 1990s**

- 1981-82: A Classic Disinflation
  - Introduction of tight monetary policy
  - Sharp deceleration in nominal GDP growth
  - Figure 8-7

**CASE STUDY: Why Inflation Declined in the 1980s and 1990s (continued)**

- Disinflation and the Revival of Inflation During the 1982-90 Expansion
  - Introduction of fiscal expansion
  - Re-acceleration in nominal GDP growth
  - Oil prices fell sharply in 1986

**CASE STUDY: Why Inflation Declined in the 1980s and 1990s (continued)**

- Comparing the Actual and Natural Rates of Unemployment
  - Figure 8-8

- Steady Inflation During 1994-1996
  - Natural rate of unemployment declined

- Declining Inflation During 1997-1998

**Figure 8-7** The Inflation Rate and the Output Ratio, 1980–1996

**Figure 8-8** The Inflation Rate, The Actual Unemployment Rate, and the Natural Rate of Unemployment, 1981–97
Inflation

• CASE STUDY: Why Inflation Declined in the 1980s and 1990s (continued)
  – Why Did the Natural Rate of Unemployment Decline in the mid-1990s?
    • Falling price of computers
    • Disinflation for medical care services
    • Weaker bargaining position for labor
    • Global competition

Inflation

• The Importance of Supply Disturbance
  – Introduction
    • Demand inflation
    • Supply inflation
  – Figure 8-9

Figure 8-9     Four-Quarter Growth Rates of the GDP Deflator and Nominal GDP and the Level of Nominal and Real Oil Prices, 1970–96

Inflation

• The Importance of Supply Disturbance
  (continued)
  – Types of Supply Shocks
    • Supply inflation stems from sharp changes in business costs that are not related to prior changes in nominal GDP growth
    • Temporary versus permanent

Inflation

• The Response of Inflation and Real GDP to a Supply Shock
  – Effects of Supply Shocks on the Price level and on the Rate of Inflation
    • Temporary Supply Shocks
      – Do inflationary expectations change?
    • Permanent Supply Shock
      – Do inflationary expectations change?
Inflation

- The Response of Inflation and Real GDP to a Supply Shock (continued)
  - Supply Shocks and the Short-Run Phillips Curve (SP)
    - Supply Shocks Shift the SP Schedule
      - Figure 8-10

- Policy Responses to Adverse Supply Shocks
  - Economy’s response depends on the response of nominal GDP growth which in turn depends on government policy actions
    - Neutral Policy Response
      - Maintain nominal GDP growth
    - Accommodating Policy Response
      - Maintain output ratio
    - Extinguishing Policy Response
      - Maintain inflation rate

- The Response of Inflation and Real GDP to a Supply Shock (continued)
  - Effects of Favorable Supply Shocks
    - Shift the SP curve outward
    - The policy options

- The Response of Inflation and Real GDP to a Supply Shock (continued)
  - What Happens in Subsequent Periods
    - Introduction
      - SP curve shifts up in the initial period
    - What happens next depends on p(e)
      - No change in p(e)
      - A rise in p(e)
      † Viewed as permanent or temporary
      † The effect of cost-of-living adjustments (COLAs)
    - The Policy Dilemma

- Inflation and Output Fluctuations: Recapitulation of Causes and Cure
  - A Summary of Inflation and Output Responses
    - Case A: Demand Shifts Alone
    - Case B: Supply Shifts Alone
    - Case C: Demand and Supply Shifts in the Same Vertical Direction
    - Case D: Demand and Supply Shifts in Opposite Directions
Inflation

- Inflation and Output Fluctuations: Recapitulation of Causes and Cure
  - Cures for Inflation
    - Policies to slow nominal GDP growth
    - Policies to create beneficial supply shocks
    - Luck