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
      – Demand pull inflation
        » 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
  \[ x = p + y \]
Inflation

• Effects of an Acceleration in Nominal GDP Growth (continued)
  – Adjustment process
    • Nominal GDP grows
      – real GDP grows because \( x > p \)
      – create disequilibrium because off the SP curve
    • 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 (continued)
  – Forward-Looking, Backward-Looking, and Adaptive Expectations (continued)
    • Backward-Looking Expectations
      – Based on the past behavior of economic variables
      – Rationality of:
        » 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

• 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 (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 fatter, 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

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Inflation

• 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

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

– 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

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Inflation

• CASE STUDY: Why Inflation Declined in the 1980s and 1990s (continued)
  – Comparing the Actual and Natural Rates of Unemployment
    – Figure 8-8

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Inflation

• CASE STUDY: Why Inflation Declined in the 1980s and 1990s (continued)
  – Steady Inflation During 1994-1996
    • Natural rate of unemployment declined
  – Declining Inflation During 1997-1998

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

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Figure 8-8
The Inflation Rate, The Actual Unemployment Rate, and the Natural Rate of Unemployment, 1980–97
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

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
    - Accommodating Policy Response
    - Extinguishing Policy Response
      » Maintain inflation rate

- Effects of Favorable Supply Shocks
  - Shift the SP curve outward
  - The policy options

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
Figure 8-11 Responses of the Inflation Rate (\(\pi\)) and the Output Ratio (\(Y/Y\)) to Shifts in Nominal GDP Growth and in SP

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