The Goals of Stabilization Policy: Low Inflation and Low Unemployment

- The Costs and Causes of Inflation
  - While inflation is viewed as evil the degree of evilness is highly and hotly debated
    - Basic cause of inflation is excessive growth of nominal GDP
      - Why do governments allow this to happen?
    - Costs associated with reducing inflation
      - Lost output and jobs
      - Creeping inflation versus hyperinflation
The Goals of Stabilization Policy

• Money and Inflation
  – A permanent increase in the growth of nominal GDP will lead to a permanent increase in inflation

The Goals of Stabilization Policy

• Money and Inflation (continued)
  – Definitions Linking Money, Velocity, Inflation, and Output
    • The quantity theory of money
      \[ M(s) \times V = X = P \times Y \]
    • or in growth rate terms
      \[ m(s) + v = x = p + y \]
    • or, rearranging terms
      \[ p = x - y = m(s) + v - y \]
The Goals of Stabilization Policy

• Money and Inflation (continued)
  – Definitions Linking Money, Velocity, Inflation, and Output (continued)
    • In the long run, the inflation rate equals the excess growth rate of nominal GDP
    • or
    • In the long run, the inflation rate equals the excess growth rate of money plus velocity, relative to the long-run growth rate of real GDP

The Goals of Stabilization Policy

• Money and Inflation (continued)
  – Definitions Linking Money, Velocity, Inflation, and Output (continued)
    • What determines the excess growth of money plus velocity?
      – Central banks control m(s)
      – Velocity changes whenever there is a change in real GDP relative to the real money supply, M(s) / P
        » Or if the demand for money changes for reasons independent of changes in income
The Goals of Stabilization Policy

• Money and Inflation (continued)
  – Definitions Linking Money, Velocity, Inflation, and Output (continued)
    • Velocity can be highly volatile in the short run but over the long-run velocity growth tends to be stable
      – That is $v = 0$ in the long run
      – This implies that in the long-run, the inflation rate equals the excess growth rate of the money supply

The Goals of Stabilization Policy

• Money and Inflation (continued)
  – Why Do Central Banks Allow Excessive Monetary Growth?
    • Temptation of demand stimulation
      – Also generates a reluctance to stop inflation
    • Adverse supply shocks
    • Monetizing government deficits
The Goals of Stabilization Policy

• Interest Rates and Inflation
  – Introduction
    • Why do policymakers worry about inflation?
      – What if real wage growth were unaffected by inflation
    • Most of the costs associated with inflation are felt by the owners of financial assets
      – The importance of expected and unexpected (or surprise) inflation cannot be underestimated

The Goals of Stabilization Policy

• Interest Rates and Inflation (continued)
  – Nominal and Real Interest Rates
    • Nominal interest rate \( i \): the rate actually quoted by banks and negotiated in financial markets
    • Expected real interest rate \( r \): what people expect to pay on their borrowings or earn on their savings after deducting expected inflation
      \[ r(e) = i - p(e) \]
      – \( r(e) \) is what matters for investment and saving decisions
    • Actual real interest rate \( r \): \( r = i - p \)
The Goals of Stabilization Policy

• Interest Rates and Inflation (continued)
  – Nominal and Real Interest Rates (continued)
    • Saving and investment decisions will depend on real interest rates rather than nominal interest rates
      – Same real, different nominal interest rates still generate the same saving and investment decisions
    • This implies that the inflation does not matter if
      – Inflation is universally and accurately anticipated
      – All savings earn the nominal interest rate
      – The inflation premium is constant
      – Real, not nominal, interest income is taxable
      – Inflation is uniform and does not change relative prices

The Goals of Stabilization Policy

• Interest Rates and Inflation (continued)
  – Interest Rates in a Surprise Inflation
    • Unanticipated inflation occurs when the actual inflation rate, p, differs from the expected inflation rate, p(e)
      – Actual real interest rates will also differ from expected real interest rates
    • Unanticipated inflation redistributes income from creditors to debtors without their knowledge or consent
The Goals of Stabilization Policy

- Interest Rates and Inflation (continued)
  - Interest Rates in a Surprise Inflation (con’t)
    - Winners from Surprise Inflation
      - Debtors with physical but few financial assets
    - Winners from Surprise Deflation
      - Creditor with financial but few physical assets

Interest Rates, Expected Inflation, and the Fisher Effect

\[ r(e) = i - p(e) \]

or

\[ i = r(e) + p(e) \]

- \( i \) can rise either if \( r(e) \) rises or \( p(e) \) rises

- This equations is called the **Fisher equation**
- The implication that a change in expected inflation will cause a similar change in nominal interest rates is call the **Fisher effect**
The Goals of Stabilization Policy

• Interest Rates and Inflation (continued)
  – Interest Rates, Expected Inflation, and the Fisher Effect (continued)
    • If, in the long-run, expectations are accurate, i.e.
      – \( p(e) = p \)
    • then, combining with the quantity equations yields
      • \( i = r(e) + m(s) + v - y \)
    • Since \( r(e), v, \) and \( y \) are all unaffected by a change in \( m(s) \), then the Fisher effect holds
    • This implies that rapid money growth will lead to both rapid inflation and high nominal interest rates

The Goals of Stabilization Policy

• The Government Budget Constraint and the Inflation Tax
  – The government must finance its budget deficits by either
    • issuing additional government bonds, delta B, or
    • issuing additional government monetary liabilities, delta H
  – Both B and H are part of government debt
    • B pays interest
    • H does not
The Goals of Stabilization Policy

• The Government Budget Constraint and the Inflation Tax (continued)
  – The Government Budget Constraint Equation
    \[ G - T + \left( \frac{i \times B}{P} \right) / P = \left( \frac{\Delta B}{P} \right) / P + \left( \frac{\Delta H}{P} \right) / P \]

• G - T is called the basic, or primary, deficit

The Goals of Stabilization Policy

• The Government Budget Constraint and the Inflation Tax (continued)
  – Bond Creation versus Money Creation
    • The government can only finance its debt through:
      – Bond creation, \( \Delta B \), or
      – Money creation, \( \Delta H \)
        » Tends to increase the \( M(s) \)
    • Money creation is more stimulative than bond creation
      – Accommodative monetary policy
      – Better used when the economy is weak than strong
The Goals of Stabilization Policy

• The Government Budget Constraint and the Inflation Tax (continued)
  – Effects of Inflation
    \[ G - T + (i \times B) / P = (\delta B) / P + (\delta H) / P \]
  • Rearranging
    \[ G - T + (i \times B) / P = \]
    \[ \{ (\delta B \times B) / (B \times P) \} + \]
    \[ \{ (\delta H \times H) / (H \times P) \} \]
  • Now
    \[ (\delta B) / B = b = (\delta H) / H = h = p \]

The Goals of Stabilization Policy

• The Government Budget Constraint and the Inflation Tax (continued)
  – Effects of Inflation (continued)
    • Growth rate of bonds (b) and the growth rate of high-powered money (h) equal the inflation rate (p)
      – Real value of bonds remains fixed
      – Real value of high-powered money remains fixed
    • If this is true, then
      \[ G - T = (p \times H) / P - (i - p) \times B / P \]
The Goals of Stabilization Policy

• The Government Budget Constraint and the Inflation Tax (continued)
  – Effects of Inflation (continued)
    • The first term is the revenue that the government receives when it creates just enough H to maintain a fixed real quantity of high-powered money
    • Called seignorage
      – Inflation tax
      – A redistribution of income from households to government
    • The second term is the real interest expense of servicing the bonds

The Goals of Stabilization Policy

• The Government Budget Constraint and the Inflation Tax (continued)
  – Effects of Inflation (continued)
    • The government benefits from inflation
      – Seignorage
      – Redistribution if real interest rates fall as inflation rises
The Goals of Stabilization Policy

• Starting and Stopping a Hyperinflation
  – Introduction
    • Hyperinflation: inflation rates of 1,000% or more per year
    • An economy experiencing hyperinflation would collapse if wages and salaries did not grow as rapidly and if interest rates were less than the inflation rate
    • Fortunately, hyperinflation is an unusual event
    • The essence of a hyperinflation is its cumulative dynamic character, best described as a vicious circle

• How a Hyperinflation Begins
  • Adverse supply shock
  • Accommodative policy response
  • Frequent wage indexation
  • Deficit financing
The Goals of Stabilization Policy

• Starting and Stopping a Hyperinflation
  – How to End a Hyperinflation
    • Stopping a hyperinflation is a complex and difficult task
    • Stabilization strategy almost always includes a sharp reduction in the budget deficit
    • Introducing some types of controls on wages
      – An incomes policy
    • Reestablishing the government’s credibility
      – Usually takes several dramatic actions all at once to achieve

The Goals of Stabilization Policy

• Costs of a Fully Anticipated Inflation: Creeping Inflation versus Hyperinflation
  – Costs of a Fully Anticipated Creeping Inflation
    • Conditions for no effect
      – Accurate anticipations
      – No financial assets at below market rates
      – Nominal rates change point for point with inflation
      – Real, not nominal, interest income is taxed and real, not nominal, interest costs are tax deductible
      – Inflation causes no changes in relative prices
The Goals of Stabilization Policy

• Costs of a Fully Anticipated Inflation: Creeping Inflation versus Hyperinflation
  – Welfare Cost of Lower Real Money Balances
    • Money does not receive a market interest rate
      – No interest is paid on currency
      – No interest is paid on required reserves
      – Below market rates are subsidized by deposit insurance
    • Several consequences
      – Convenience use of money is reduced
      – “Shoe-leather” costs
      – Costs of an anticipated hyperinflation

The Goals of Stabilization Policy

• Costs of a Fully Anticipated Inflation: Creeping Inflation versus Hyperinflation
  – Interest Rates and Taxation
    • Nominal interest rates do not always change point-for-point with inflation; changes in real interest rates redistributes income
    • If nominal interest income is taxed and nominal interest costs are tax deductible then income is redistributed
The Goals of Stabilization Policy

- Costs of a Fully Anticipated Inflation: Creeping Inflation versus Hyperinflation
  - Summary: Costs of Inflation
    - From unanticipated inflation
      - Redistribution of income from creditors to debtors
    - From anticipated inflation
      - “Shoe-leather” costs from minimizing real cash balances
      - Changes in relative costs
      - Redistribution of income if real interest rates change
      - Redistribution of income from non-inflation neutral tax system

The Goals of Stabilization Policy

- Indexation and Other Reforms to Reduce the Costs of Inflation
  - Introduction
    - There are a number of reforms that can substantially cut the costs imposed by inflation
  - Decontrol of Financial Institutions
  - Indexed Bonds
    - \( i = r(0) + p \)
  - Index Tax System
    - Institute an inflation-neutral tax system
The Goals of Stabilization Policy

- Why the Unemployment Rate Cannot Be Reduced to Zero
  - Distinguishing the Types of Unemployment
    - Cyclical unemployment
      - Difference between actual and natural unemployment
      - Can be negative
    - Turnover unemployment
      - Frictional unemployment
    - Mismatch unemployment
      - Structural unemployment
    - Turnover and mismatch = natural unemployment

The Goals of Stabilization Policy

- Sources of Mismatch Unemployment
  - Causes of and Cures for Mismatch
    Unemployment: Mismatch Skills
    - Lack of job training
    - Inflexibility of relative wages
    - Discrimination
  - Causes of and Curves for Mismatch
    Unemployment: Mismatch Location
The Goals of Stabilization Policy

• Turnover Unemployment and Job Search
  – Reasons for Turnover Unemployment
    • The Economics of Job Refusal
      – Theory of “search” unemployment
      – Job search theory treats unemployment as a socially valuable, productive activity as unemployed individuals “invest” in their job search
      – Cost is cost of search plus loss wages
        » Benefit is “better” job and higher wages
      – Government’s ability to reduce is limited
    • Effects of Unemployment Compensation
      – The Human Costs of Recessions

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The Goals of Stabilization Policy

• New Theories to Explain High European Unemployment
  – Introduction
    • The natural rate of unemployment in Europe has quintupled between the 1960s and the 1990s
    • The natural rate of unemployment in the U.S. has hardly changed between the 1960s and the 1990s
The Goals of Stabilization Policy

• New Theories to Explain High European Unemployment (continued)
  – Introduction (continued)
    • Why the difference?
      – Structuralist hypothesis -- specific impediments
        » excessive real wages
        » high unemployment benefits
        » excessive government spending
        » excessive government regulations
        » high marginal tax rates
        » regional imbalances

The Goals of Stabilization Policy

• New Theories to Explain High European Unemployment (continued)
  – Introduction (continued)
    • Why the difference? (continued)
      – Hysteresis hypothesis -- discouraged workers
        » The natural rate follows automatically in the path of the actual unemployment rate
        » If the actual rate were lowered by stimulative policies, the natural rate would automatically decline as well
The Goals of Stabilization Policy

• New Theories to Explain High European Unemployment (continued)
  – The Structuralist and Hysteresis Views
    » Figure 12-1
The Goals of Stabilization Policy

• New Theories to Explain High European Unemployment (continued)
  – Assessing the Structuralist Hypothesis
    • Eurosclerosis
      – Excessive government regulations
      – The welfare state
    • High real wages
  – Assessing the Hysteresis Hypothesis
    • Discouraged workers
    – Implications of the Debate for Macroeconomics

The Goals of Stabilization Policy

• Conclusion: Solutions to the Inflation and Unemployment Dilemma
  – Costs to both inflation and unemployment
    • Inflation costs widely debated
      – Hyperinflation must costlier than creeping inflation
      – Financial deregulation reduce inflationary costs
    • Unemployment costs depends on reason
      – Cost of turnover unemployment low
      – Cost of mismatch unemployment can be substantial
        » Reducing mismatch unemployment may be costly
The Goals of Stabilization Policy

• Conclusion: Solutions to the Inflation and Unemployment Dilemma (continued)
  – Options for Reducing Inflation
    • Restrictive monetary and fiscal policy
    • Wage and price controls
    • Cost-reducing policies
    • Inflation-neutralizing policies

• Conclusion: Solutions to the Inflation and Unemployment Dilemma (continued)
  – Options for Reducing the Unemployment Rate
    • Cyclical unemployment can be reduced through appropriate monetary and fiscal policies
    • Turnover unemployment can be reduced by making job search more efficient
    • Mismatch unemployment can be reduced enhanced incentives for promoting job skills and job mobility