Outline


2. Supply Side of Economy.
   (a) Motivation,
      → (b) Wage setting: bargaining,
      → (c) Prices
   (d) Natural Rate of Unemployment.
      → Changes in bargaining power of workers (globalization, legal changes, changes in unemployment insurance)
      → Competition of firms
   (e) AS aggregate supply curve ("AS curve")

3. Aggregate Demand ("AD curve").

Experiment?
Annual, percent inflation

* US CPI Inflation
* Euro Area HICP inflation

Figure 1c: Inflation in US and Euro Area

Annualized, Percent

* US Federal Funds Rate
* Euro Area

Figure 1a: Interbank Loan Rates

Log

1.2
1.4
1.6
1.8
2.0
1969 2000 2001 2002 2003 2004 2005

US Per Capita GDP
* Euro Area Per Capita GDP

Figure 1d: US versus Euro Area GDP
Bargaining between worker and firm.

Principle:

"Person who has most to lose if bargaining breaks down gets worst deal."

\[ N = F(U, Z) \]

Other factors: unemployment, insurance, legal changes.

\[ U = \text{unemployment rate} \]

\[ u = \frac{\text{# of people looking for work}}{\text{Labor Force}} \]

\[ U + N = \text{Labor Force} \]
100,000 jobs per month.

1/3 size population of Minneapolis.
3.5 million

Employment
12.7 million

Unemployed
7 million

Out of the labor force

1.5 million

1.8 million

1.7 million

1.1 million

1.3 million

"Discouraged workers"

1994-1999

Losing jobs every month:

3.5 + 1.5 + 1.7 = 6.7

3.5 + 1.8 + 1.5 = 6.8

100,000!
Price Setting.

\[ P = (1 + \mu) \ W \]

Main source of cost

\[ P > W \] because there are other costs, fuel, intermediate inputs, because of profits.

Suppose there is less competition

\[ \mu \uparrow. \]

Globalization: \( \mu \downarrow. \)

Use setting:

\[ W = F(u, z) \]
Natural rate of unemployment.

Natural rate of unemployment, \( \bar{u} \).

Intuitive: where actual unemployment rate settles in the medium run.

Mechanical: in medium run

\[ \bar{p} = \bar{p}. \quad \text{(1)} \]

Short run: \( p < \bar{p} \)

Price: \( \bar{p} = (1 + \mu) \bar{w} \)

\[ \frac{\bar{w}}{\bar{p}} = \frac{1}{1 + \mu} \]

\[ \frac{\bar{w}}{\bar{p}} = \frac{\bar{p}^{\mu}}{\bar{p}} \cdot F(\bar{u}, z) \]

\[ \frac{\bar{w}}{\bar{p}} \text{ is constant in medium run.} \]

Natural rate: solution to (1), (2), (3).
Summarize theory of wage & price setting.

Wage setting \( W = p^e F(u, z) \)

\( p^e \) = expected price level over duration of bargain (1 year).

higher \( p^e \) \( \Rightarrow \) \( W \)

Worker: wants higher wage because worker cares about what wage will buy, it will buy less when \( p^e \) is higher.

Firm: increased wage demand occurs because \( p^e \) higher, firm happy to pay higher wage because expect to pass it on.
5. Aggregate Supply.

\[ u = \frac{U}{L} = \frac{L - N}{L} = 1 - \frac{N}{L} \]

\[ L = U + N \]

\[ \sqrt{N = Y} \]

\[ u = 1 - \frac{N}{L} = 1 - \frac{Y}{L} \]

\[ Y^P \gg u \downarrow. \]

Price setting / wage setting:

\[ P = (1 + \mu)W \]

L Labor force
Assume this does not change.

\[ = (1 + \mu)PeF \left( 1 - \frac{Y}{L}, z \right) \]

\[ Ps(\text{Pe}) \]

\[ u_n = 1 - \frac{Y_n}{L} \]