Macroeconomic Stability
Macroeconomic Stability

• In the postwar period, the Japanese economy has been much more stable than the U.S. economy
  – Deviations of GNP from exponential trend
    • 1972-1992  50% higher in the US
    • 1976-1992  100% higher in the US
  – Range of deviations from trend output
    • US 10.2% range (-5.8%-4.4%)
    • Japan 7.7% range (-2.8%-4.9%)
  – Domestic economy is also more stable (GNP-NX)
    • 1972-1992 48% higher in US
    • 1976-1991 72% higher in US
US and Japanese Real Output

1987 dollars (billions)

1985 yen (trillions)
Macroeconomic Stability

• Not due to high but variable growth rates in the US
  – Average annual growth rate
    • 2.3% in US
    • 4.1% in Japan

• Before 1970s, not clear which economy is more stable
  – Japan had very high but volatile growth rates
  – Unambiguous Japanese stability is a post 1970s phenomenon
## Macroeconomic Stability

<table>
<thead>
<tr>
<th>1950-1979</th>
<th>Standard Deviation of GDP growth rates</th>
<th>Coefficient of Variation (S.D./mean growth rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>2.78</td>
<td>0.77</td>
</tr>
<tr>
<td>Japan</td>
<td>4.42</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Not obvious which country is more stable before 1970s
Old Keynesian Explanation

- Japanese labor markets may be more flexible than US labor markets
- Specifically, nominal wages may be more flexible in Japan
Old Keynesian Explanation

1. **Shorter contracts**
   - One year contracts vs three year contracts
   - Wages get fixed for a longer period of time in the US

2. **Shunto (synchronized wage setting)**
   - Wage setting in March – May of each year
   - U.S. contracts negotiated throughout the year
   - Staggered wage adjustment → slower wage adjustments to shocks

3. **Bonus system**
   - 1/3 annual income paid in bonuses (June-July, December)
   - Bonus depends on profitability
   - Gives wages an additional degree of freedom
Shunto

Kyoto, 1996
Bonus System

• In the US, you might get paid $3,000 a month for 12 months for a total of $36,000
• In Japan, you might get paid $2,000 a month for 12 months plus $5,000 in June and $7,000 in December for a total of $36,000
Old Keynesian Explanation

- Nominal wages are too rigid in the US
- Nominal wages are fixed by contracts
- AD falls, price level falls, real wage $\uparrow$

![Graphs showing the relationship between GNP and Labor income, and PL and Wages.](image-url)
Old Keynesian Explanation

- Real wage is too high to profitably employ entire workforce
- Classical unemployment results
- Output falls below potential output
- Since wages are rigid, you have employment adjustment rather than wage adjustment
NOTE

• Wages are indeed more flexible in Japan, but bonus system does not contribute much to flexibility
Weaknesses of Labor Market Focus

1. Long term relationship between employees and employers
2. Classical unemployment is the result of excessively high real wage
3. If labor contracts of long duration are the cause of unemployment and output shortfalls, why do workers and firms agree to them?
4. Most workers in Japan and the US are not covered by rigid union contracts
5. Why did the Japanese economy become more stable after 1970s?
1. Long term relationship between employees and employers

- Importance of life-time jobs in Japan is well known
- Lifetime jobs also important in the U.S.
- Wage is an installment payment (not spot market price)
- Real wage need not equal MP at every moment
  - Teach Sept-May, but get paid every month of the year
- Wage at a point in time does not play a large role in employment determination
- Market may clear even when wages do not adjust
2. Classical unemployment is the result of excessively high real wage

- Old Keynesian story involves fixed nominal wages and AD shocks which change the price level
- Real wage is too high in recessions and too low in booms
- Empirical evidence: real wage is acyclic or procyclical (move with the business cycle)
- Danthine and Donaldson (1993)
  - Real wage and output correlation
  - 0.53 in US, 0.54 in Japan
3. If labor contracts of long duration cause unemployment and output shortages, why do workers and firms agree to them?

- People can write contracts to share risk
- But do optimal risk sharing contracts lead to fixed nominal wages?
- Appears to be some Pareto improving opportunities
- Existence of unemployment causing labor contracts are not well explained from microeconomic principles
4. Most workers in Japan and US are not covered by rigid union contracts

- Only a fraction of workers are covered by union contracts
- Union density is 16.8% in US, 25.9% in Japan
- Implicit contracts may also make wages rigid
- But why would they make wages more rigid in the US than in Japan?
5. Why did the Japanese economy become more stable after 1970?

• One year contracts, Shunto, and the bonus system all predate 1970s
**New Keynesian Explanation**

- New Keynesian explanation centers on the goods market
- Japanese goods markets are hypercompetitive
- Look more like model of perfect competition with many buyers, many sellers where no one has influence on price
- U.S. firms have more market power

<table>
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<tr>
<th>JAPAN</th>
<th>U.S.</th>
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<td>Perfect Competition</td>
<td>Monopolistic Competition</td>
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</table>
New Keynesian Explanation

• Imperfect competition leads to more price rigidity
• With adverse demand shocks, sales fall to much
• Unemployment results because sales are too low, not because wages are too high
• Keynesian unemployment rather than classical unemployment
Theory of Price Rigidity

- Theoretical reasons why goods prices are more rigid when firms have more market power

- Monopoly Theory
  - With linear demand curves, \( \Delta P < \Delta MC \)
  - \( MC \left( \frac{1}{1 + \frac{1}{\varepsilon}} \right) = P \)
  - \( P = MC \) under perfect competition
Theory of Price Rigidity

• Monopoly Theory
  – If MC is constant, then proportional shifts of the demand curve lead to no price changes
  – Monopolists consider effects of current prices changes on future demand
    • Consumers may use current price as a forecast of future price
    • Price increases may lead people to substitute away from the monopolist’s product
    • So monopolists hesitate to pass along temporary cost increases
    • In perfect competition, you charge the market price
Theory of Price Rigidity

• Oligopoly Theory
  – With kinked demand curves, prices do not respond to small cost changes
  – More generally, prices fluctuate less to maintain oligopolistic discipline
    • Firms want to avoid the risk of starting a price war from price changes
Theory Note

• Theoretically ambiguous
  – Monopolist with constant MC and constant elasticity of demand demand curve, prices change by more than cost

\[
MC \left( \frac{1}{1 + \frac{1}{\varepsilon}} \right) = P
\]

– So it becomes an empirical question
Empirical Results

- Firms in more concentrated industries have more rigid prices
  - 4 firm concentration ratio (C.R.)
  - Herfindahl index
- Carlton (1986) 4-firm C.R. in US
  - Finds significant price rigidity
  - Prices are more rigid in more concentrated industries
- Kobayashi (1974)
  - Oligopolistic prices are more rigid in Japan
  - During recessions, prices decline by less in industries with more seller concentration
  - Prices are more flexible in industries with a high degree of year to year variability in seller concentration
- Encaouena and Geroski (1984)
  - International study of 5 countries
  - Slower adjustment of price to cost changes in more concentrated industries
Importance of Price Flexibility

• US firms have more market power, so it is optimal to keep prices more rigid in face of cost and demand changes
• US goods prices are too rigid (not nominal wages). With negative shocks, sales fall too much. Unemployment results, because sales are too low, not because real wages are too high
• Keynesian unemployment rather than classical unemployment
• If prices are flexible, when shocks hit the economy, prices adjust more relative to output. So output is more stable.
Importance of Price Flexibility

Price adjustment may be more important for the economy as a whole than for the individual firm

• Akerlof and Yellen (1985)
• Mankiw (1985)
• Blanchard and Kiyotaki (1987)
Is Japan Hypercompetitive?

• How can you tell if a market is very competitive?

• It is not enough to look at market structure
  – A monopolist may earn monopoly rents or a normal rate of return because the market is perfectly contestable
  – A two-firm oligopoly may
    • Collude and behave like a monopolist (cartel)
    • Compete fiercely as in the Bertrand model
    • Take a middle road as in the Cournot model
Is Japan Hypercompetitive?

- Measuring market power is difficult
- Let's look at …
  - Market Structure
  - Government policy
  - Market outcomes
Competitiveness

A. Concentration
   a. Aggregate Concentration
   b. Market Concentration

B. Economic Density

C. Firm Size

D. Sunk Costs
   a. Exogenous Sunk Costs
   b. Endogenous Sunk Costs

E. Government Policy
   a. MITI Industrial Policy
   b. Revised Anti-monopoly Law of 1977
   c. Liberalization of Trade and Capital Flows

F. Market Outcomes
   a. Rates of Profit
   b. Social Welfare Loss
Concentration

• Aggregate Concentration
  – Top 100 firms (including subsidiaries) account for 25% of total assets in Japanese non-financial sector (1980), but 31% in the U.S.
  – Top 100 manufacturing firms (excluding subsidiaries) account for 34% of total assets in Japan, but 49% in U.S.
Concentration

• Market Concentration
  – Caves and Uekusa (1976) look at average 4-firm concentration ratios constructed with the same definitions and same principles for the same year (1963)
  – Weighted 4-firm C.R.
    • 40.9% US Manufacturing
    • 35.4% Japanese Manufacturing
Concentration

• Since 1963 US concentration has been trendless
  – Modest decline in non-manufacturing concentration
  – Slight increase in manufacturing concentrations with M&A

• Japanese concentration has seen modest decline
  – In more narrowly defined industries (JFTC)
    • 61.1% 1963
    • 58.9% 1984
Concentration

• Surprising that Japanese markets are less concentrated

• Japanese economy is much smaller
  – Japanese GDP is 53% of US GDP in 1990
  – US population is more than twice as large
  – US land mass is 25 times larger

• US market ($, consumers, square miles) should support more firms in any industry of a given minimum efficient scale

• Why are there 3 US auto manufacturers (Ford, GM, Crysler), but 7 Japanese (Toyota, Nissan, Honda, Masda, Mitsubishi, Suzuki, Isuzu)?
Economic Density

• Sheer number and density of small retail establishments in Japan
  – 14.2 retail establishments/1000 people in JP
  – 8.3 retail establishments/1000 people in US

• Physical density is 20 times higher
  – 0.57 retail establishments/sq mi US
  – 12.3 retail establishments/sq mi JP

• Economic Density is 13 times higher
  – $1.5 million of GDP/sq mi US
  – $20.15 million of GDP/sq mi JP
  – Firms produce much more and sell much more per square mile in Japan than in the US
Economic Density

- Most of US supports essentially no economic activity
  - Most economic activity is in cities and coasts
- Same is true in Japan
  - Only 25% of land has slope less than 10°
  - Almost all cities and farms located on limited flat terrain
- Japan is clearly more economically dense
  - Competition is on the next block, not the next town
  - Widget in Boston is not the same as a widget in Los Angeles if it takes time and money to move it
- Spatial distance and transport costs differentiate products and gives firms market power
Economic Density

- West, Midwest, South, and Northeast are distinct markets
- Japan is smaller than California
- NY and LA vs Tokyo and Osaka
Firm Size

• If CRs are lower and economy is half the size, then firms must be much smaller
• In 1991, GM had 756,300 employees and Toyota had 102,400 employees
• IBM sales were 3 times Fujitsu sales
• Net income of GE was 43% larger than Matsushita Electric
Firm Size

• Wholesale Establishments
  – 9.3 workers in Japan
  – 12.6 workers in US

• Retail stores
  – 4 workers in Japan
  – 8 workers in US

• Japanese retail stores are small, family run operations
Firm Size

• To the extent that markets are now international ones, smaller firms would have less market power
  – Imports are 14.7% of Japan GNP
  – Imports are 9.3% of US GNP
• On average, Japanese firms face more foreign competition
Firm Size

• Since firms are small, it is easier for new firms to enter the market and become significant players
• Larger firms require larger fixed costs or capital requirements
• With imperfect and costly capital markets, it may be easier to raise the necessary capital to enter the market when firms are smaller
• Difficult to imagine Harley-Davidson taking on GM the way Honda took on Toyota
Sunk Costs

• Baumol, Panzar and Willig (1982) and Kessides (1990) demonstrate the theoretical and empirical importance of sunk costs as barriers to entry

• Sunk costs create an asymmetry in the incremental cost and incremental risk faced by a potential entrant and the incumbent firm
Sunk Costs

- Sunk costs also create exit barriers since you can not move your capital to another activity
- This also discourages entry
- Sunk costs → less market competition
Exogenous Sunk Costs

• Cost of acquiring a single plant of minimum efficient scale net of any resale value is irrecoverable sunk cost
• Since Arrow (1968) we recognize much investment to be irreversible. A firm’s plant and equipment is often of little value to others, so replacement cost greatly exceeds resale value.
Exogenous Sunk Costs

• Since US firms are typically much larger (twice as large), there may be larger capital requirements and larger sunk costs
• Stiglitz (1987) suggests that even small sunk costs may represent significant barriers to entry