Lecture 2: Definitions

• GDP
• Inflation rate
• Unemployment rate
• Trade and Budget Deficits
Economic News

• Bank of England raises interest rates to 4.0% amid signs of strengthening economy, house price growth and continuing high levels of consumer debt. Second rate rise in four years and first since last Nov when rates were at 12 year low. Inflation at 1.2% is below 2% target. Rate increase in anticipation of current and future growth feeding into inflation.

• U.S Real GDP grew at 4% annual rate in Q4 (1% lower than expected largely due to unexpected drop in govt spending).

• U.S. non-farm business productivity rose 2.7% in Q4, low by current standards. Q4 to Q4 growth was 5.3% however. Labor costs grew 1.3% on annual basis, implying corp. profits are increasing.

• Unemployment remains unchanged at 5.6% (down from 6.3 in June/03). Payroll jobs increased by 110,000 in January (surprise in construction following Dec blizzard).

• Japanese industrial production grew at 15.3% on annual basis in Q4/03. Economic growth powered by exports, signs that labor market is starting to pickup as well.
Gross Domestic Product

- First thing we look at (its rate of growth)
- Aggregate output: Not easy!
  - Sum of apples and oranges
  - Double-counting
- Example
A Simple Economy

- **Steel Company**
  - Revenue from sales $100
  - Expenses (wages) 80
  - Profit 20

- **Car Company**
  - Revenue from sales $210
  - Expenses
    - Wages $70
    - Steel purchases 100
  - Profit 40

- What is this economy’s GDP?
Calculating GDP

- Method 1: GDP is the value of the *final goods and services* produced by the economy during a *given period*
- Method 2: GDP is the sum of *valued added* produced....
- Method 3: GDP is the sum of *incomes* in the economy....
Nominal vs Real GDP

- Nominal GDP: sum of final goods produced times their *current price*
  - Growth due to quantity (production)
  - Growth due to prices
- Real GDP: … times their *base year price*
- GDP Growth: \( \frac{(Y(t)-Y(t-1))}{Y(t-1)} \)
## Nominal vs Real GDP

### Year 0

<table>
<thead>
<tr>
<th></th>
<th>Q</th>
<th>P</th>
<th>Value</th>
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<tbody>
<tr>
<td>Potatoes</td>
<td>100,000</td>
<td>$1</td>
<td>100,000</td>
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<tr>
<td>Cars</td>
<td>10</td>
<td>$10,000</td>
<td>100,000</td>
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</table>

Nominal GDP: **200,000**

### Year 1

<table>
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<th></th>
<th>Q</th>
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<th>Value</th>
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<tbody>
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<td>Cars</td>
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Nominal GDP: **230,000**
The Inflation Rate

- \( \frac{P(t) - P(t-1)}{P(t-1)} \)
- More than one measure: GDP deflator, CPI
- GDP deflator = Nominal GDP / GDP
  - \( P_0 = 1 \)
  - \( P_1 = \frac{230,000}{210,000} = 1.1 \) (approx.)
- Nominal GDP growth = GDPg + Inflation
- \( \begin{array}{c} 15 \end{array} = \begin{array}{c} 5 \end{array} \begin{array}{c} 10 \end{array} \)
CPI Inflation

- Average price of consumption goods.
- Computed using fixed basket across periods.
- Issues:
  - Substitution bias -- consumers substitute away from goods whose price increases rapidly relative to others.
  - Quality bias -- introduction of new products
- Boskin Commission:
  - U.S. CPI overstates inflation by 1% to 1.5%.
  - Politics: Social security payments indexed to CPI.
The Unemployment Rate

- Labor force (L) = Empl. (N) + Unemployed (U)
- Unemployment Rate (u) = U/L
- Willing to work? Looking for work?  L < Pop.
  - Not in the labor force
  - Discouraged workers (recessions)
- High unemployment often comes hand in hand with low participation rate:
  - pr = L/(Working age population)
  - ex: U.S. (u = 4%, pr = 80%)  France (u=13%, pr = 65%)
Why track unemployment?

• Provides measure of "slackness".
• Okun’s law: high output growth associated with low unemployment.
• Social issues:
  – job loss and dislocation is costly
  – unemployment differs across groups
    • teenager unemployment = 16.7%
    • black unemployment = 10.3%
Current unemployment:

- June-Jan: payroll survey indicates an increase of 280,000 jobs in U.S (40,000 per month average).
- Unemployment fell from 6.3 to 5.6 over this period.
- Estimated population increase is approx. 2.7 mil from Jan/03 to Jan/04.
- If labor-force participation held constant at 64%, U.S. economy should add 140,000 new jobs per month to keep unemployment from rising.

Explanation:
- Labor force participation rate is falling
- Statistical discrepancies between household and payroll surveys (number of self employed workers is increasing)
Deficits:

- **Trade Deficit**: Imports > Exports
  - Policy issues
    - Strong vs weak dollar
    - Implications for growth (e.g. Japan, Euro area)
- **Budget deficit**:
  - Gov. Expenditure > Gov. Revenue
  - National debt is increasing.
- **Why do we care?**
  - Expenditure smoothing, Argentina… the US?
First Model: The Goods Market

Production → Income

Demand