Consequences of Business Fluctuations

Parts of Chapter 14 + Other Issues

Discussion Topics

- Fluctuations in business activity
- Consequences of business fluctuations
- Macroeconomic policy options

Four Phases of a Business Cycle

- Peak
- Recession
- Trough
- Expansion

Length of cycles varies over time...
Causes of Business Cycles

- **Keynesian** – equilibrium levels differ from full employment - changes to get to full employment gives rise to the cycles
- **Exogenous shocks** – wars, credit crunch etc.
- **Technological shocks** – lumpy changes that increase productivity
- **Political** – elect different administrations with different policy goals

Indicators of Economic Activity

- **Lagging indicators** - business inventories, duration of employment, average interest rate
- **Coincident indicators** - current production, current disposable income, current sales
- **Leading indicators** - new orders for goods, new building permits, new investment in plant and equipment, changes in the money supply
  - **Forecasting models** - mathematical methods of forecasting future trends in the economy

Leading Economic Indicators

<table>
<thead>
<tr>
<th>Conference Board</th>
<th>Weight / Factor</th>
<th>Impact Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average weekly hours, manufacturing</td>
<td>0.2781</td>
<td>Income</td>
</tr>
<tr>
<td>Average weekly claims, unemployment insurance</td>
<td>0.0334</td>
<td>Employment conditions</td>
</tr>
<tr>
<td>Manufacturers’ new orders, consumer goods and materials</td>
<td>0.0831</td>
<td>Future deliveries</td>
</tr>
<tr>
<td>ISM new order index - consumers new orders</td>
<td>0.1651</td>
<td>Future deliveries</td>
</tr>
<tr>
<td>Building permits, new private housing units</td>
<td>0.0272</td>
<td>Future building</td>
</tr>
<tr>
<td>Stock prices, S&amp;P 500 common stocks</td>
<td>0.0356</td>
<td>Interest rates / credit</td>
</tr>
<tr>
<td>Leading Credit Index</td>
<td>0.0794</td>
<td>Interest rates / credit</td>
</tr>
<tr>
<td>Interest rate spread, 10-year treasury bonds less federal funds</td>
<td>0.1089</td>
<td>Reflects Monetary Policies</td>
</tr>
<tr>
<td>Index of consumer expectations</td>
<td>0.1551</td>
<td>Consumer attitudes</td>
</tr>
</tbody>
</table>

Note replaced money supply in 2012 with an index on interest rates S&D.

**How it is Supposed to Work**

A classical example of a leading indicator

**Consequences of Business Fluctuations**

- Fluctuations in the *unemployment rate* (civilian and capital) and implications for policy
- Fluctuations in the *rate of inflation* and implications for policy
Monthly Unemployment Jan. 1948 – March 2019

Unemployment rate during the great depression was 25%

Full employment barometer?

Monthly Unemployment U.S., Texas, and B/CS 1976 – March 2019

Texas lagging at the start of the recession

Calculation of Civilian Unemployment Rate

\[
\text{Rate} = \frac{\text{Number of civilians unemployed}}{\text{Size of total civilian labor force}}
\]

where the size of the total civilian labor force is determined by subtracting those not seeking jobs (homemakers, students, etc.) from the total non-institutional population (those not in prison) over 16 years of age, as well as, those who are in military service.
Example Oct. 2009

Assume the following values
Civilian labor force\(^1\) 153.975 million
Employed persons 138.275 million
Unemployment 15.700 million
Not in force 82.316 million

\[
\text{Rate} = \frac{15.700}{153.975} = \frac{1}{10.2} = 0.102 \text{ or } 10.2\% \\
\]

\(^1\) The civilian labor force equals total population minus those not seeking employment over age 16, those in institutions, and the military.

Unemployment Rates

Earnings

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Private Workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average hours of work/week</td>
<td>34.3</td>
<td>34.5</td>
<td>34.5</td>
<td>34.3</td>
<td>34.4</td>
<td>34.5</td>
</tr>
<tr>
<td>Average hourly earnings</td>
<td>22.87</td>
<td>23.8</td>
<td>24.85</td>
<td>26.13</td>
<td>26.53</td>
<td>27.71</td>
</tr>
<tr>
<td>Average weekly earnings</td>
<td>784.44</td>
<td>821.11</td>
<td>857.33</td>
<td>896.26</td>
<td>912.63</td>
<td>955.99</td>
</tr>
</tbody>
</table>
**Forms of Unemployment**

- *Frictional* - changing jobs and currently unemployed
- *Cyclical* - associated with business cycles
- *Seasonal* - associated with seasonal business activity
- *Structural* - associated with technological change

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- Hurricane Rita
- Hurricane Ike

Decreased from 92 to 81 Dec 2013 – Feb. 2013

Currently at 91.1

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- Hurricane Rita
- Hurricane Ike

Decreased from 92 to 81 Dec 2013 – Feb. 2013

Currently at 92.8
What is Inflation?

- Sustained rise in the general price level
- Not a change in the price of a single commodity
- Core rate of inflation excludes fuel and food price increases
- Deflation (prices falling) vs. disinflation (prices increasing at a slower rate)

CPI Index

- Consumer Price Index (CPI)
  - CPI - represents changes in prices of all goods and services purchased for consumption by urban households
  - Weighted basket of goods — Food and beverages, housing, apparel, transportation, medical care, recreation, education and communication, and other goods and services. http://www.bls.gov/cpi/

Components / Weights in CPI 2016

<table>
<thead>
<tr>
<th>Category</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and Beverages</td>
<td>14.649</td>
</tr>
<tr>
<td>Housing</td>
<td>42.634</td>
</tr>
<tr>
<td>Apparel</td>
<td>3.034</td>
</tr>
<tr>
<td>Transportation</td>
<td>15.318</td>
</tr>
<tr>
<td>Medical Care</td>
<td>8.539</td>
</tr>
<tr>
<td>Recreation</td>
<td>5.663</td>
</tr>
<tr>
<td>Education and communication</td>
<td>6.984</td>
</tr>
<tr>
<td>Other Goods and Services</td>
<td>3.178</td>
</tr>
</tbody>
</table>

The consumer price index is a weighted average of the prices consumers pay for goods and services. It is measured by:

\[ \text{CPI} = \frac{\text{Cost of market basket in current year}}{\text{Cost of market basket in base year}} \times 100 \]

Cost current year

\[ \text{Cost} = W_{FB}(P_{FB}) + W_{H}(P_{H}) + \ldots + W_{OTHER}(P_{OTHER}) \]

\[ = 15.757(P_{FB}) + 43.421(P_{H}) + \ldots + 3.386(P_{OTHER}) \]

Calculating Rates of Inflation

The rate of inflation can be measured by the percent change in the CPI, or

\[ \text{Inflation rate} = \frac{\text{current CPI} - \text{previous CPI}}{\text{previous CPI}} \]

If the CPI was 216.17 in the last half of 2008 and 213.139 in the first half of 2009 what was the rate of inflation rate

\[ = \frac{(213.139 - 216.177)}{216.177} \times 100 \]

\[ = -0.014 \text{ or } -1.4\% \]
## Calculating Rates of Inflation

<table>
<thead>
<tr>
<th>Year</th>
<th>CPI</th>
<th>Inflation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>195.300</td>
<td>---</td>
</tr>
<tr>
<td>2006</td>
<td>201.600</td>
<td>(\frac{(201.6 - 195.3)}{195.3}) = 0.0323 = 3.23%</td>
</tr>
<tr>
<td>2007</td>
<td>207.342</td>
<td>(\frac{(207.342 - 201.600)}{201.600}) = 0.0285 = 2.85%</td>
</tr>
<tr>
<td>2008</td>
<td>215.303</td>
<td>(\frac{(215.303 - 207.342)}{207.342}) = 0.0384 = 3.84%</td>
</tr>
</tbody>
</table>

## Annual Rates 1913 - 2018

Inflation thought to be “under control” in this range. FED 2012 long run goal is 2%

Brought about a major monetary policy action

## CPI and Core Index – Quarterly

4th quarter 1947 – 1st quarter 2019

Red line – core some differences – mainly less variability
When describing growth in the economy on the nightly newscast, the newscaster will refer to the growth in real GDP after adjustments for inflation. In the above example, real GDP grew over the 1992-1999 period, but not at the rate implied by comparisons in nominal terms.

GDP nominal rate of increase = \((86-60)/60 \times 100 = 43\%\)

GDP real rate of increase = \((69-60)/60 \times 100 = 15\%\)

Difference is because of inflation and not an increase in productivity.
W.E. Phillips

- New Zealand Economist
  - Educated at London School of Economics
  - Phillips curve and MONIAC
- Early career
  - Crocodile hunter and cinema manager
  - Studied electrical engineering before the war
- WWII
  - Singapore and than Java
  - Captured
    - Learned Chinese, repaired and miniaturized a secret radio,
      fashioned a secret water boiler for tea which hooked into camp
      lighting system

Phillips Curve

Phillips curve named after British economist A. W. Phillips...

Policies that reduce unemployment may increase inflation in the short run, and vice versa...

Demand Pull Inflation

Demand oriented policies that shift the aggregate demand curve from AD₀ to AD₁ “pull up” the general price level from P₀ to P₁.

This small increase in inflation may make sense since output increased from Y₀ to Y₁, which would lower unemployment.

\[
\text{Inflation rate} = \frac{P₁ - P₀}{P₀} \times 100\%
\]
Demand Pull Inflation and Unemployment

Demand oriented policies to maximize output at the economy’s potential or \( Y_{PE} \) may bring about a substantial increase in the general price level (and hence rate of inflation) for a relatively small gain in output and employment.

Inflationary gap
Created \( Y_2 = Y_{PE} > Y_{FE} \)

Cost Push Inflation and Unemployment

Increase in the cost of production thus a decrease is \( AS_0 \) to \( AS_1 \) may bring about an increase in the general price level (and hence rate of inflation) and a decrease in output and employment.

Supply Side – Normal Range

Supply oriented policies that enhance productivity reduce the general price level.

Policies – See production research/development technology infrastructure subsidies tax rates on business

Stimulates \( Y \) as with demand side policies

Inflation rate
\( (P_2 - P_1) + P_1 \)
Demand vs. Supply Policies

Demand expansion policy “pulls up” the general price level…
Supply expansion policy reduces the general price level …

Both demand and supply oriented policies stimulate aggregate output.

In reality, both forms of policy are typically carried out at the same time.

New Equilibrium
Change in price levels depends on the shifts in the two curves
New \( Y_{FE} \)

Summary

- A business cycle has four phases: peak, recession, trough and expansion
- The two major consequences of business fluctuations are unemployment and inflation
- Know how to calculate the civilian unemployment rate and the rate of inflation facing consumers
- Understand the nature of the index of leading economic indicators
- Understand the concept graphing of demand pull inflation
- Understand the Phillips curve and demand and supply policy impacts