Lecture Notes for Chapter 5 of MACROECONOMICS: An Introduction

Growth & Recession in the U.S. Economy

02/07/08

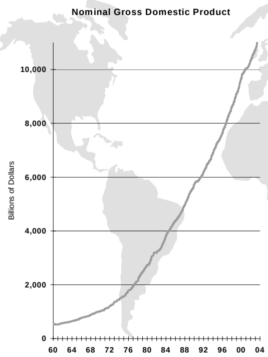
In this chapter we will discuss:

- GDP - Nominal and Real
- Recession and expansion
- Anatomy of the "business cycle"
  - unemployment
  - inflation
  - interest rates
  - profits
  - stock market

U.S. Dept of Commerce announces GDP quarterly.

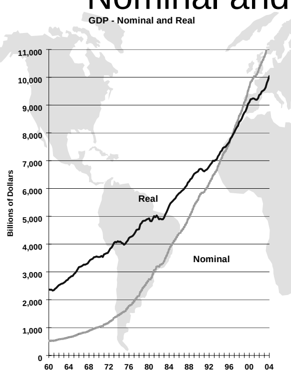
- Broadest indicator of economic activity
- Value of everything produced in the U.S.
- Announced 4th week of next quarter.
- Expressed at an annual rate.
- Seasonally adjusted.
- It is a statistical estimate, subject to revision.

Nominal GDP



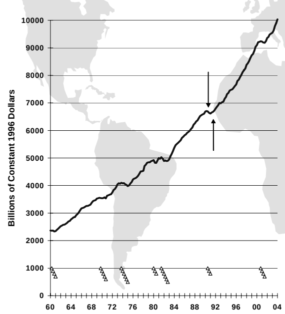
- About 14 trillion $$!
- $40 billion per day!
- Double since 1990!
- Twenty times 1960!
- Partly due to inflation, partly real growth.
- Need to measure ***REAL*** GDP.

Nominal and Real GDP



- Each GDP component is deflated separately.
- Add up to get real GDP
- Re-based each year, called "chaining"
- Real GDP expressed here in dollars of 1996.
- Real GDP dips called recessions.

Rule of thumb: recession when real GDP declines 2 quarters.

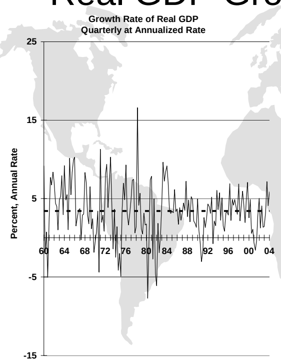


- High point is <u>peak</u>
- Low point is <u>trough</u>.
- Date recessions from peak to trough.
- Between are <u>expansions</u>.
- Last recession was in 2000-2001.
- Now in recession??
- When will recovery start??

Real GDP doubles every 20 years despite recessions!

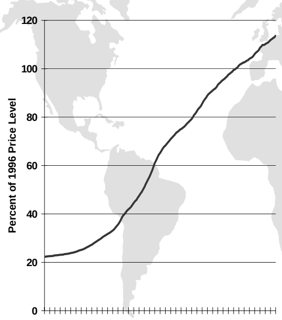
- Long term economic growth!
- Over many decades the growth rate of real GDP has <u>averaged</u> over 3+% per year.
- Real GDP doubles roughly every 20 years!
- Rule of 72: time to double is 72/growth%.
- But growth rate fluctuates widely around that average.

Real GDP Growth Quarterly



- Quarterly at annual rate.
- Very noisy!
- 3+% average is reliable over long periods
- Early '90s below par.
- Late '90s above par.
- <u>**Can't**</u> predict next quarter
- <u>**Can**</u> expect 3+% long term

Implicit Price Deflator for GDP



- Divide nominal GDP by real GDP
- A price index for everything!
- Base year here 1996
- Chaining has reduced biases we saw in CPI.
- Rapid inflation in 70s.

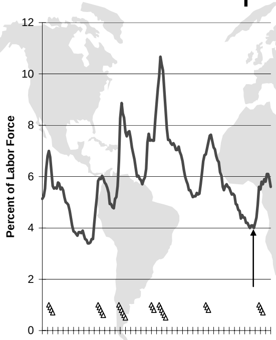
The Business “Cycle"

- Are recession, expansion, recession, like cycles in nature?
- Time between recessions highly variable, not a fixed frequency
- Prefer term "business fluctuations"
- Which are the key “cyclical” variables?

The Unemployment Rate

- Who is unemployed?
- If normally employed, looking for a job.
- Normally employed are the labor force, divided between employed and unemployed.
- Unemployment and recession go together, employers lay off workers they do not need.
- Unemployment rate is % of labor force.

The Unemployment Rate

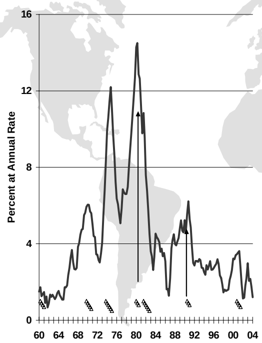


- Increases in recession, declines in expansions.
- Demographic factors:
- More young workers in the 1970s, higher unemployment
- More experienced workers in the 1990s, lower unemployment

What rate is “full employment”?

- Always “frictional” unemployment.
- Some have health or social problems.
- Also “voluntary unemployment”
  quit to look for better work, to move
- “Natural” rate of unemployment about 5%.
- Above 5%, economy is too slow,
  below 5% is “inflationary”
- Who is not counted?

The Rate of Inflation - CPI

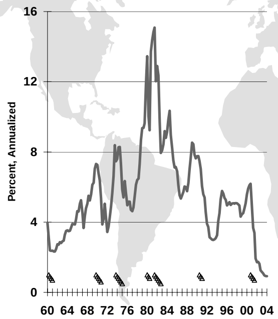


- Declines in recessions, accelerates in expansions.
- Law of supply & demand.
- But *lags* business cycle:
- high in 90-91 recession,
- fell sharply in 1992,
- remains very low now.
- New Era???????

Why doesn't inflation respond more quickly to recession?

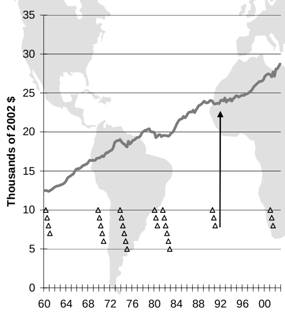
- Many prices and wages fixed by contract
- Union contracts cover 3 year period.
- Frequent changes upset customers
- “Menu costs”
- Regulations - less important today.

The Treasury Bill Rate



- Falls during recessions, rises during expansions
- Why?
- Inflation expectations rise and fall with cycle
- Real rate affected by:
  - Fed policy
  - loan demand
  - both cyclical

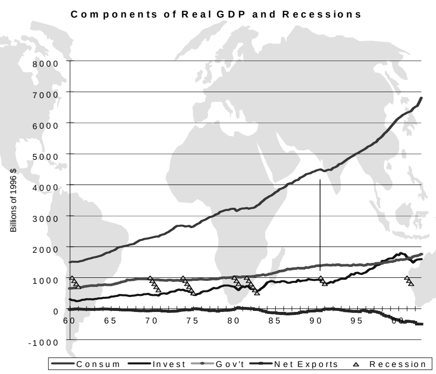
Real Disposable Income Per Capita



- Personal income, minus taxes.
- Deflated by CPI, divided by population
- About $30,000 per year.
- Doubled since 1960!
- Dips during recessions.

Impact on Presidential Elections

- Carter defeated incumbent Ford in 1976
- Reagan unseated Carter in 1980
- Clinton unseated Bush in 1992
- All correspond to dips in real disposable income.
- Bill Clinton made his campaign motto:
  "It's the economy, stupid!“
- What effect will weak economy have in 2008?



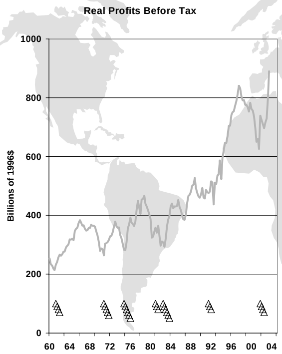
Note that:

- Components vary in responsiveness to recession
- Most sensitive is investment,
  new plant and equipment.
- Consumption spending declines only modestly
- Government purchases little affected
- Imports affected, reflect demand in the U.S.
- What about exports?

The Investment Accelerator

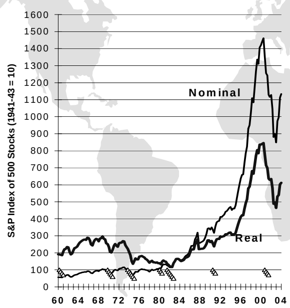
- If sales only levels off,
  firm needs <u>no</u> new plant and equipment.
- Investment goods dive during a recession
- Some replacement demand
- Capital goods makers called "cyclical".
- Examples: Boeing, Caterpillar, Paccar.
- Effect may be moderated by export demand.

Corporate Profits & Recessions



- Strongly pro-cyclical
- Many costs are fixed
- Early 80s, GDP fell 3%, profits 45%.
- Profits stagnated in 70s, took off in 90s,
- so did stock market!
- Not surprising.
- But 2008 looks weak.

Standard and Poor's Index of 500 stocks - nominal and real



- Note the difference!
- Stock market troughs before the economy.
- also peaks before the economy.
- Stock market is a <u>leading indicator</u> of the business cycle.
- Why?

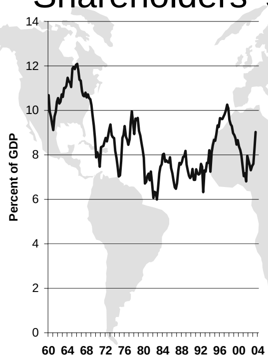
The Efficient Markets Hypothesis:

- Stock market reflects investors' best collective forecast of future profits
- Many sources of information come together
- In the midst of recession, stock market sees signs of recovery
- Lesson: you can't beat the market!

Understanding stock prices:

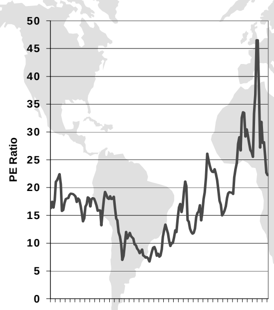
- S&P = P/E x E/GDP x GDP
- So rise in S&P is due to:
- growth in “P/E ratio”, plus
- growth in corporate share of GDP, plus
- growth in real GDP.
- Which has made biggest contribution?
- Not GDP, it grows only 3 to 4%.

Shareholders’ share of GDP:

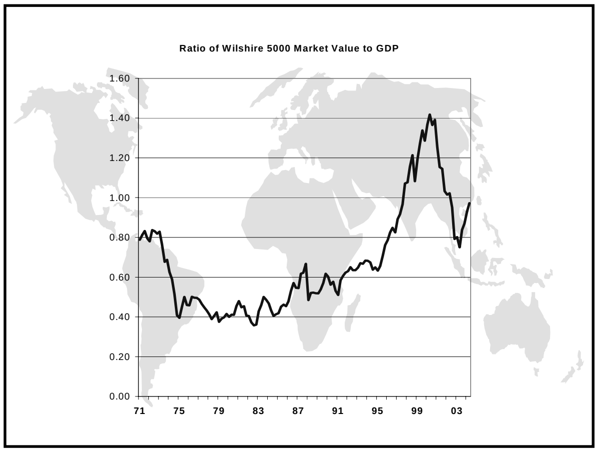


- Very stable historically.
- Why the decline?
- Why the recovery?
- How much higher?
- New Era ????

The Price/Earnings Ratio



- How much are investors paying for a dollar of profits?
- Why high in 1960s?
- Why low in 1970s?
- Why so high now?
- New Era???????


Ratio of Wilshire 5000 Market Value to GDP
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
71
75
79
83
87
91
95
99
03

The End!