

MACROECONOMICS

Lecture Notes

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Part I – Chapters 1, 2 and 3. Introduction and Measurements

■ **Economics**

- Microeconomics
 - The study of individual economic decision making.

- Macroeconomics
 - The study of aggregate economic variables.
 - The study of the behavior of large collections of economic agents.

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Macroeconomics models based on
Microeconomic principles.

Chapter 1

Introduction

Plan

- What is Macroeconomics?
- Phenomena of interest and historical events:
 - Economic Growth (Long-Run)
The increase in productive capacity and average standard of living. Measured by the trend.
 - Business Cycles (Short-Run)
The short-run ups and down, booms and recessions. Measured by deviations from the trend.
- Building Macro models.
- Issues of disagreement in Macro.

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Macroeconomic Questions (WHY ?)

- Why are some countries rich while others are poor?
- In terms of standard of living; are you better off than your parents/grand-parents?
- Why are there fluctuations in aggregate economic activity?
- If you can understand these fluctuations, is there any way to avoid them?

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Macroeconomic Focus

- Aggregate behavior of consumers and firms.
- The behavior and influence of the government on overall economic activity.
 - For example, the effects of fiscal and monetary policies.
- The overall level of economic activity in individual countries.

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HOW ?

- Theoretical Models
 - Consist of
 - Descriptions of consumers and firms
 - Their objectives and constraints
 - Resources available
 - How they interact (relationships)
 - Outcome:
 - Prediction regarding overall economic activity
- ???
- ➔
- Real Life Data
 - Long-Run Growth
 - Business Cycles

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Definitions

- Gross Domestic Product (GDP)
 - ≡ quantity of goods and services produced in the United States.
- Gross National Product (GNP)
 - ≡ quantity of goods and services produced by US residents.
- To compare across countries:
 - GDP per capita = GDP / Population

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Figure 2-1 GDP and GNP

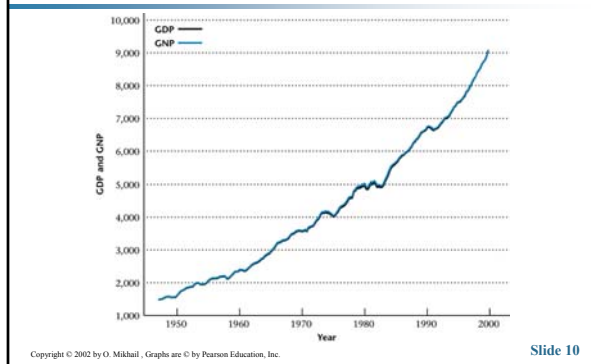


Figure 1-1 Per Capita Real GNP (in 1992 dollars) for the United States in the Twentieth Century

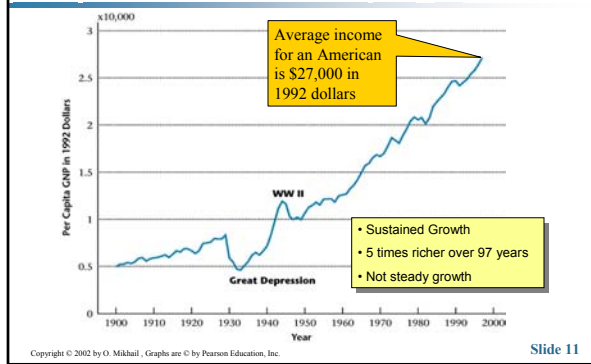
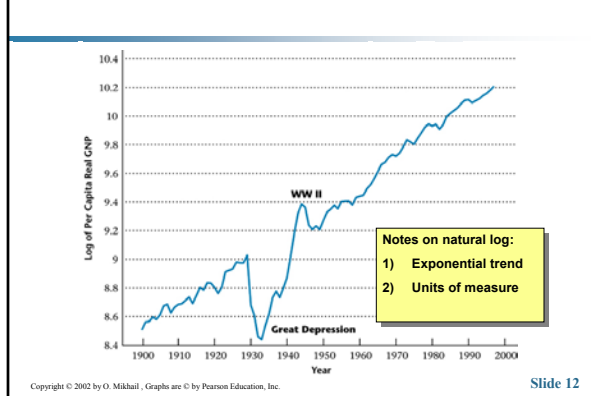
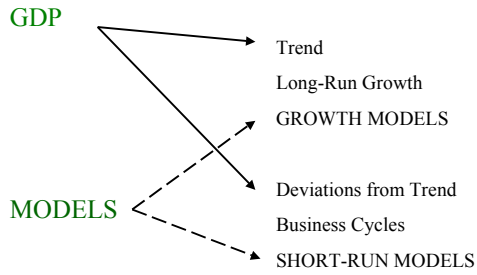


Figure 1-2 Natural Logarithm of Per Capita GNP



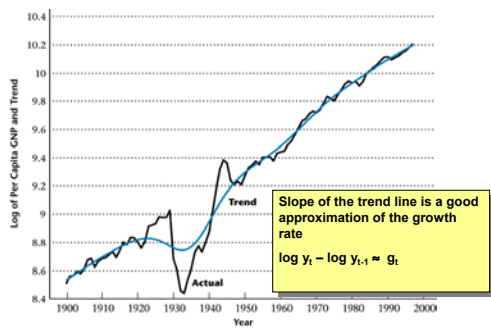
Decomposition of GDP and Models



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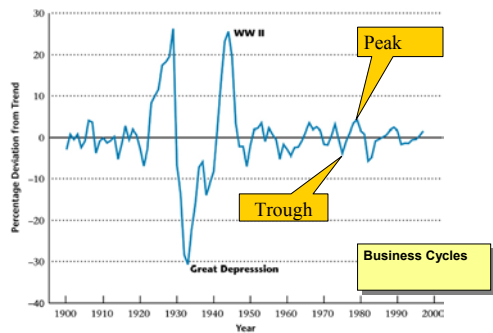
Figure 1-3 Natural Logarithm of Per Capita GNP and Trend



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Figure 1-4 Percentage Deviations from Trend in Per Capita GNP



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Building a Model (The Art of War)

- Consumers and firms (representative)
- Set of goods (one good)
- Consumers preferences (utility)
- Technology available (production function)
- Resources available (constraints)
- Nature of the market (competitive)
- Behavior of agents (optimization)

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Building a Model (Flavors)

The setup

- Investment and saving.
- Government spending and taxes.
- International and exchange rates (open economy).
- Money supply and inflation.
- One traded good or many goods.
- Nature of market: competitive, monopoly or oligopoly.
- Markets clear or not.

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Outcome of the Model

Ask the model questions:

- For which we know the answers
Does the economy grow in a manner that matches the data?
- For which we do not know the answers
How much growth had the level of government spending been higher? or lower?

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Why Microeconomic Principles?

- Changes in government policy, may alter the behavior of consumers and firms and consequently the behavior of the economy as a whole.
- The Lucas Critique (1976) introduced macro models based on micro principles.

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Disagreement in Macro (The Fight)

- Economic Growth Models
 - Little disagreement
 - Based on Robert Solow's model
- Business Cycles Models
 - Keynesian Theory (John Maynard Keynes)
 - Money Surprise Theory (Milton Friedman and Robert Lucas)
 - Real Business Cycle Theory (Edward Prescott and Finn Kydland)
 - Keynesian Coordination Failure Theory

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Understanding Recent and Current Macroeconomic Events

Seven Issues

1. Productivity Slowdown
2. Taxes, Gov spending and deficit
3. Inflation
4. Interest rates
5. Energy prices
6. Trade and twin deficits
7. Unemployment

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Productivity

≡ average labor productivity = Y / N
where Y refers to aggregate output (GDP)
and N denotes employment.

It is the output per worker. For example, in a one good economy, 10 chocolate bars per worker or 12 chocolate bars per worker.

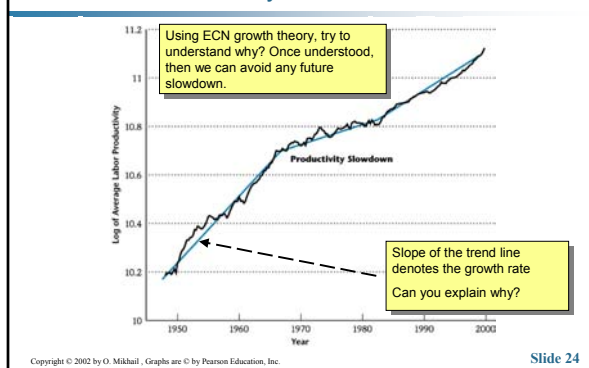
Why Important?

Economic growth theory points to growth in productivity as an important reason for growth in living standards in the LONG-RUN.

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Figure 1-5 Natural Logarithm of Average Labor Productivity



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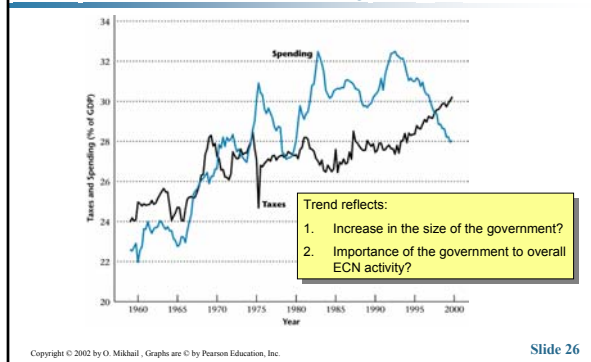
Explaining Productivity Slowdown

1. Costs of adjusting to new technology.
2. Reflects measurement bias problem.
3. Any other suggestion ???

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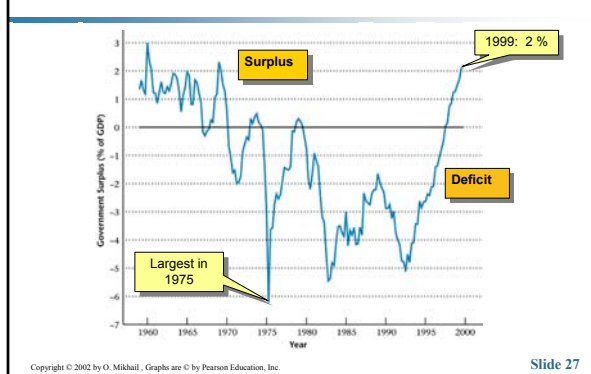
Figure 1-6 Total Taxes (black line) and Total Government Spending (colored line) in the United States (federal, state and local) as Percentages of GDP



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Figure 1-7 The Total Government Surplus (Government Saving) in the US, as a % of GDP.



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Effects of the deficit depend on the source

Deficit due to:

1. Lower taxes
 - Implies higher future taxes.
 - Ricardian Equivalence theorem: Under some conditions, government deficits do not matter.
2. Higher spending
 - Implies crowding out of private spending.

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Figure 1-8 Inflation and Money (M1) Growth

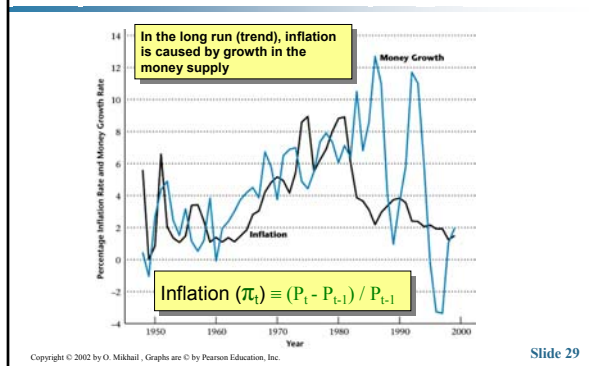
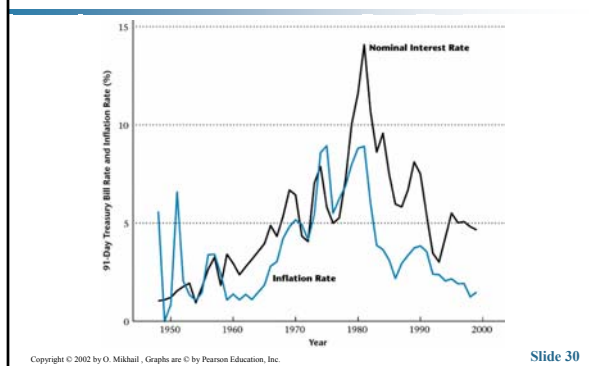


Figure 1-9 The Nominal Interest Rate (91-day U.S. Treasury bills) and the Inflation Rate



Real (r) and Nominal (R) interest rates

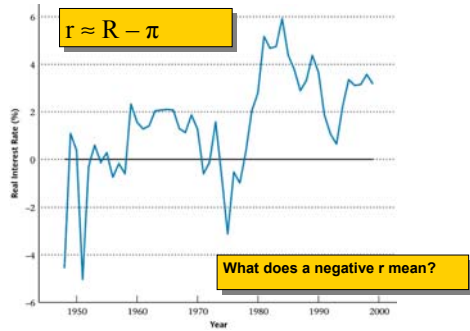
$$r \approx R - \pi^e$$

ECN decisions depend on the real interest rates.
Market forces determine the real interest rates.

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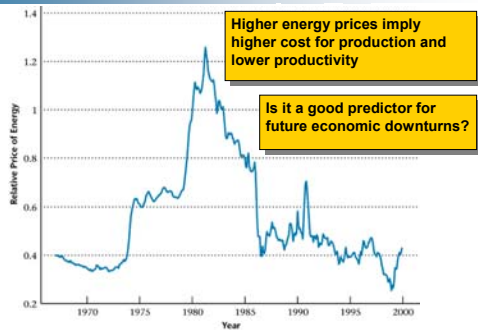
Figure 1-10 Real Interest Rate



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Figure 1-11 The Relative Price of Energy, Measured as the Producer Price Index of Petroleum Products Divided by the Consumer Price Index



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Figure 1-12 Percentage Deviations from Trend in Real GDP

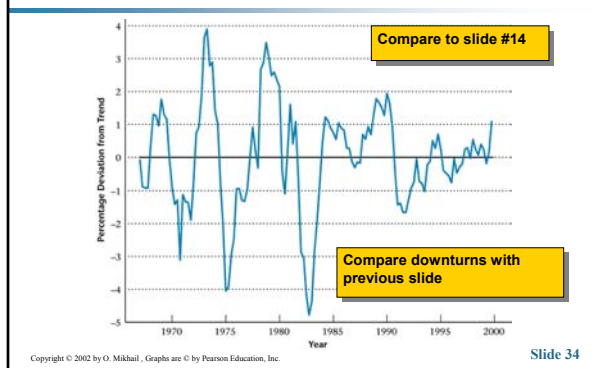
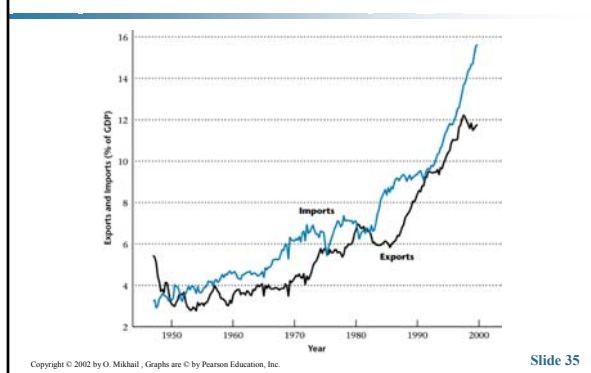


Figure 1-13 Exports and Imports of Goods and Services for the United States, as Percentages of GDP



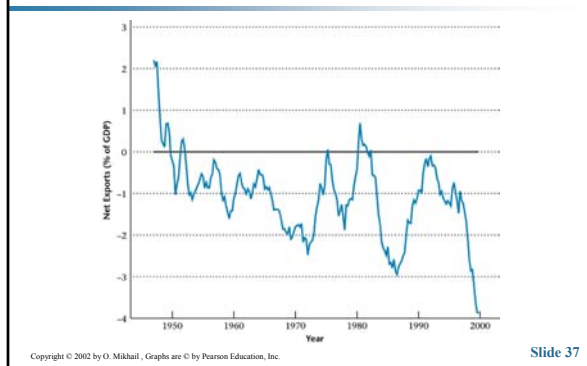
Current Account Surplus

Current Account Surplus (CA)
 = net exports (exports minus imports) + net
 factor payments (net income to domestic
 residents from abroad)

$CA \approx NX$
 (because net factor payments is small)

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Figure 1-14 Net Exports



Current Account Deficit

It is important when financed by borrowing.

1. To smooth consumption
2. If borrowing is used to add to the nation's productive capacity

Short-run borrowing for higher future living standards.

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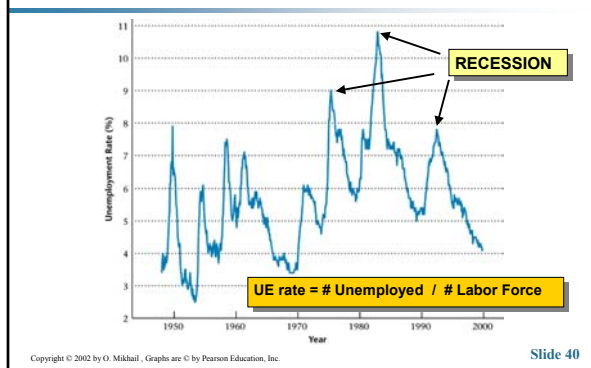
Twin Deficits (mid-to-late 1980s)

- Government Budget Deficit
- Current Account Deficit

Whenever borrowing is done from abroad.

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Figure 1-15 The Unemployment Rate in the United States, 1948-1999

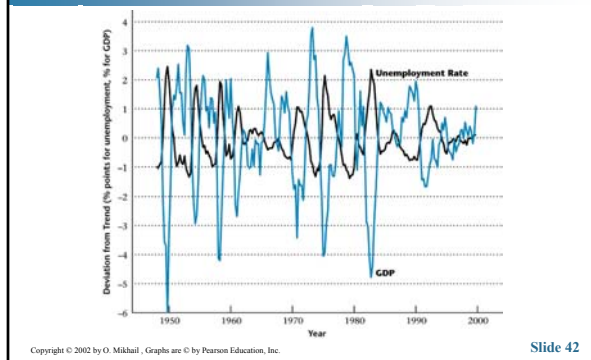


Explaining UE

1. Aggregate ECN activity (countercyclical)
2. Structure of population (baby boom)
3. Government intervention (insurance system)
4. Sectoral shifts (acquiring new skills)

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Figure 1-16 Deviations from Trend in the Unemployment Rate (black line) and Percentage Deviations from Trend in Real GDP (colored line)



To do list

- Can you build a 'good' macroeconomic model that explains current and historical economic activity?

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ASSIGNMENT

- Graph Gross Domestic Product (GDP) and Gross National Product (GNP) in 1996 dollars, for 1947 and thereafter.
- Using the Consumer Price Index (CPI) as a measure of the price level, graph the annual inflation rate for 1948 to 1999.

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