Economic Growth

ECO 120: Global Macroeconomics

Goals

- Specific goals:
  - Appreciate the significance for economic growth.
  - Compare patterns of economic growth across countries.
  - Learn what factors affect economic growth.
- Learning objectives:
  - LO5: Compare and explain international differences in macroeconomic outcomes of production, prices, inflation, and employment.
  - LO11: Describe factors that may influence economic growth and use these to explain international difference in growth and development.*

Reading and Exercises

- Module 20 describes differences in international growth rates
- Module 21 describes the productivity curve model
- Module 22 describes government policies that can promote economic growth
- **Canvas Quiz due Wednesday 11:59 PM**.
  Multiple-choice, 10 questions, unlimited attempts allowed, only best score counts
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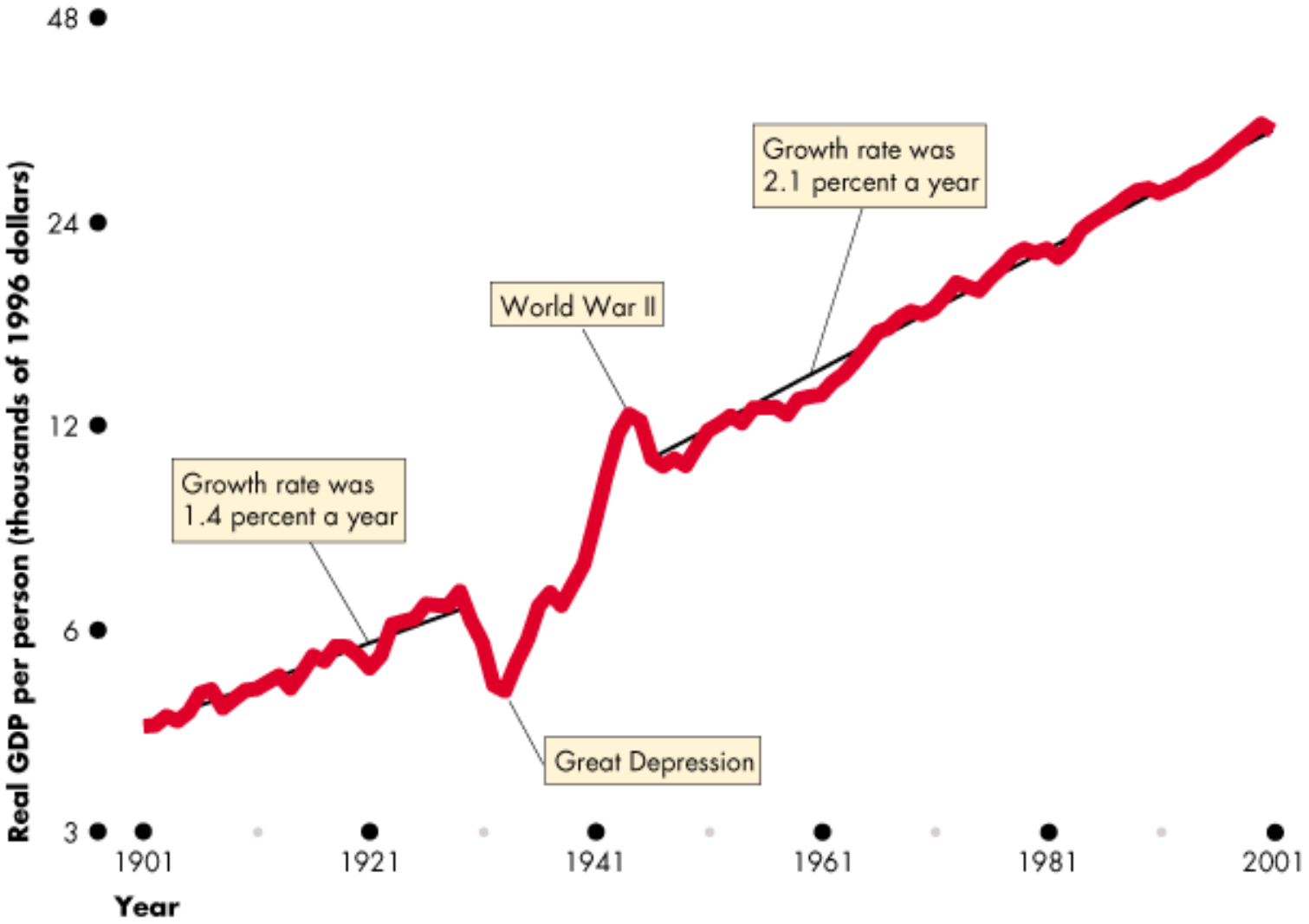
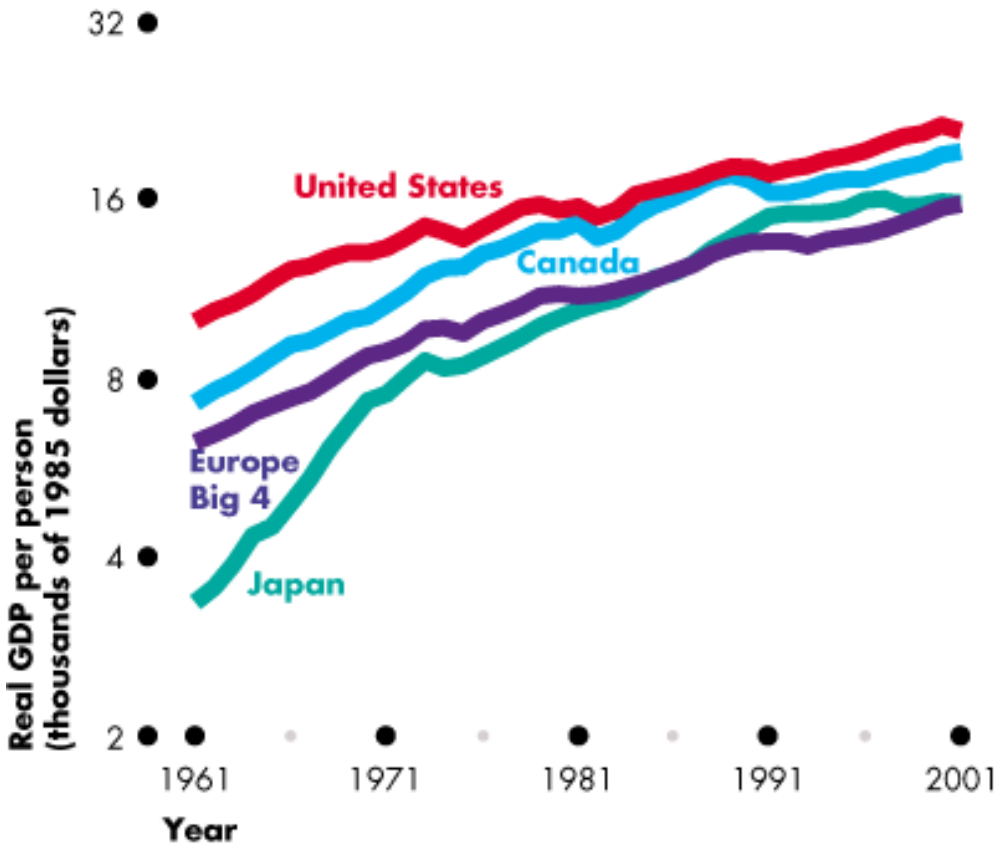
U.S. Trend


48
24
12
6
3
Real GDP per person (thousands of 1996 dollars)
1901
1921
1941
1961
1981
2001
Year
Growth rate was 1.4 percent a year
World War II
Growth rate was 2.1 percent a year
Great Depression

Long-Term Real GDP Growth

- Before the great depression, average growth rate was 1.4%
- After the great depression, average growth rate was 2.1%
- Real GDP per person in 1900 was approximately \$6,000 (using base year 2009)
- Real GDP per person in 2013 was approximately \$49,800 (base year 2009)
- Can you compute what GDP would be in 2013 if the average growth rate was always 1.4%?
  - Answer: $6000(1 + 0.014)^{113} = \$28,869.56$.
- What if the average growth rate was always 2.1%?
  - Answer: $6000(1 + 0.022)^{113} = \$62,814.53$.
- **Small differences in growth adds up to a lot!**

What happens in other developed countries?



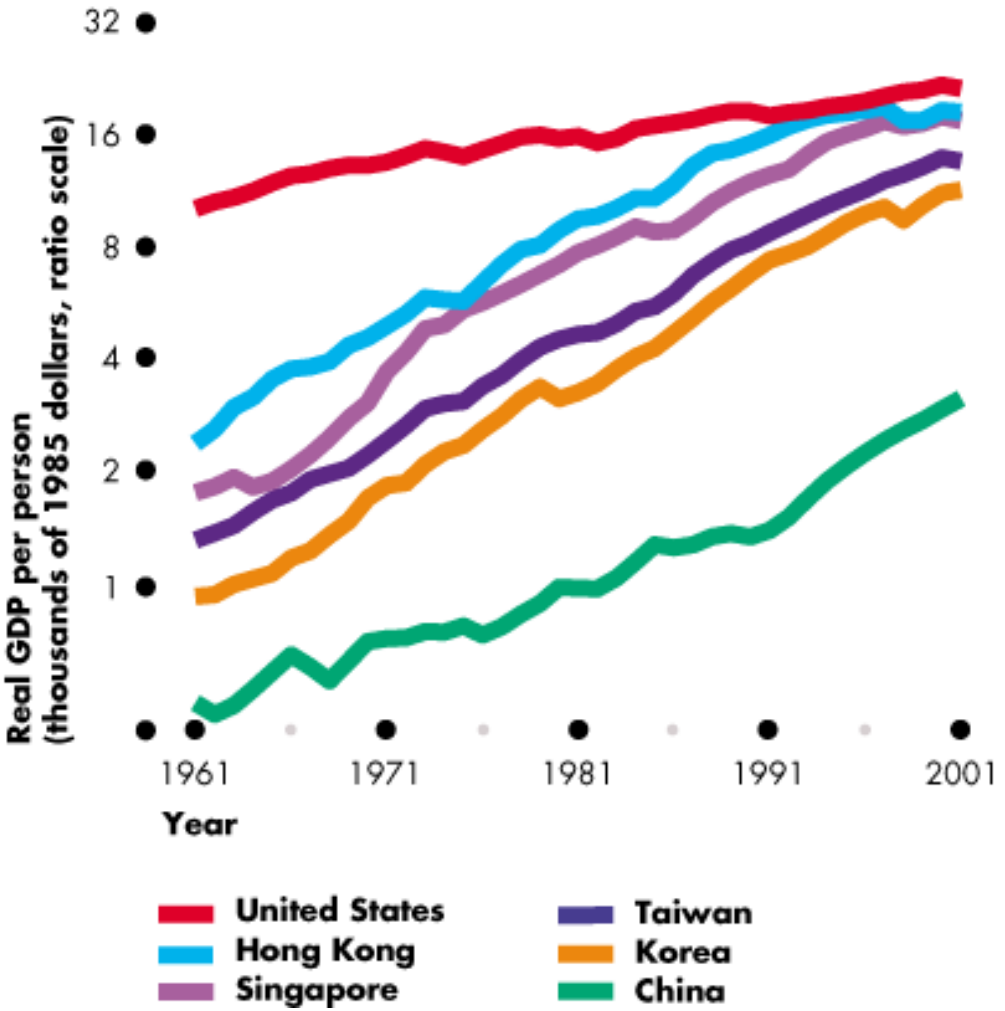
(a) Catch-up?

Rich countries, but low rates of growth $\approx$ 2%

After WW2, Japan was lesser-developed, but had a high growth rate

Now Japan is highly-developed and has a low growth rate

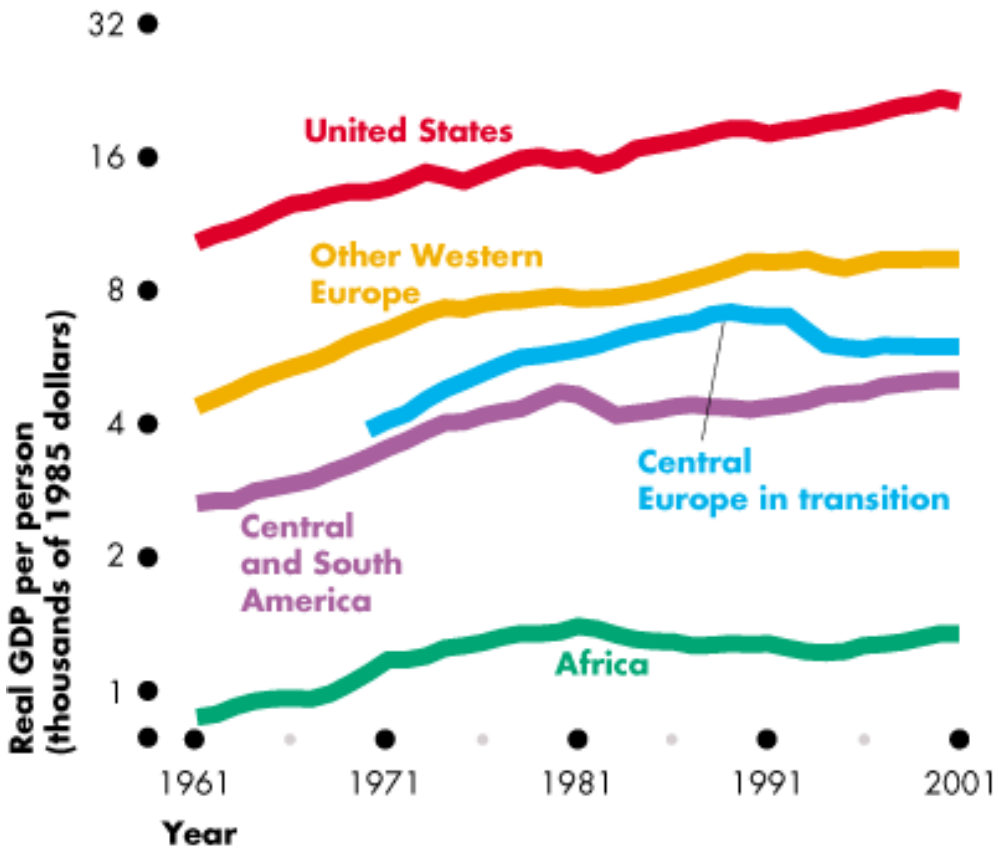
Developing Economies in Asia are catching up



Growth rates since 1990:

- Hong Kong $\approx$ 3%
- Singapore $\approx$ 5%
- Taiwan $\approx$ 5%
- Korea $\approx$ 5%
- China $\approx$ 10%

Some Lesser Developed Economies Not Catching Up



(b) No catch-up?

Need Proper Incentives

- Saving and investment in new capital
  - Savings is important for a sufficient equilibrium level of investment.
  - What happens if savings supply is low?
  - Higher levels of capital allows for higher levels of production.
  - and a higher marginal product of labor.
- Investment in human capital
  - Improved education increases the marginal product of labor.
  - Accumulation of knowledge has increasing returns.
- Discovery of new technologies
  - Technological progress drives economic growth in the long run.
  - There needs to be incentives to do research and development. What does the US do?
    - Patents on new products.
    - Fund research and development through grants and state universities.

Preconditions For These Incentives

- Markets
  - Enable buyers and sellers to meet.
  - Convey information through price.
- Property rights
  - Creates a profit incentive.
  - Intellectual property rights gives incentive for research and development
- Monetary exchange
  - Facilitates exchange.
  - Eliminates need for a “double coincidence of wants”.

Labor productivity Curve

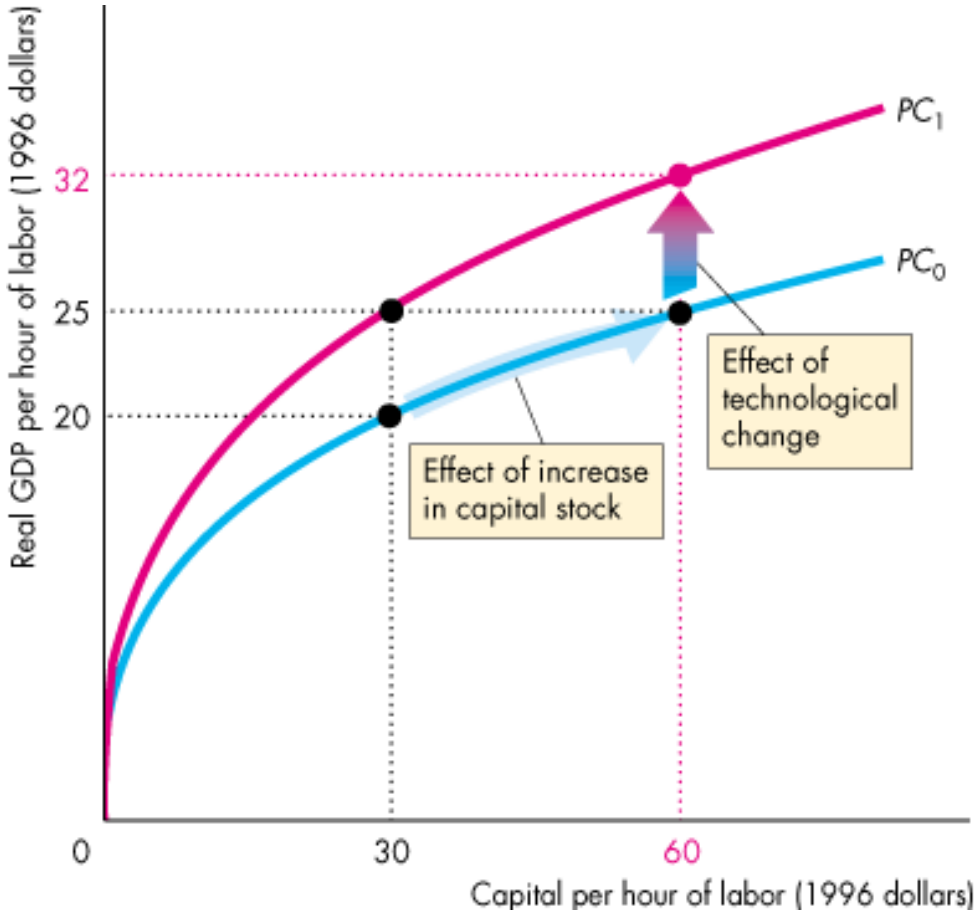
- **Labor productivity curve:** long-run economic growth model that illustrates how much output per person a country can enjoy with given levels of capital per person.
- Labor productivity is real GDP per hour of labor.

$$\text{Labor productivity} = \frac{\text{Real GDP}}{\text{Aggregate labor hours}}$$

Labor productivity curve

- Think of labor productivity curve as a production function, in per-capita terms.
- Real GDP per unit of labor increases as you increase the amount of capital.
- But at a decreasing rate. Due to *diminishing marginal product of capital*.

How labor productivity grows



Labor productivity curve

- For given levels of capital stock per worker, curve shows output per worker.
- Increases in capital correspond to *movements* along the curve.
- Increases in technology or human capital *shift* the curve.

Catch-Up Theory

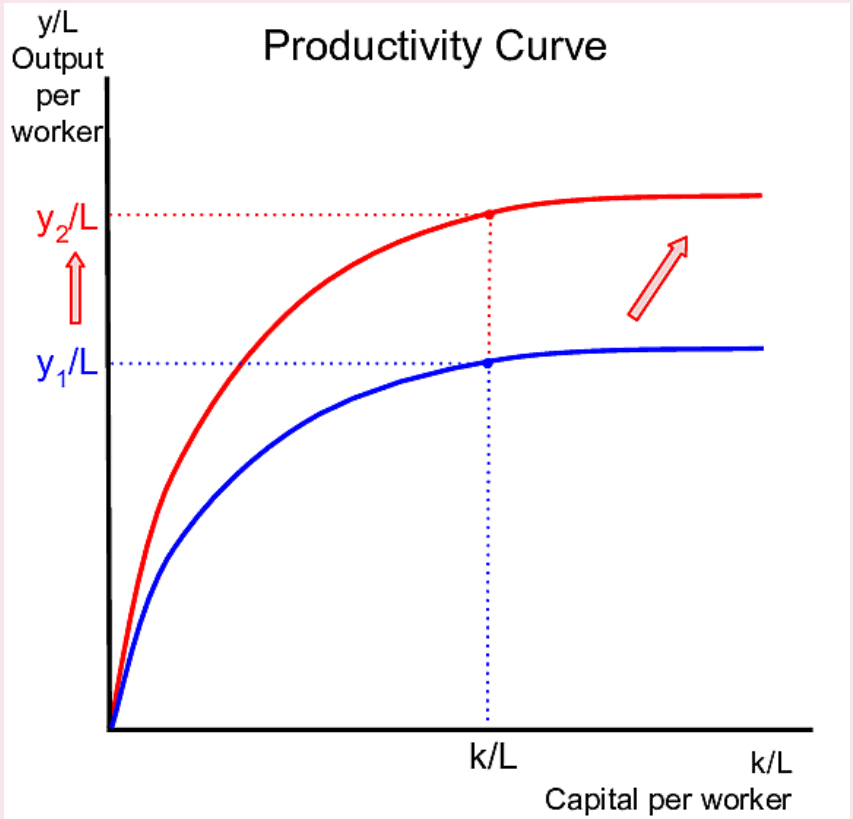
- Diminishing returns explains catch-up theory.
  - Lesser-developed countries have low levels of capital $\rightarrow$ high return to investing in new capital.
  - Developed countries (like the U.S.) have high levels of capital $\rightarrow$ low return to investing in new capital.
- Not all countries catch up. Preconditions for growth do not exist.
  - Poorly developed goods and services markets, financial markets.
  - Corruption and war threaten property rights.
  - Inflation out of control.

Improvement In Human Capital

Mechanism

- Human capital is defined as the knowledge and skills workers use in production of goods and services
- Improvements in human capital lead to higher productivity
- Higher productivity shifts out the productivity curve
- Even without increases in capital stock, results in higher long-run output per worker

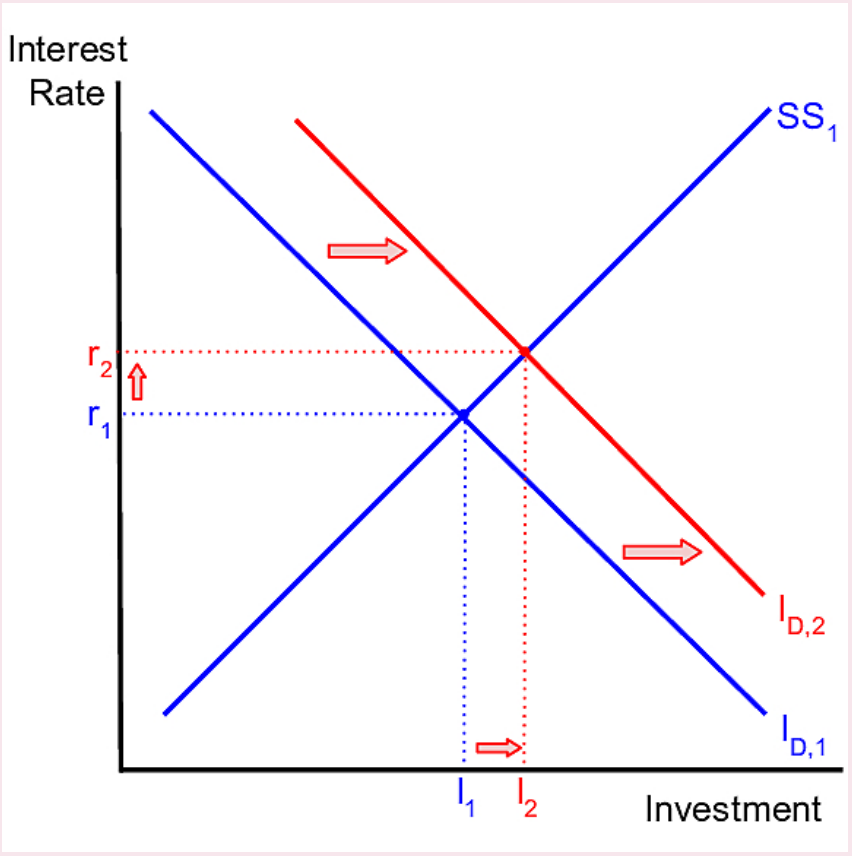
Graphical Demonstration



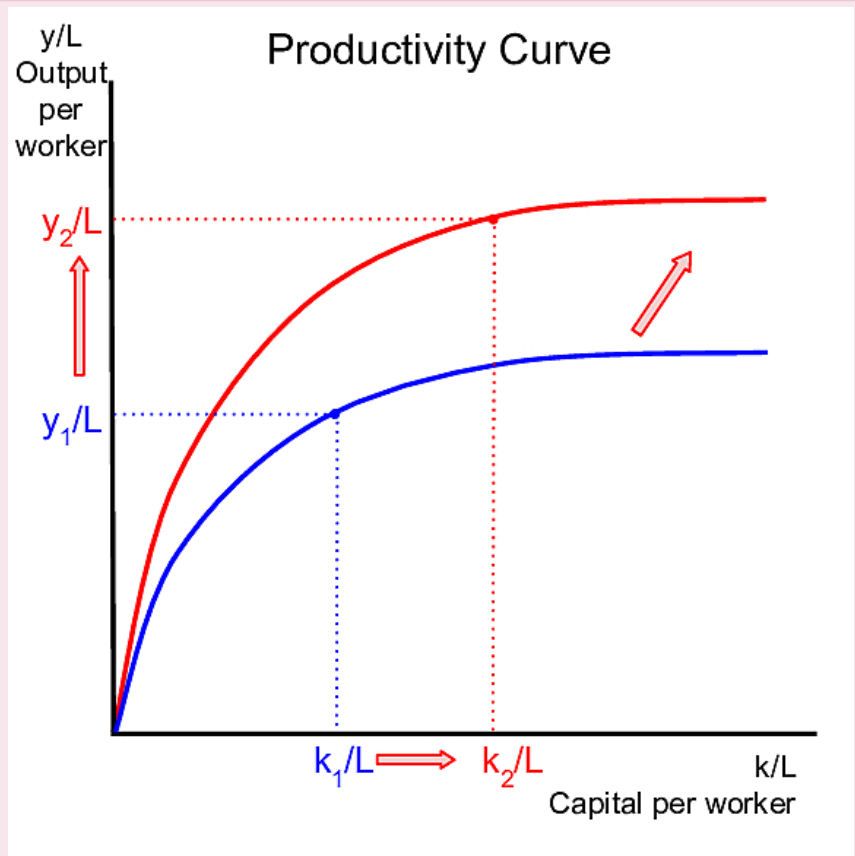
Improvement In Technology

An improvement in technology, increases productivity and increases investment demand

Loanable Funds Market



Productivity Curve

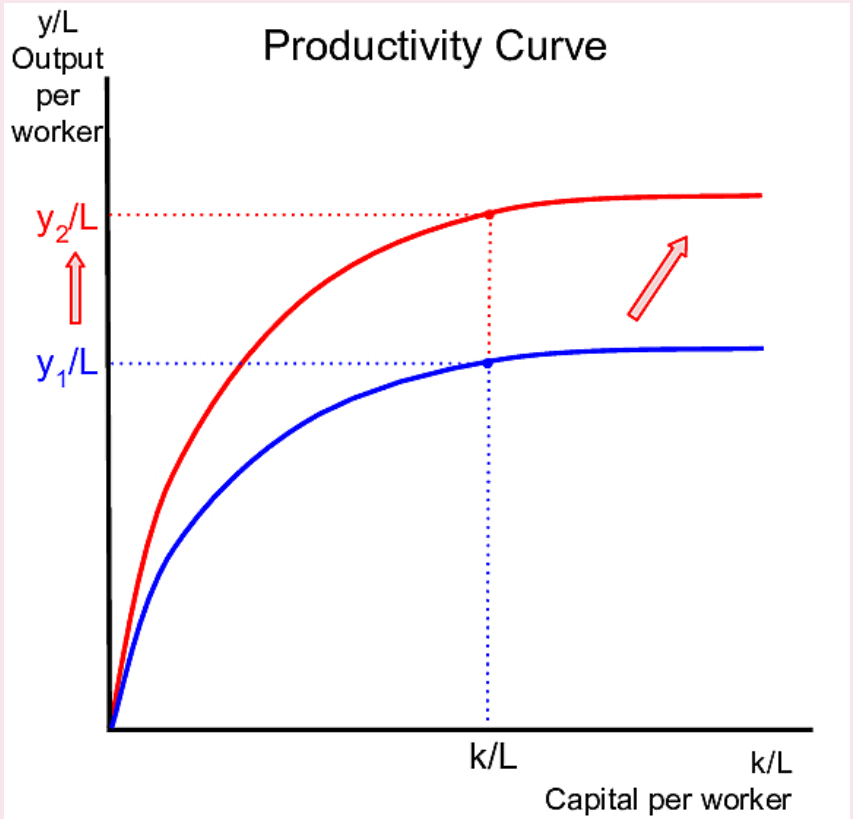


Improvement In Public Health

Mechanism

- Healthier workers have fewer sick days and are more productive
- Higher productivity shifts out the productivity curve
- Even without increases in capital stock, results in higher long-run output per worker

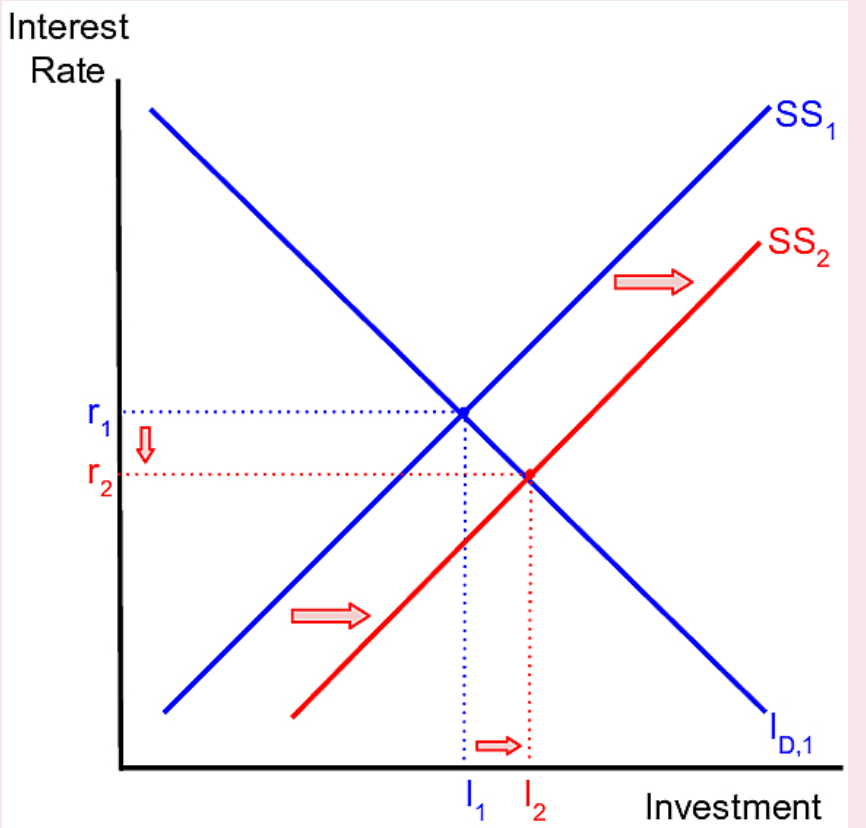
Graphical Demonstration



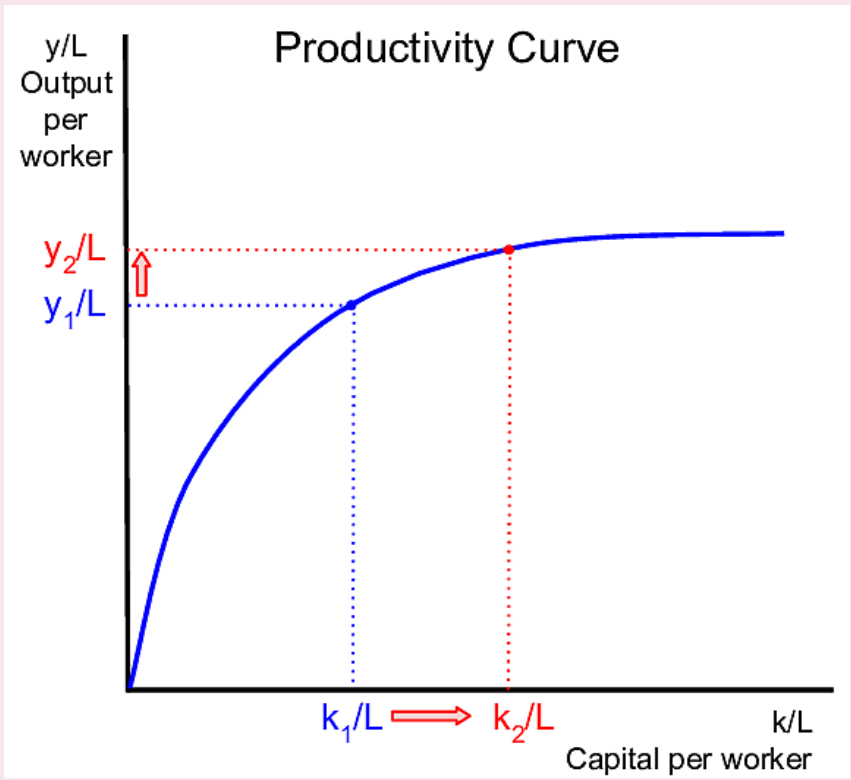
Private Savings

An increase in private saving leads to an increase in saving supply

Loanable Funds Market



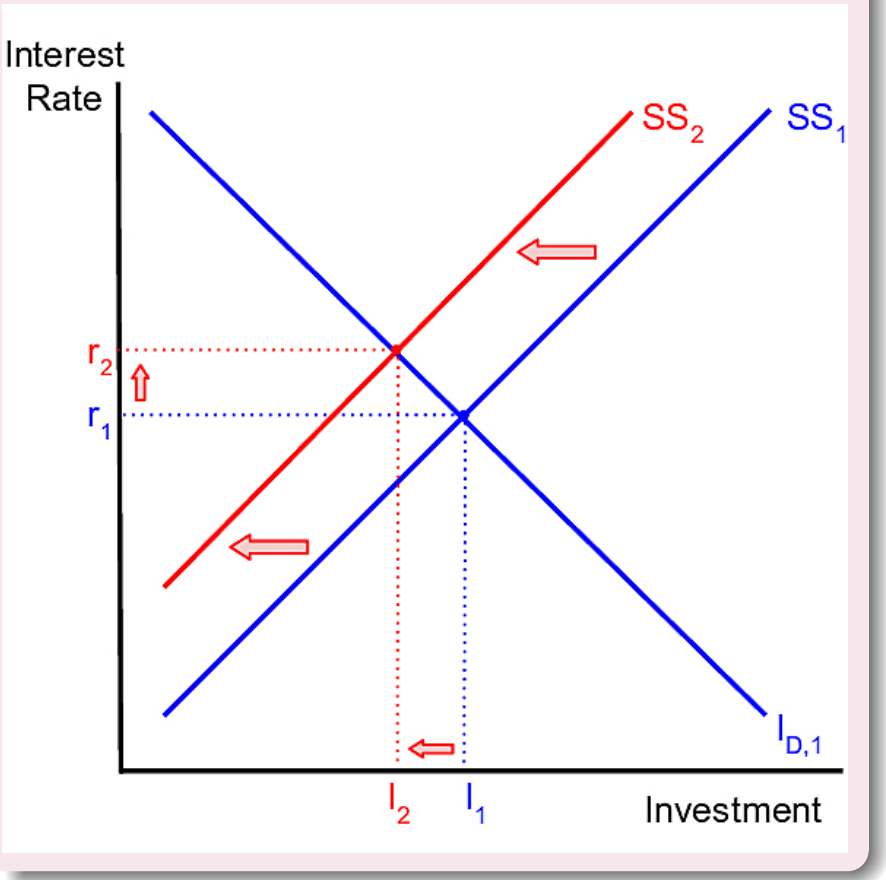
Productivity Curve



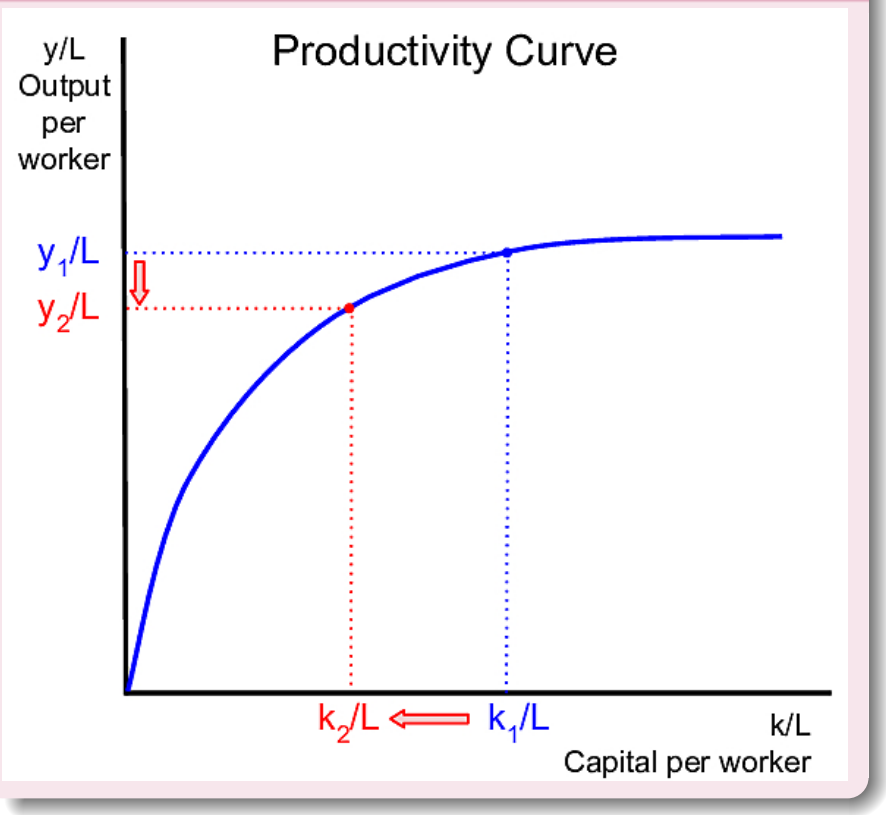
Government Budget Deficits

An increase in government budget deficits leads to a decrease in saving supply

Loanable Funds Market



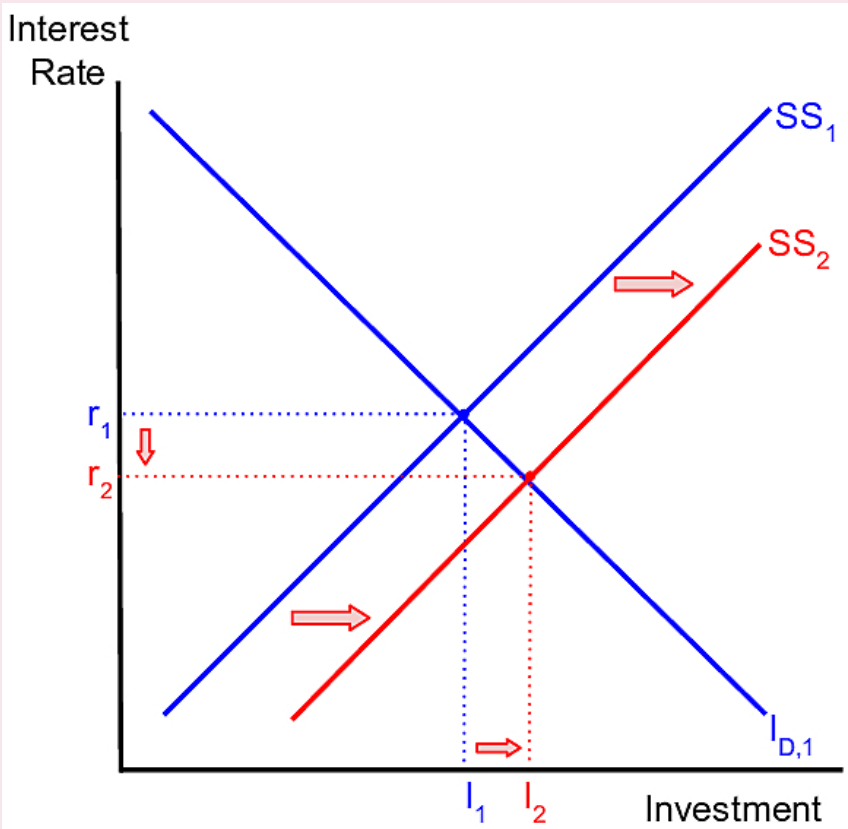
Productivity Curve



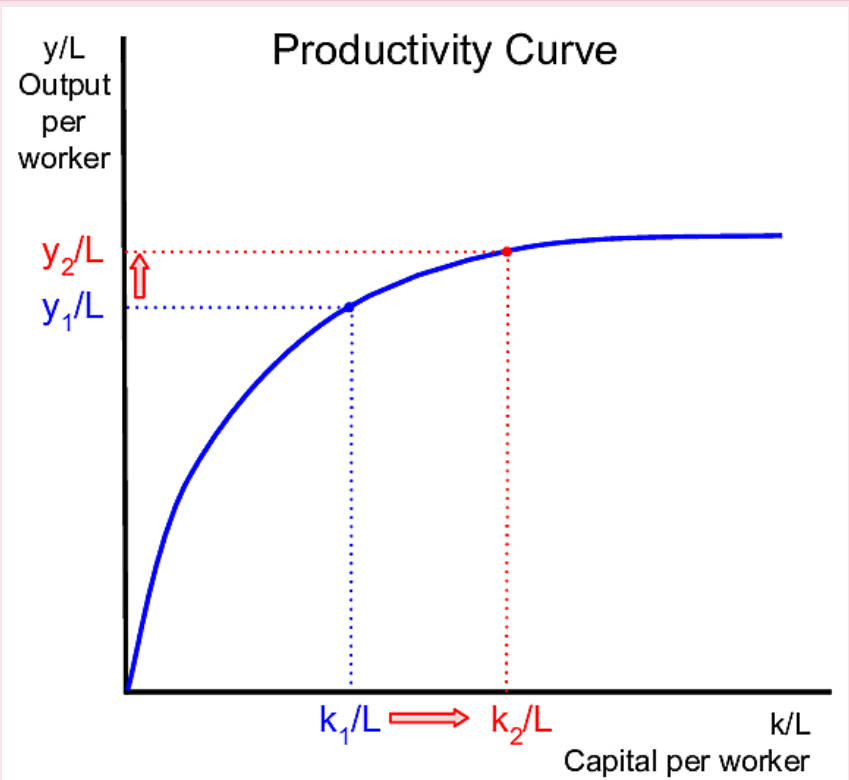
Trade Deficits

An increase in trade deficits (M-X) leads to an increase in saving supply

Loanable Funds Market



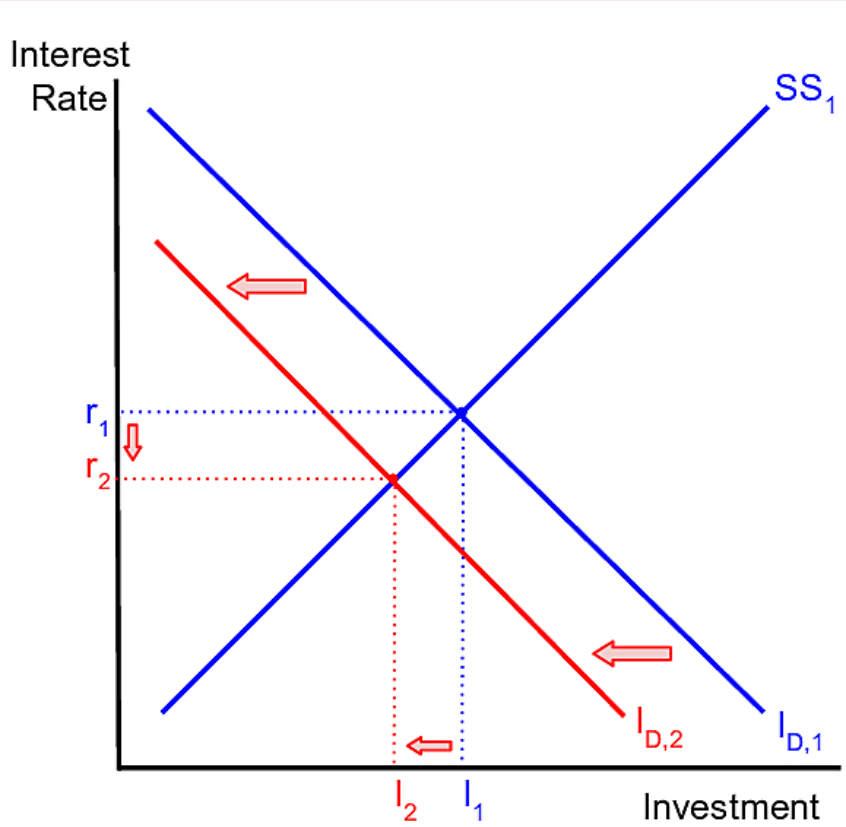
Productivity Curve



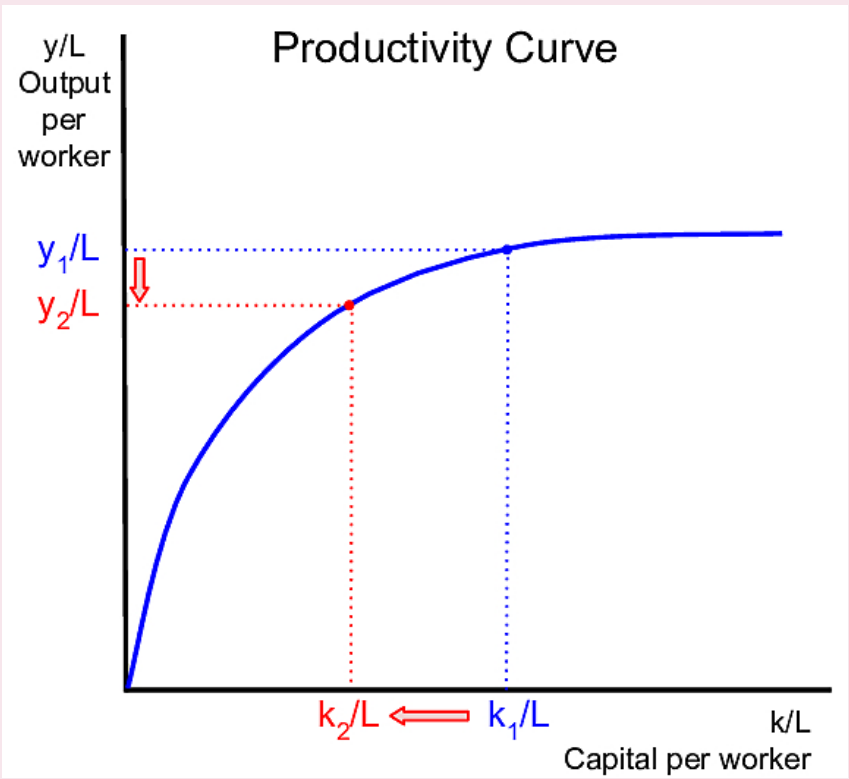
Business Economic Outlook

A drop in business confidence leads to a decrease in investment demand

Loanable Funds Market



Productivity Curve



Government Policies Encourage Economic Growth

- Stimulate savings. How?
  - Tax incentives: IRA accounts. Tax on consumption.
  - Tax on capital gains reduces savings incentive.
- Stimulate research and development.
  - Patents, research grants.
- Encourage international trade.
  - Fastest growing nations today are those with the fastest growing imports and exports.
  - Achieve gains from trade.
  - Invites foreign direct investment: global businesses create operations in new countries, invest in capital.
- Improve the quality of education.

Growth is not the goal

- What is one (stupid) way to achieve a really high level of economic growth?
  - Increase saving to 100%
  - This would lead to high levels of investment and high levels of growth.
  - But we wouldn't consume anything. That's no fun.
- Goal: Maximize the sustainable level of consumption.
- Real GDP per capita does not speak to economic inequalities or economic inequalities

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