Economic Growth

ECO 120: Global Macroeconomics

Economic Growth

ECO 120: Global Macroeconomics

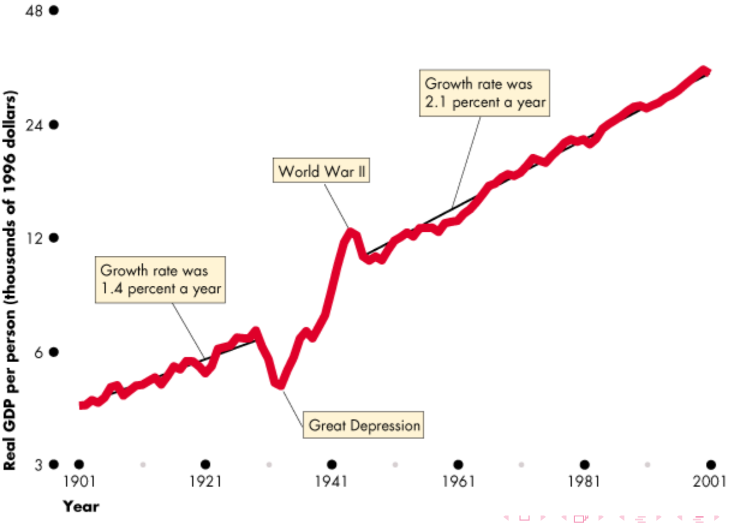
Goals

- Specific goals:
  - Appreciate the significance for economic growth.
  - Compare patterns of economic growth across countries.
  - Learn what factors affect economic growth.
- Learning objectives:
  - LO3: Evaluate the impact of macroeconomic policies on the long-run growth rate of an open economy.
  - LO5: Compare the US and other countries when discussing measures of unemployment, inflation, output, cyclical fluctuations, and economic growth.

Goals

- Specific goals:
  - Appreciate the significance for economic growth.
  - Compare patterns of economic growth across countries.
  - Learn what factors affect economic growth.
- Learning objectives:
  - LO3: Evaluate the impact of macroeconomic policies on the long-run growth rate of an open economy.
  - LO5: Compare the US and other countries when discussing measures of unemployment, inflation, output, cyclical fluctuations, and economic growth.

U.S. Trend


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

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!**

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!**

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!**

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!**

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!**

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!**

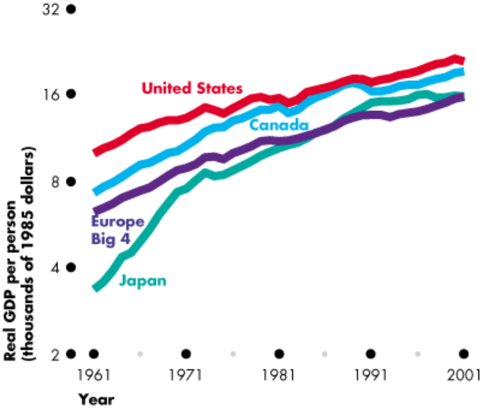
Long-Term Real GDP Growth

- 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!

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?



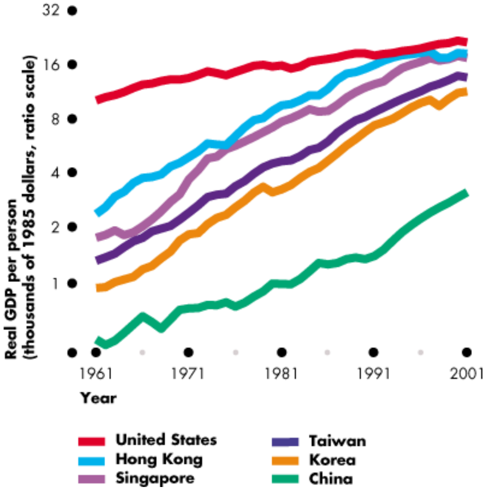
(a) Catch-up?

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

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

Now Japan is rich and has a low growth rate

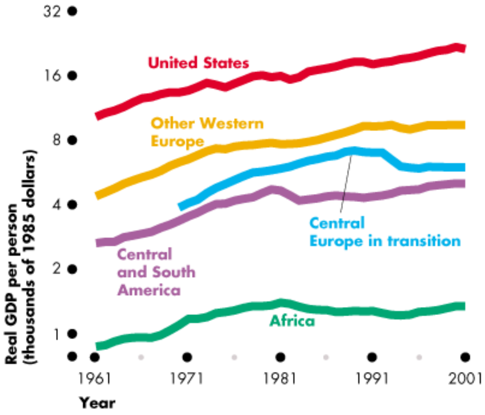
Developing Economies in Asia are catching up



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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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".

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".

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".

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".

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".

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”.

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".

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”.

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

- **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*.

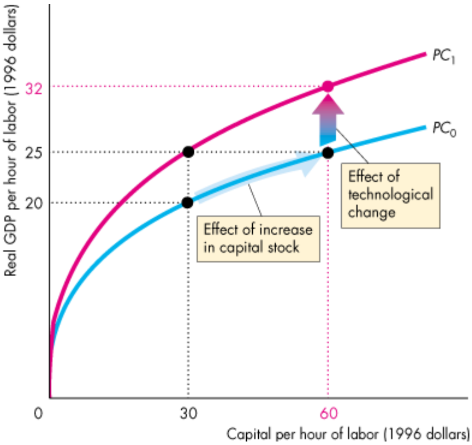
Labor productivity curve

- 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*.

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.

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.

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.

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.

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.

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.

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.

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.

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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

How to achieve faster 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.

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.

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.

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.

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.