

Growth Accounting: What Drive Economic Growth?

Exploring the key factors that contribute to economic growth and their implications.

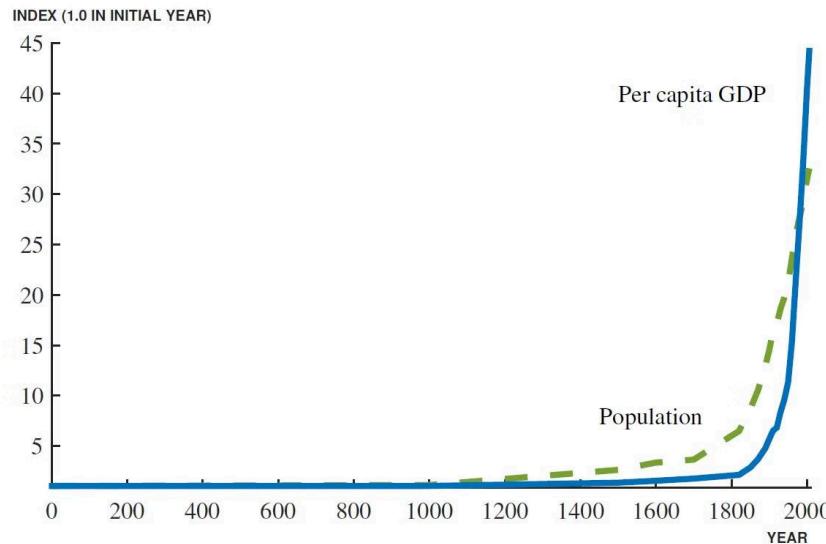


Last Time

- 1 Measure economic growth by GDP: GDP is not everything, but related to almost everything
- 2 Economic growth is important: looking at issues in growth perspective
- 3 Exceptional economic growth in Asia-Pacific economies
- 4 Massive challenges for economies that stop growing

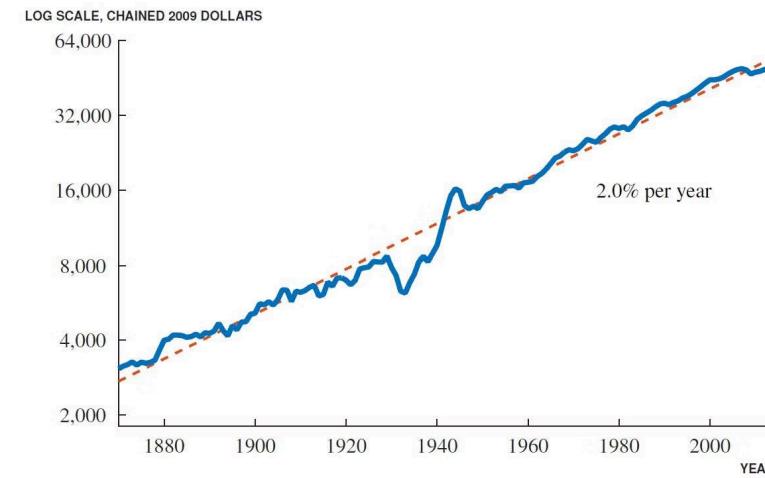
The Power of Economic Growth

Figure 2: Economic Growth over the Very Long Run



Note: Data are from Maddison (2008) for the “West,” i.e. Western Europe plus the United States. A similar pattern holds using the “world” numbers from Maddison.

Figure 1: GDP per person in the United States



Note: Data for 1929–2014 are from the U.S. Bureau of Economic Analysis, NIPA Table 7.1. Data before 1929 are spliced from Maddison (2008).

The Power of Economic Growth

GDP per capita (current US\$) - France, China, Argentina, Nigeria

World Bank national accounts data, and OECD National Accounts data files.

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Argentina

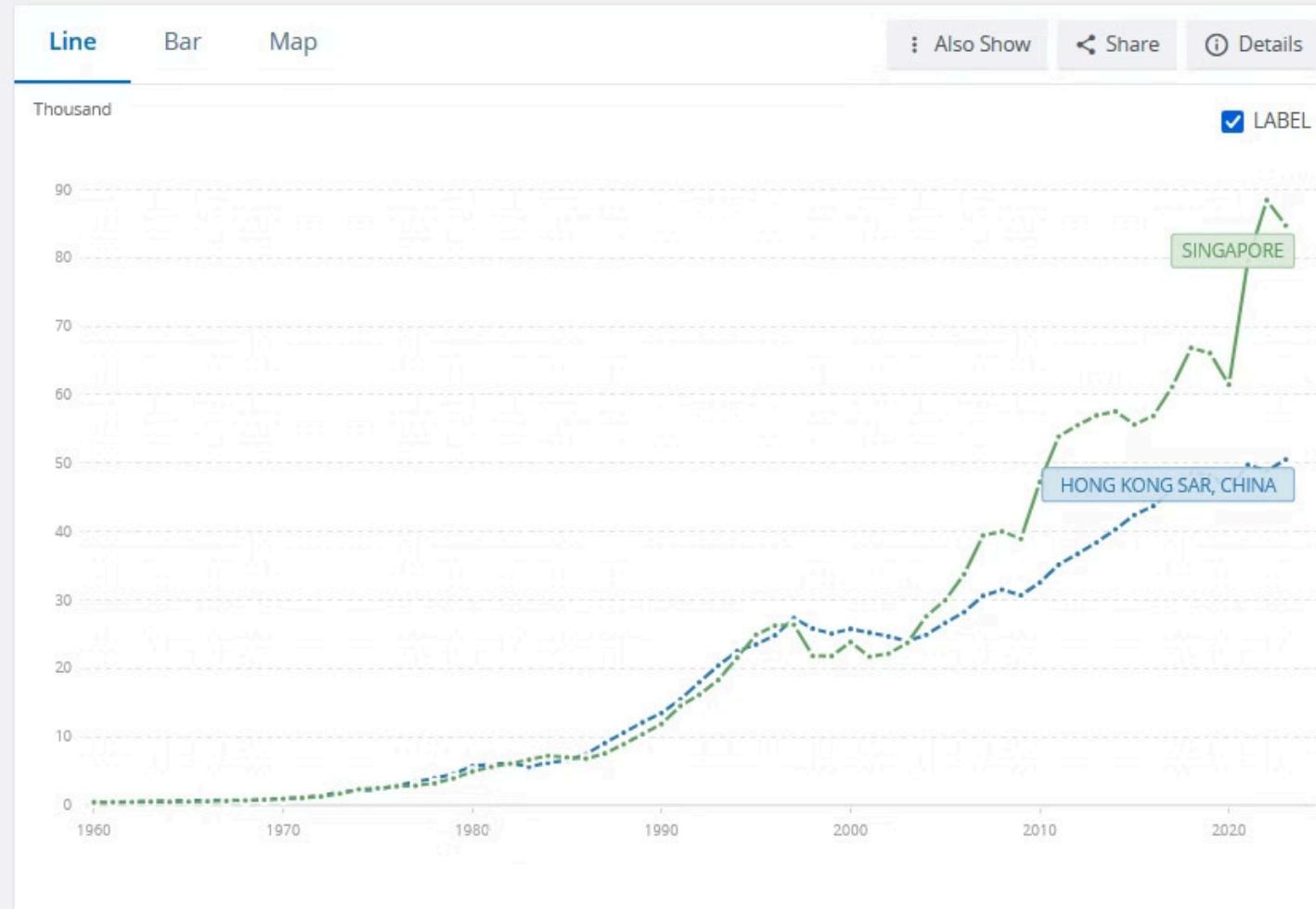
- Expenditure growth > Income growth
- Unsustainable debt
- Inflation

The Power of Economic Growth

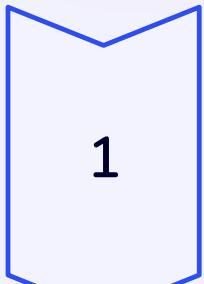
GDP per capita (current US\$) - Hong Kong SAR, China, Singapore

World Bank national accounts data, and OECD National Accounts data files.

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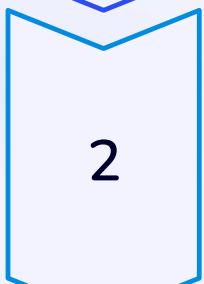


Road Map



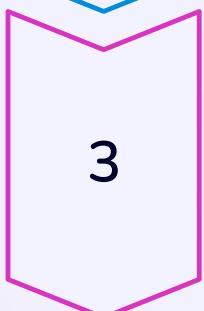
Driving forces of economic growth

1



Savings and investments in Asia-Pacific

2



Case: Marriage Market and Savings in China

3

Increasing Output in a Bakery Shop

1

5 workers + 5 bread machines = 200 loaves of bread per day

2

Question

How can the daily output of the shop be increased?

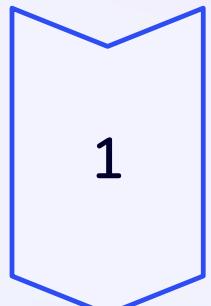
- Total output
- Per-worker output

3

Solutions?

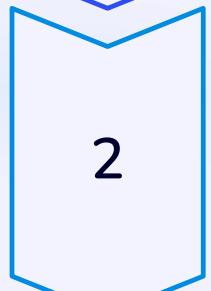


Drivers of Economic Growth



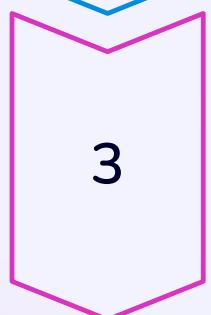
Factors of Production—Input

- **Labor:** demographic changes— Next Lecture
- **Capital**

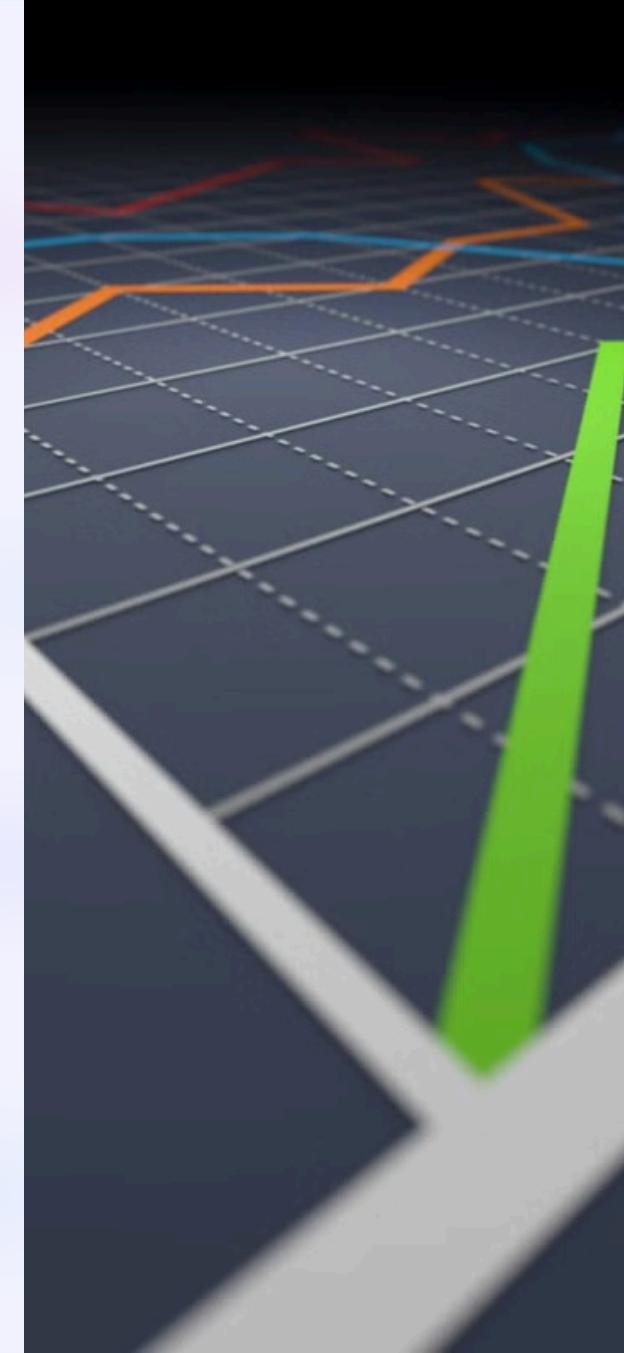


Productivity

- Transform inputs into outputs



GDP—Output



Which of the Following are NOT Capital?

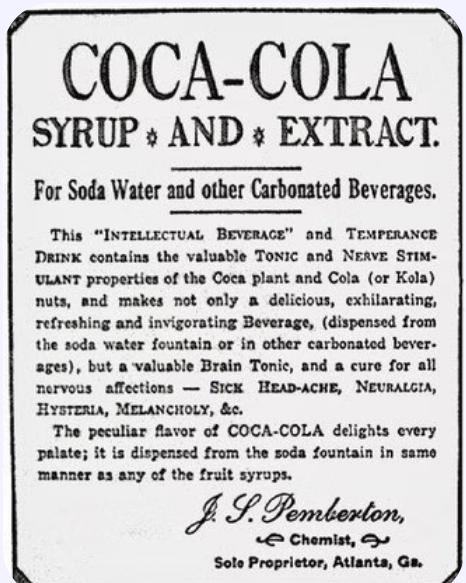
Machinery



Land



Coca-Cola Formula

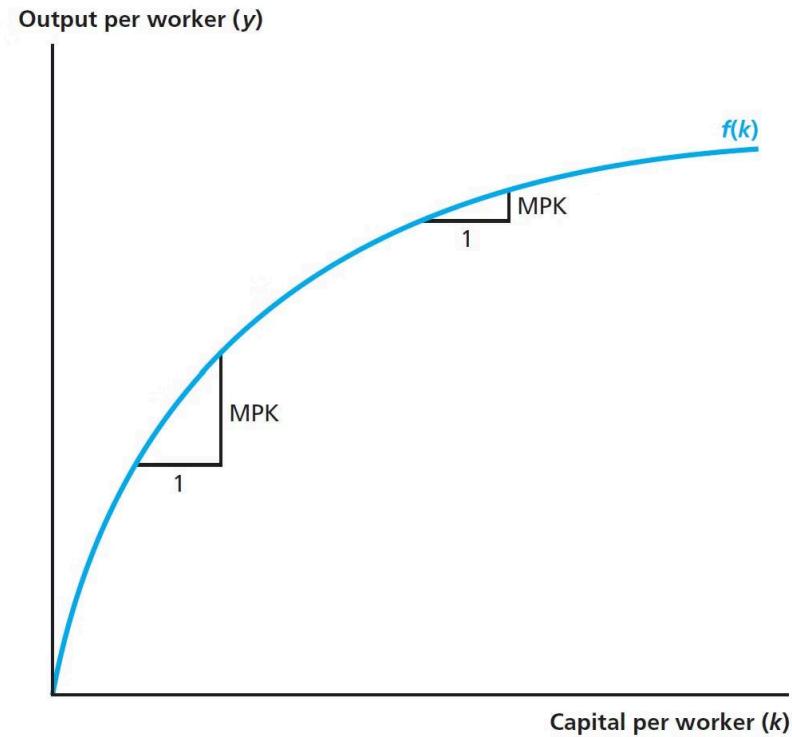


Cash

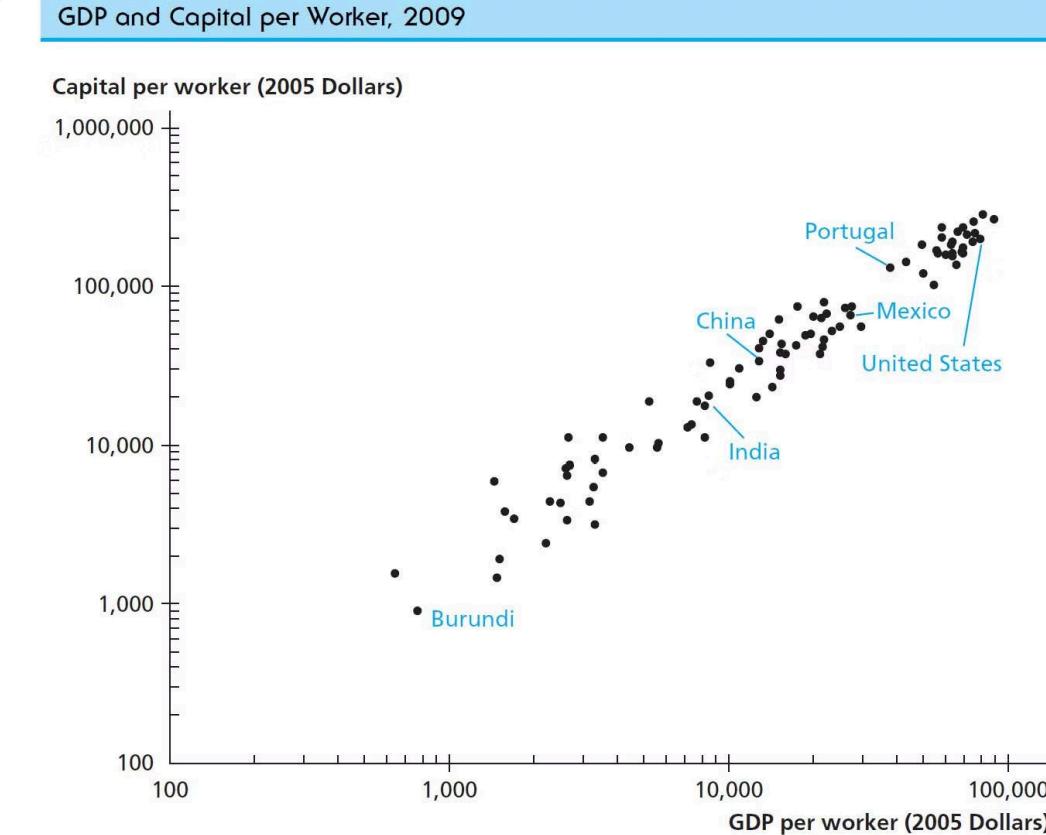


Capital: Five Features

- It is productive
- It can be produced
- Rival in its use
- It earns a return
- It wears out



Capital and Economic Growth



Source: Calculations based on Heston et al. (2010).

Unlimited Capital Accumulation → Unlimited
Economic Growth?

Unlimited Capital Accumulation → Unlimited Economic Growth?

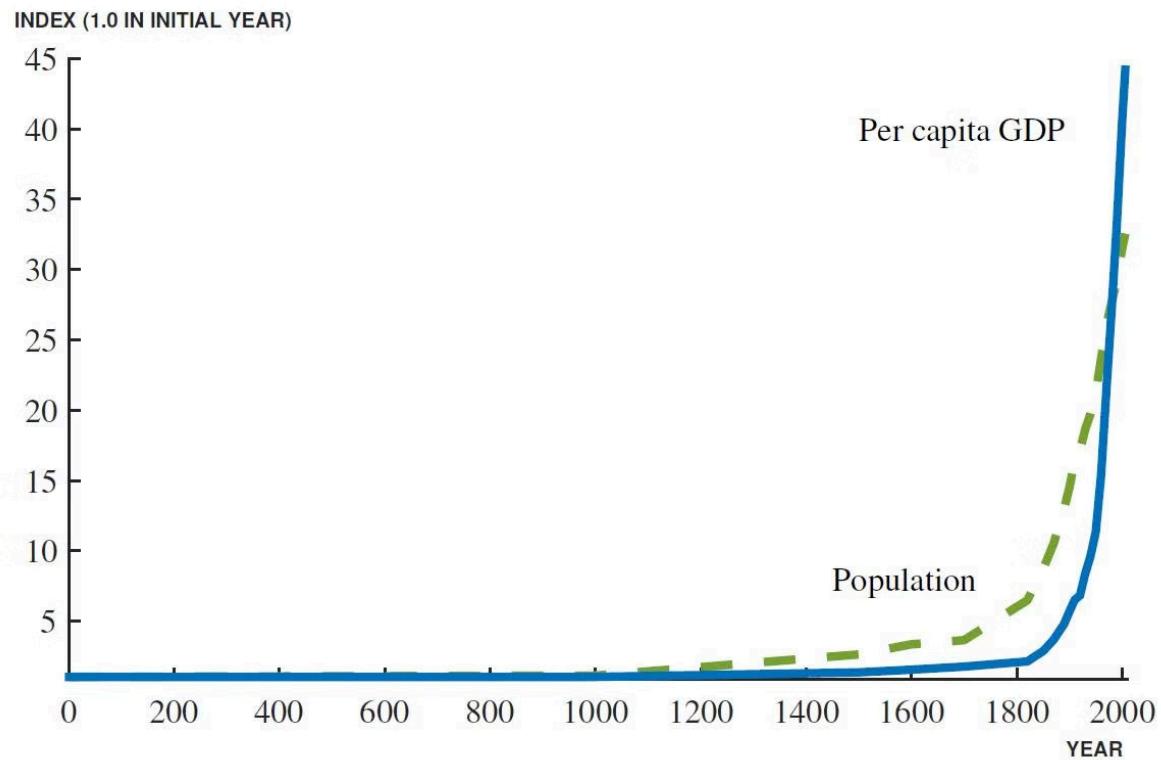
China's Great Leap Forward (1958-1962)

- Industrialization in a rural economy
- Mandatory savings
- Backyard furnaces



Non-growing Per-capita Income before 1800: Why?

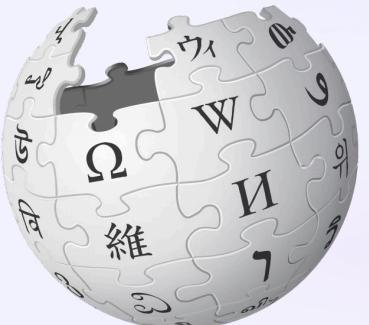
Figure 2: Economic Growth over the Very Long Run



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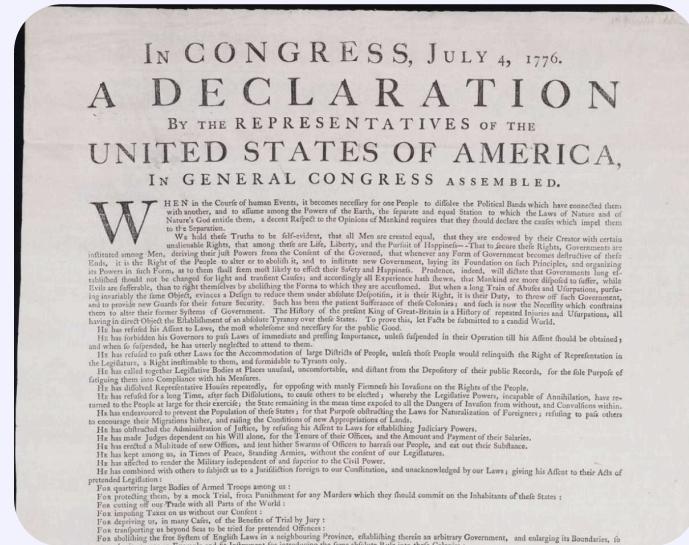
Productivity Growth: Knowledge Accumulation

Non-rival

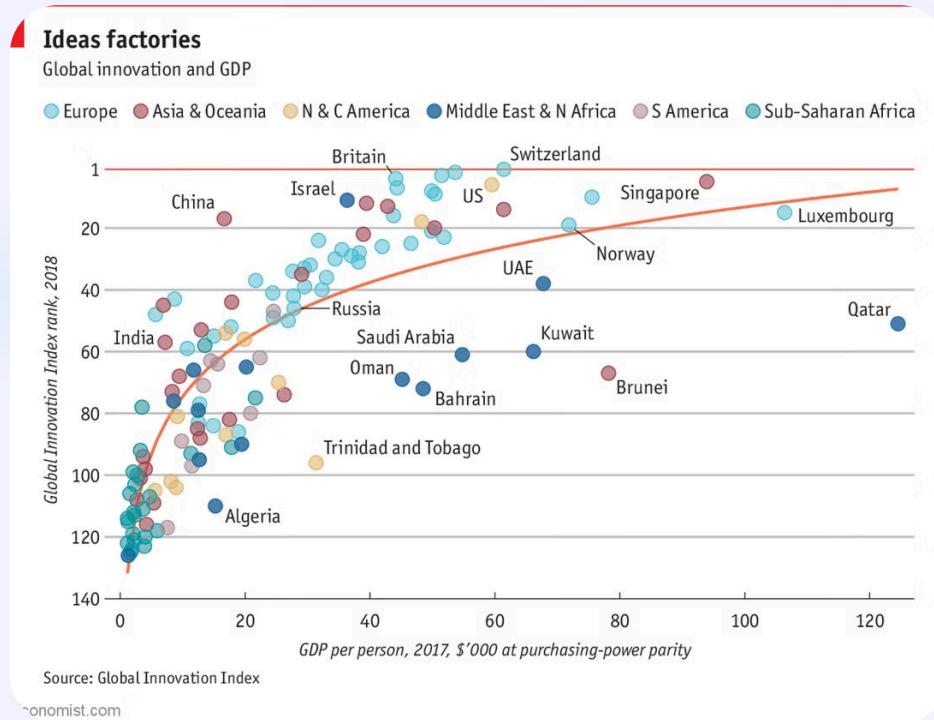


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Long-lasting



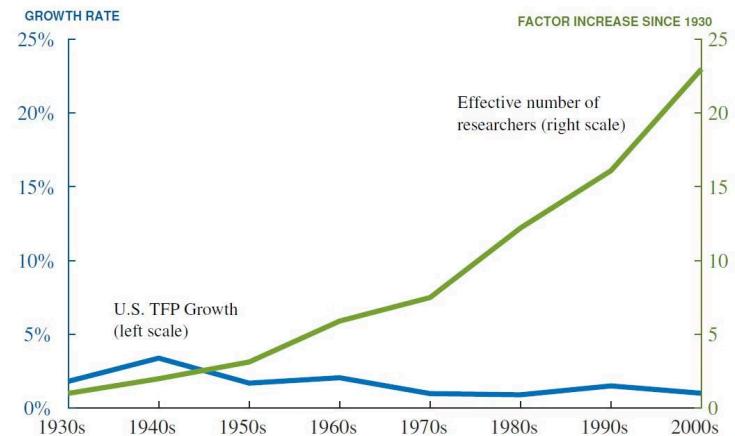
Innovation and Economic Growth



- Economic growth in developed economies is primarily driven by innovation
- Innovation & Knowledge accumulation → Unlimited economic growth?

Researchers → Productivities?

Figure 1: Aggregate Data on Growth and Research Effort



- What's going on?
- Why?
- Solutions?

Is Asian Growth Miracle Driven by Factor accumulation or Productivity Growth?

- Measurements: GDP Y_t ; Labor L_t ; Capital K_t
- Data: Penn World Table [PWT 10.01](#)
- Growth accounting equation (*not required*): $\Delta Y_t = \alpha \Delta L_t + (1 - \alpha) \Delta K_t + \Delta A_t$
- Calculate contributions of factor accumulation and productivity growth using *Excel* (*not required*)

High Savings and Investments in East Asia

World Bank WDI data: Gross saving (% of GDP)



High Saving and Investment in East Asia

World Bank WDI data: Gross capital formation (% of GDP)



Household Savings

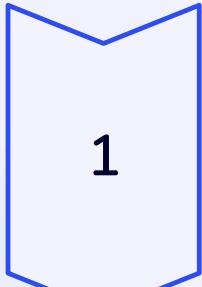
Chinese (2023)

- Per-capita income: 39,344 RMB
- Consumption: 25,478 RMB
- Saving: 13,866 RMB (35.3% of income)

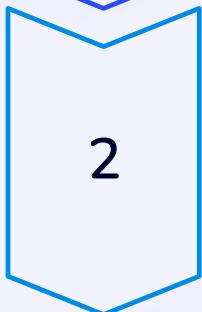
United States (2022)

- Per-capita income: 56,063 USD
- Consumption: 53,599 USD
- Saving: 2,464 USD (4.4% of income)

Why do East Asian Households Save So Much?



Saving = Income - Consumption



Why are East Asian Households
reluctant to consume?

Possible explanations?

Saving vs. Raising Children

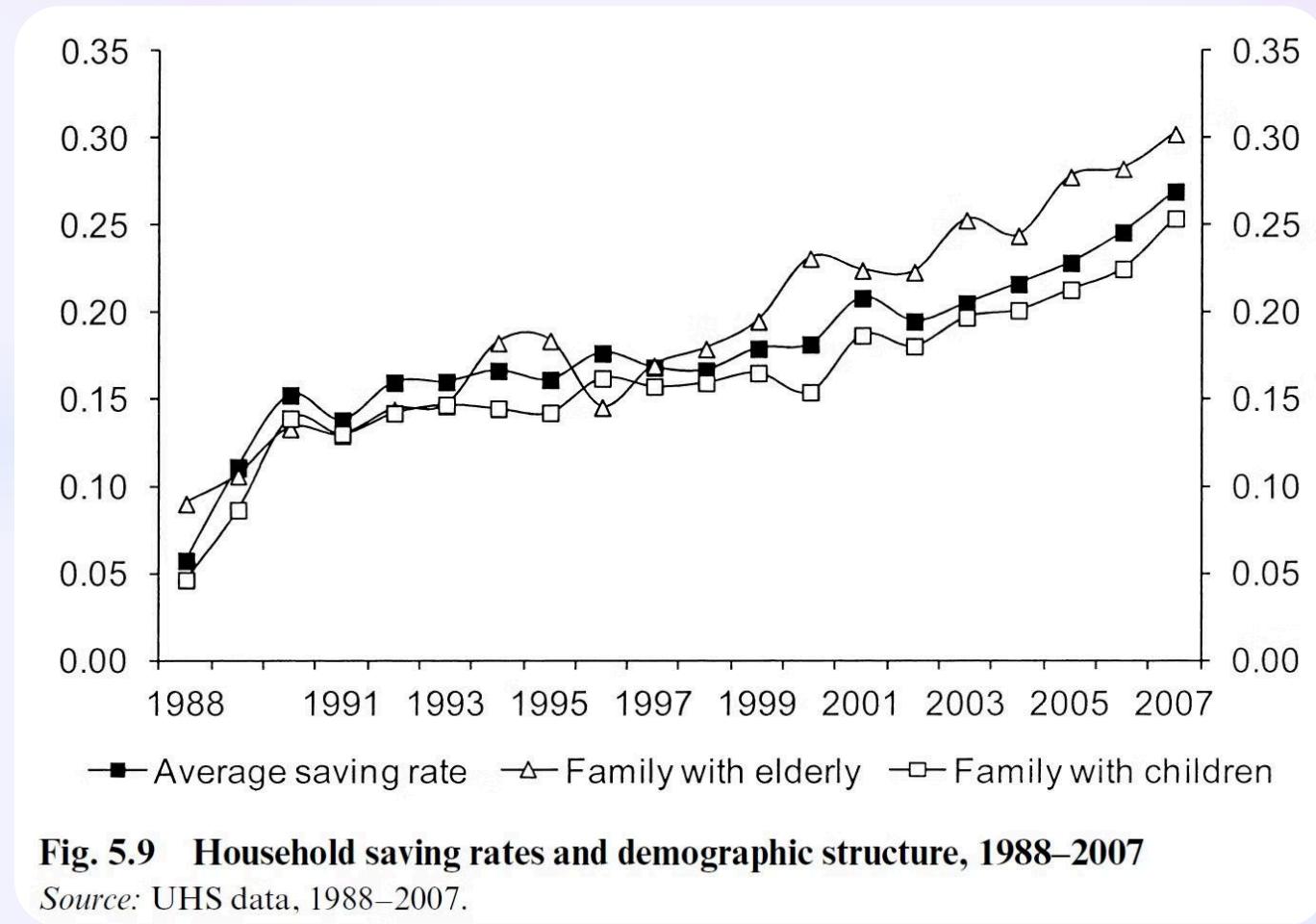


Fig. 5.9 Household saving rates and demographic structure, 1988–2007

Source: UHS data, 1988–2007.

Income inequality

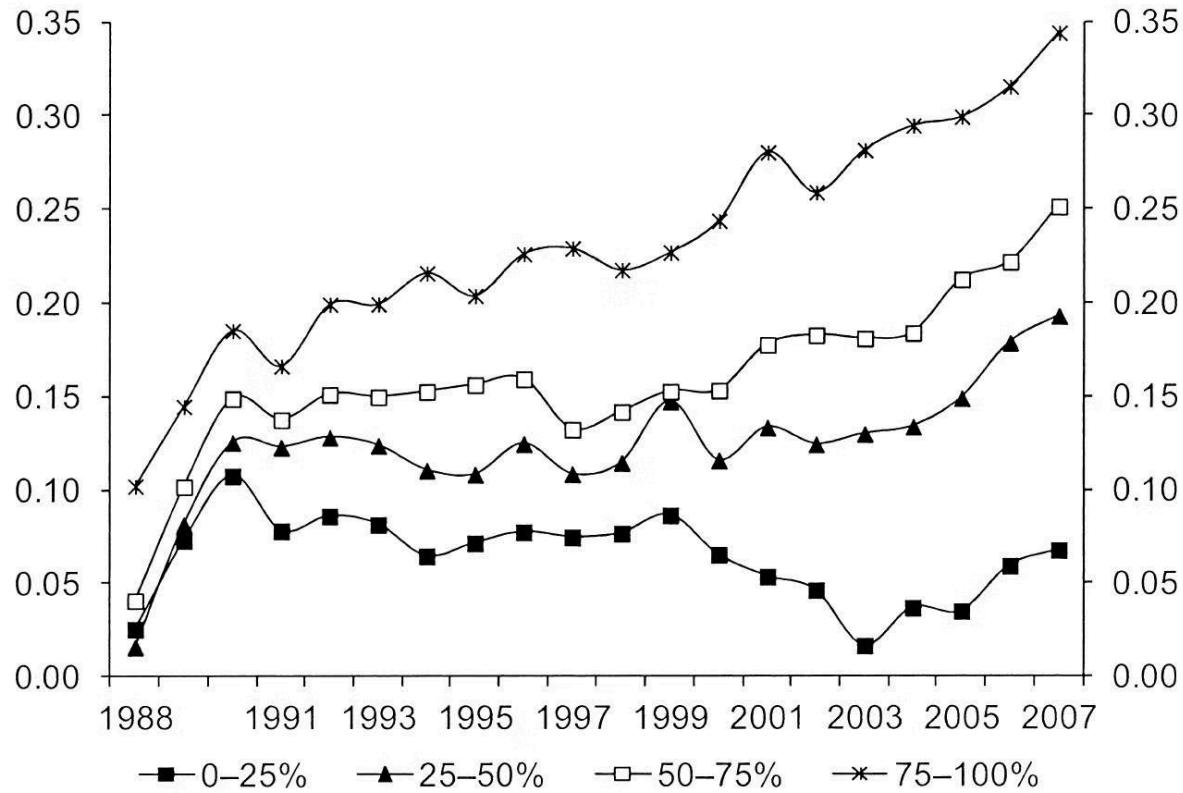


Fig. 5.7 Saving rates by income levels, 1988–2007

Source: UHS data, 1988–2007.

Social Safety Net

- Public education, healthcare, and housing services to private expenditures
- Uncertainties of incomes and expenditures
- Low social security expenditures





Competitive Saving Motives

- **Case:** Marriage market, Savings, and Housing Prices in China

Summary

1 Economic growth is driven by factor accumulation and productivity growth

2 Factor accumulation is subject to diminishing returns

3 Knowledge is non-rival and long-lasting and thus key to economic growth

4 Asian economic "Miracle" is largely driven by factor accumulation

5 East Asian economies are featured with high saving and investment rates