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Growth Facts and Solow Model

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Key concepts (I/II)

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- Returns to scale:
  - Constant RTS: $F(2X) = 2Y$
  - Increasing RTS: $F(2X) > 2Y$
  - Decreasing RTS: $F(2X) < 2Y$
- Capital accumulation: What contributes to it and what slows it down?

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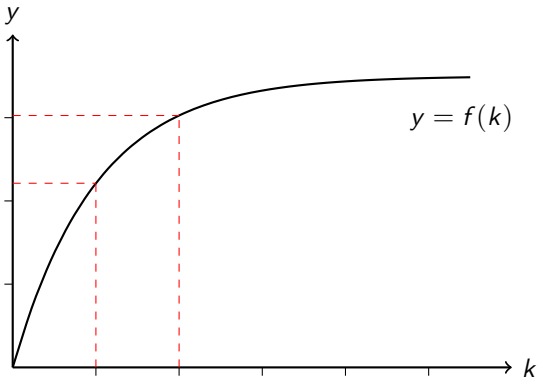
- Diminishing marginal product
- Convergence
  - Absolute convergence
  - Conditional convergence

Diminishing marginal product



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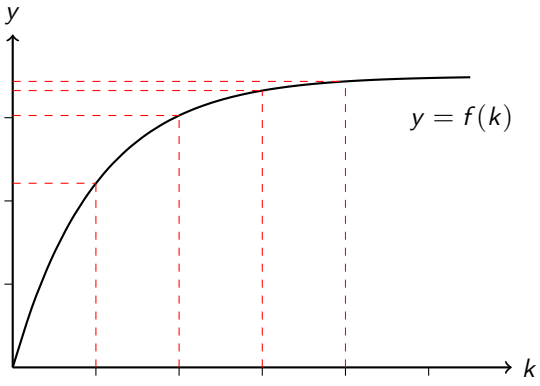
Diminishing marginal product



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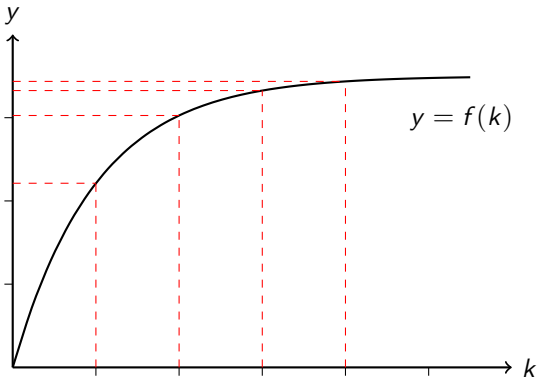

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  additional capital significantly raises output.
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  extra capital raises output slightly.
- Imagine two countries.
  One is richer, and the other is poorer.

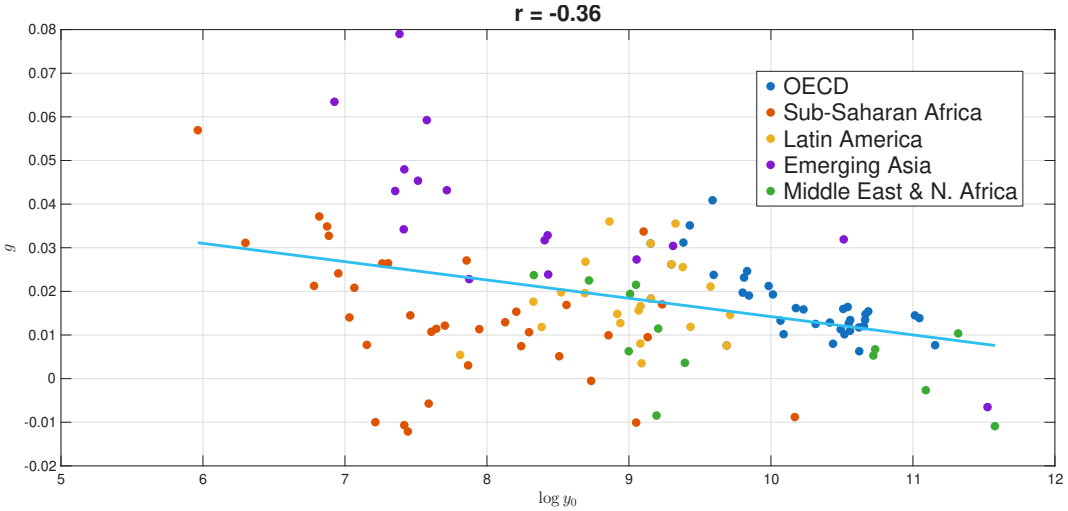
Steady state

Simulator

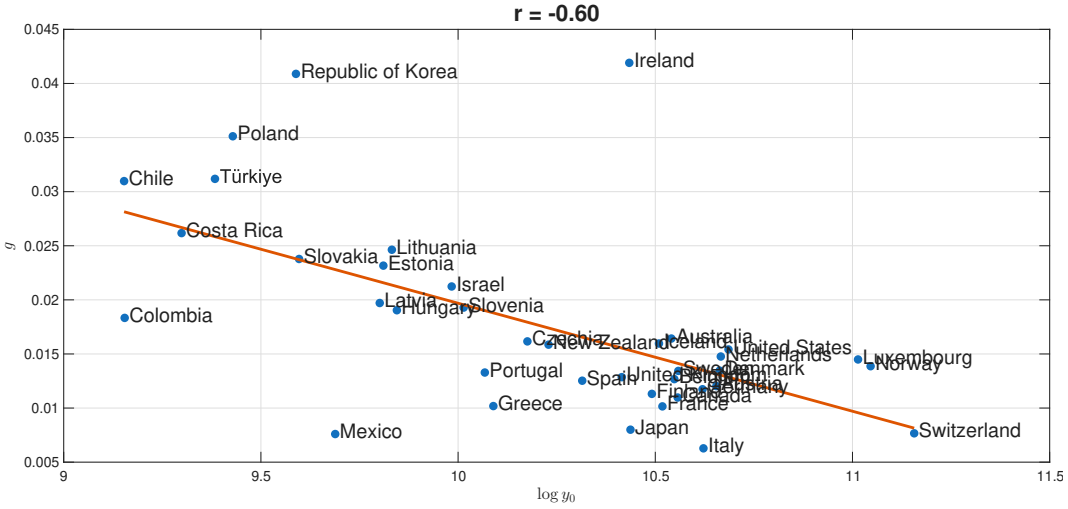
Convergence

- What is the relationship we expect between the growth rates and initial levels?
- Why?

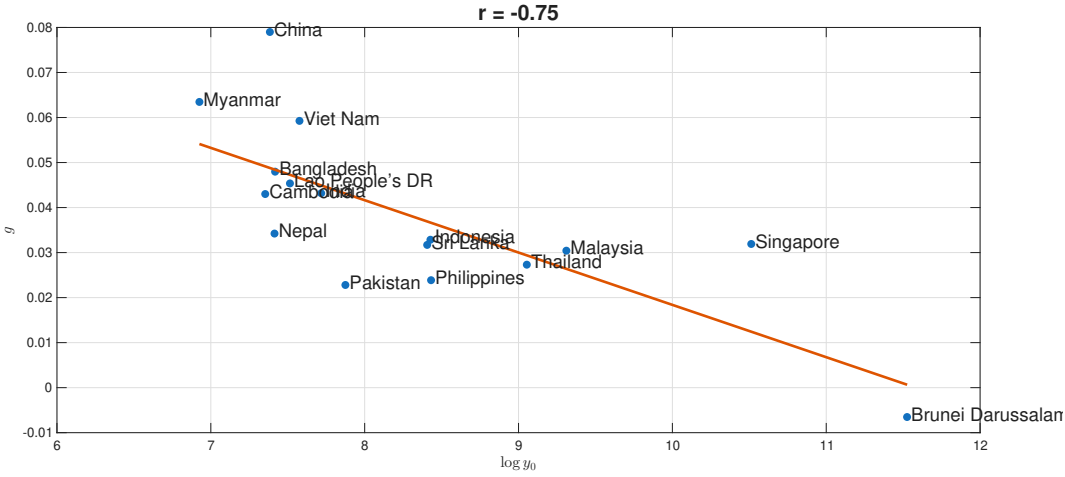
Absolute convergence (1990-2023)



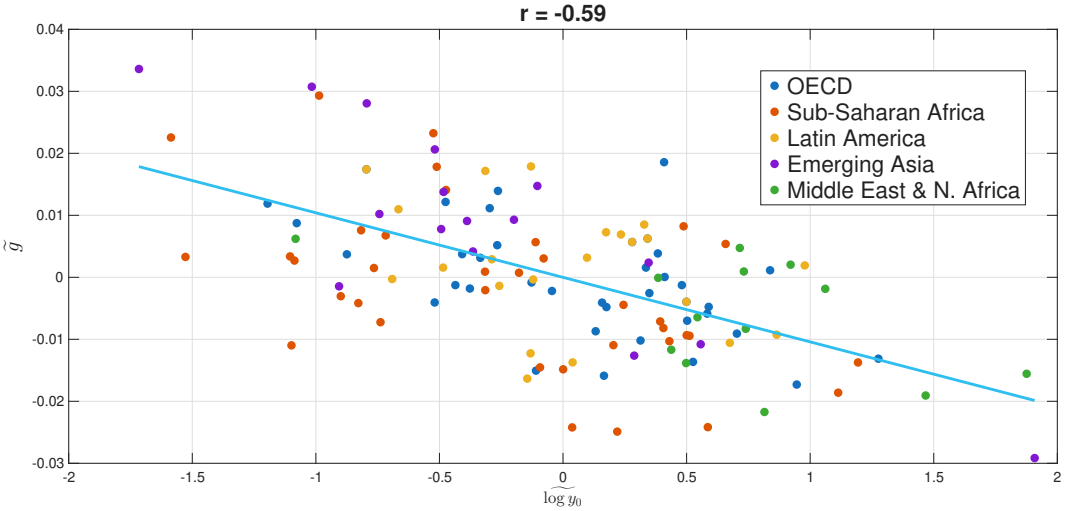
Club convergence: OECD (1990-2023)



Club convergence: Emerging Asia (1990-2023)



Conditional convergence



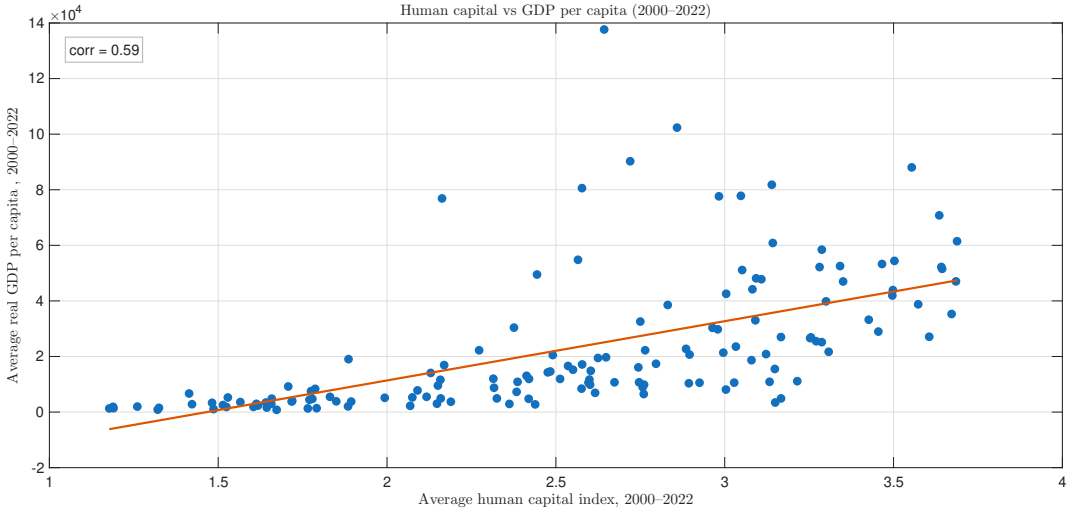
Policy?

- How can we sustain long term income per person growth?

Saving

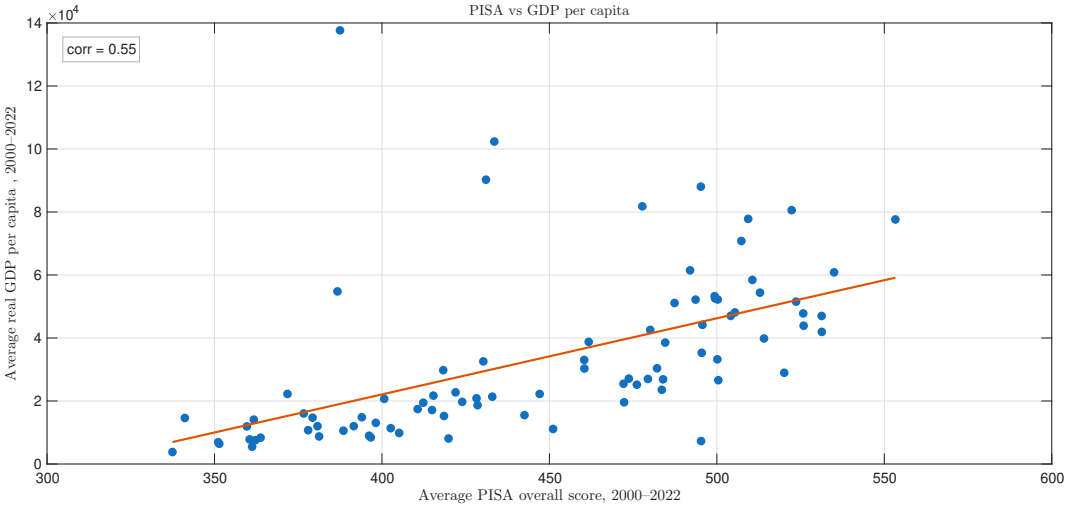
How about using the savings effectively?

Human capital (measured as years of education)



PISA scores (quality of education)

Is this a chicken-and-egg situation?



PISA scores (quality of education)

How about now? PISA scores from 2000&2004, income per capita levels from 2005 to 2022.