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Lecture 8

Economic Growth

Economics & Society

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Previously in E&S…

- Definition of macroeconomics
- Measuring GDP
  - production, expenditure, income
- Real vs. Nominal GDP
  - CPI, PPP
- GDP flaws
- Global inequality
- National productivity

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Economic Growth

Estimated duration: 90min

Lecture 8

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Economic growth

- ***Economic growth*** refers to the increase in a country's ***GDP*** over time
- The ***GDP growth rate*** is the ***percentage change*** of GDP from one period to another, relative to the beginning period:

$$Growth_{2022} = \frac{GDP_{2022} - GDP_{2021}}{GDP_{2021}}$$

- Over the ***last 2 centuries***, GDP around the world tends to ***increase***:
  - There are some short-run ***fluctuations***
  - The long-term trend is ***clearly increasing***.
- In this lecture, we will focus on the ***long-term trend*** of GDP

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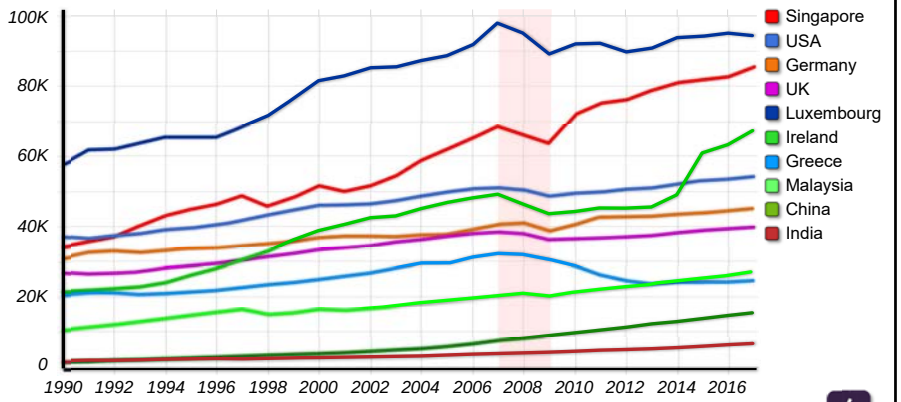
GDP per capita PPP (2005 Int $)



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Growth is not linear

- GDP grows at an approximately ***constant rate***

  this means that new growth builds on past growth and its effects ***compound***
- Thus, GDP growth is ***exponential***:

Growth	1%	3%	5%	10%
years to double	71 years	25 years	15 years	8 years
years to triple	112 years	38 years	24 years	13 years

- ***Slim differences*** in growth rates translate into ***large GDP gaps*** after years:
  - Starting from GDP = 100 with ***growth 2%***; GDP after 40 years becomes 216
  - Starting from GDP = 100 with ***growth 3%***; GDP after 40 years becomes 316. } +47%
- The exponential nature of economic growth may lead to large ***prosperity differences*** across countries

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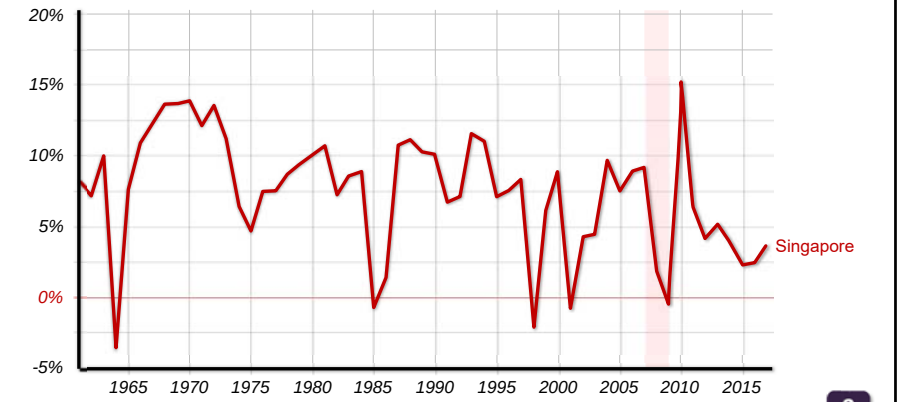
Growth rate GDP pc PPP (2005 Int $)



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Average annual GDP growth (2005 $)

	GDP pc 1960	GDP pc 2010	Annual Growth
United States	15,398	41,365	2.00%
UK	11,204	34,268	2.26%
France	10,212	31,299	2.27%
Spain	6,316	27,332	2.97%
Greece	534	26,918	8.16%
South Korea	1,656	26,609	5.71%
Singapore	4,383	55,862	5.22%
China	772	7,746	4.72%
India	720	3,477	3.20%
Haiti	1,513	1,410	−0.14%
D. R. Congo	696	241	−2.10%

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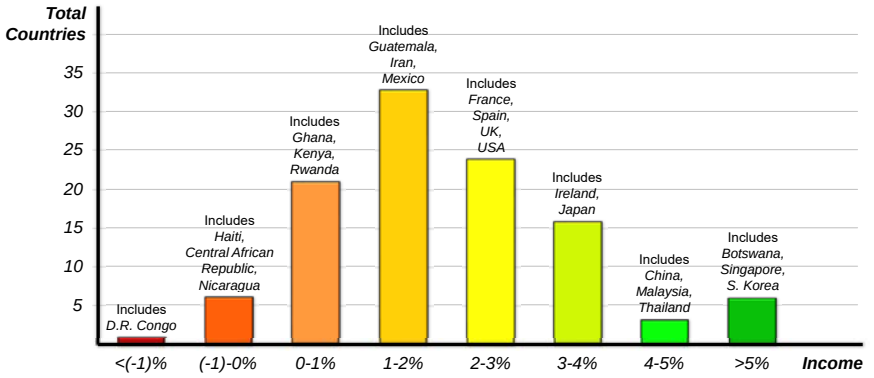
World distribution of average growth rates



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Sustained vs. Catch-up growth

- There are ***2 entirely different processes*** of economic growth:

1. **Sustained growth**: growth sourced in the country's ***own advancement***
2. **Catch-up growth:** growth that emerges from ***technological spillovers*** from other ***more developed countries***:
   - a) Because of the abundance of local ***underutilized human capital***
   - b) Because of the influx of foreign ***investment***
   - c) Because of supporting foreign investment by developing ***infrastructure***
   - d) Because of improving the local ***efficiency of labor***.

- ***Not all*** economies in the world were able to experience catch-up growth
- The question is ***what factors*** determine the growth rate of an economy?

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Growth before the 1800s

- Before the modern times, economies ***did not exhibit*** sustained growth
- Egypt, ancient China, ancient Greece, Persia, Rome, Venice, experienced ***prolonged periods*** of prosperity:
  - But yearly growth of output was ***slow***
  - And it could easily ***come to an end.***
- Why could those societies ***not sustain*** today's percentages of growth?

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Lack of sustained growth before the 1800s

- There are ***3 reasons*** for the lack of sustained growth before the 1800s:
  1. ***Technology***
     the ***pace*** of technological change was ***much slower*** than today
  2. ***Inequality***
     improvements in national GDP did not typically ***affect the everyday life*** of citizens
  3. ***Bad leadership***
     nations were ruined after the ***bad choices*** of their leaders, not caring for lifting their nation out of ***poverty***

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Malthusian limits to growth

- In 1798, Thomas Malthus published his theory about ***fertility***
  fertility: the number of children per woman
- Malthus observed that ***fertility would adjust*** so that income per capita would always remain close to the ***subsistence level***
- When GDP pc climbed above the subsistence level, people would use it to have ***more kids***, lowering GDP pc back to subsistence
  even till recently, children was the main source of ***cheap labor*** for the family
- When the GDP pc fell below the subsistence level, famine, child mortality or war would decrease the ***population***, increasing GDP pc back to subsistence

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Breaking away from the Malthusian cycle

- The Malthusian model was a ***good representation*** for population till the 1800s
  still is for ***non-human populations*** (e.g. locust swarms, rabbits, pigeons, rats)
- Before 1800, most labor was employed on the production of ***necessities***
- After 1800, ***technology*** freed a large portion of workers from the production of necessities allowing them to move to ***other more productive sectors***:
  - This ***boosted economic growth*** to unprecedented levels
  - Caused the ***demographic transition*** to the ***urban economy*** as we know it today.
- Modern families ***did not rely*** on the labor of children for prosperity:
  - Children turned ***from assets*** of a family, ***to liabilities***
  - The "large family" ideal was ***displaced*** by a "smart family" model.
- ***Technology*** enabled humanity to ***break away*** from the Malthusian cycle

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The Industrial Revolution (1760)

- The Industrial Revolution designated the introduction of ***machines*** and ***new methods of production*** in Britain
  - starting in ***textile*** manufacturing and ***spreading*** to other sectors
- It was the first time in history when ***technology*** and ***science*** were used in production in such a coordinated manner
- Most ***developed countries today***, were actively part of the Industrial Revolution 250 years ago
  - US, UK, Germany, France, The Netherlands, Belgium, Canada, etc.

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R&D investment today

- The most ***important foundation*** of growth is ***technology***
- Nations develop technology by ***investing*** in ***Research and Development*** (R&D)
  - R&D is ***conducted*** by firms, universities, research institutions or governments
- Leading countries ***invest*** a large portion of their GDP on R&D (PPP):
  - Israel: 4.9% ($19 billion)
  - Japan: 3.15% ($166 billion)
  - United States: 2.74% ($511 billion)
  - China: 2.19% ($553 billion)
  - Singapore: 2.19% ($10 billion).
- Our ***standards of living*** today are the ***returns*** of some past R&D investment

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Internal video

In this video I talk about the 5 factors that affect the prosperity of nations but mostly are out of their control: Climate and Ecology, Geography, Culture, Institutions and History and Luck.

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External video

A short but really interesting video on why Africa is still poor and the effect of "End Poverty in Africa" initiatives from the wealthier parts of the world.

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Thank you!

(you are welcomed to stay for *consultation* or *discussion*)

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WARNING!

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