

Unit 1

The Capitalist Revolution

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Course Plan

Your Instructor

- My name is [Hui-Jun Chen](#), you can call me HJ for convenience.
- I am interested in [housing](#), [used capital market](#), and their macroeconomics implications.
- In my leisure time, I also like to investigate the [Linux](#) system.
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Expectation

- **Participation:** can ask question anytime during the lecture, expected to come to class
- **Goal:** Understand how Economists think
 - Not superior, just one way of thinking
- **Calculus:** Will learn via video series *The Essence of Calculus*
 - Not the focus of this class, but really useful



Recommended but not required textbook

Introduction

Flat v.s. Spiky World

Is Capitalism Good or Bad to this world?

- Flat v.s. Spiky: equal v.s. unequal wealth/income distribution
- Before industrial revolution: flat world but lower living standard
- After industrial revolution: spiky world but higher living standard
- Interactive figure: <https://tinyco.re/3290463>
 - Rapid, sustained growth starts at industrial revolution
 - Growth starts as the country started the industrialization
- Key factor of industrial revolution: [capital & capitalist](#)
- If you want read more: <https://tinyurl.com/2ud7vc8z>

Inequality

How do we measuring income & living standard?

① **GDP per capita**: GDP per person.

- **GDP** (Gross domestic product): market value of **final goods** and **services** *within countries* in a year.
- $\text{GDP per capita} = \frac{\text{GDP}}{\text{population}}$

② **Disposable income**: Income – taxes + gov transfer

- Are they precise measure of “**well-being**”? Probably not!
- Not all aspects of well-being can be captured by these numbers, and
- Not all aspects of the world can/should be explained by Economics!
- But these numbers indeed allow us to compare wealth/income change across countries and time.

Spikiness: evolution of inequality

- Interactive figure: <https://tinyco.re/7434364>
- Within-country: the rich owns much more than the poor
- Between-country: wealth gap between top 10% and bottom 10% countries are wider
 - ① The richest 10% and poorest 10%
 - Singapore: \$67,436 and \$3,652 v.s. Liberia: \$994 and \$17
 - ② Income distribution shifts:
 - 1980: poorest \Rightarrow Lesotho & China; richest \Rightarrow Switzerland, Finland, US
 - 1990: China \uparrow
 - 2014: China $\uparrow\uparrow$; developed countries still top


“Hockey-stick” Growth

Growth in income

- growth rate = $\frac{\text{change in income}}{\text{original level of income}}$
- Interactive figure: <https://tinyco.re/3125412>
- Before 1800 we have fewer data points
- Country-wise difference:
 - ① Britain: The hockey-stick kink is less abrupt, began around 1650.
 - ② Japan: In Japan the kink is more defined, occurring around 1870.
 - ③ China and India: The kink happened in the second half of 20th century. GDP per capita actually fell in India during British colonial rule.
- Log/ratio scale \Rightarrow recent growth rate in China and Japan $>$ elsewhere

Technological & Industrial Revolution

Why the timing and rate of growth are different?

- **Technology:** Inputs  Output
- Industrial Revolution: efficiency in technology ↑↑
 - Started at Britain in the 18th century
 - Example: lighting efficiency is hugely greater than ancestors
 - Campfire v.s. Fluorescent bulbs: 45000 times more efficient
- The speed of information ↑↑, created a connected world
 - 1000-1780: 1 MPH (Horse, bird) → 1865: 12 MPH (Telegraphy)

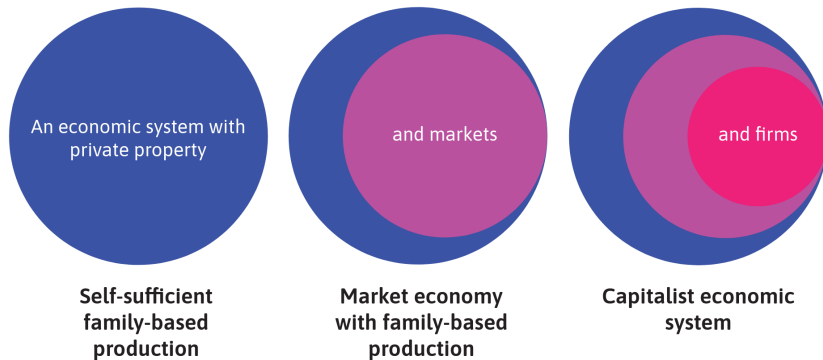
Environmental Consequences

- Interactive figure: <https://tinyco.re/8926412>
- Increase production & population had impact on the environment:
 - Global: climate change & extreme weather phenomenon
 - Local: pollution in the city & deforestation
- The impacts are the result of
 - expansion of the economy: growth in total output
 - how economy is organized: what is valued to human?
- Technology as the cause may also be the solution (at least I hope)
- But, even not the solution, shouldn't be the reason for [demoralization](#)

Capitalism

Definition of Capitalism

- Capitalism is an **economic system** constituted by
 - ① a society that protects private property (e.g. Fifth Amendment),
 - ② markets with medium of exchange that all agreed upon (e.g. US\$),
 - ③ firms that owns capital, hiring labor and produce goods for profit



Components of Capitalism

- ① Private property: **legislative** guarantee to exclude others from use/exchange
- ② Capital: durable non-labor inputs used in production
 - e.g. machine, building
 - air & water are mostly 0 cost in production \Rightarrow slide 9
- ③ Markets: where trade voluntarily happened for self benefit
- ④ Firms: private **owners of capital** hire **labor** to produce goods and services to **trade in the markets** in pursue of **profit**
 - Family or individual production *not hiring*
 - Nonprofit organization *not pursuing profit*
 - Government bodies *not pursuing profit and not own capital*

The Capitalist Revolution

Capitalism & Industrial Revolution increases living standard because

- ① **Competition**: the desire to pursue profit leads to better technologies
- ② **Specialization**: markets allow institution to develop **comparative advantage** in production
- ③ **Comparative advantage**: how much **sacrifice** I need to make in order to produce **1 good**? (sacrifice: opportunity cost)

if put 100% time in one good

	apples	wheat
John	1250	50
David	1000	20



sacrifice made to produce 1 good

	apples	wheat
John	0.04 wheat	25 apple
David	0.02 wheat	50 apple

John has **absolute advantage** in both goods, but David has **comparative advantage** in wheat!

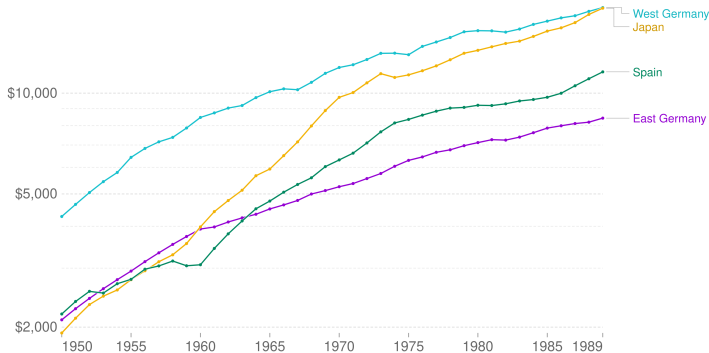
Did capitalism *cause* the hockey-stick growth?

Natural experiment: Division of West and East Germany and the end of WWII shows the power of capitalism ▶ Figure

The two Germanies: Planning and capitalism - GDP per capita, 1950 to 1989



GDP per capita is measured in 1990 international dollars, which adjusts for inflation and price differences across countries. Unit 1 'The capitalist revolution' Section 1.9 'Capitalism, causation and history's hockey stick' in The CORE Team, The Economy. Available at: <https://tinyco.re/19372660> [Figure 1.10]



Source: The 2015 Total Economy Database

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Note: The units of measurement is '1990 international dollar'. The chart uses ratio scale. CC-BY-ND-NC

Success are not equal

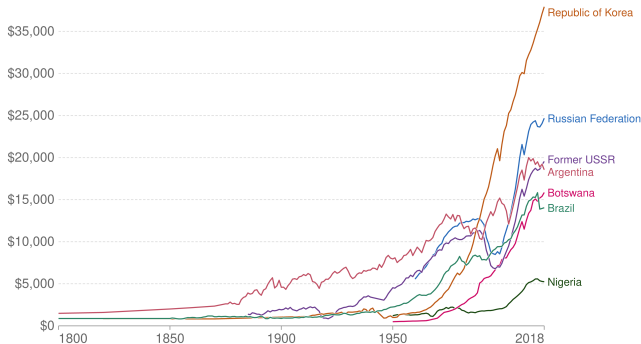
All **economics conditions**, **political stability**, and **government functionality** matters

Capitalism coexists with *democracy* in most countries

Divergence of GDP per capita among latecomers to the capitalist revolution, 1800 to 2018



Unit 1 'The capitalist revolution' Section 1.10 'Varieties of capitalism: Institutions, government and the economy' in The CORE Team, The Economy. Available at: <https://tinyco.re/27937150> [Figure 1.11]



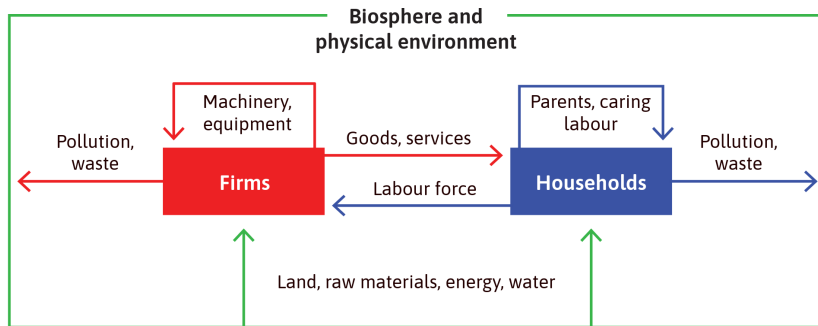
Source: Maddison Project Database (2018)

Note: The units of measurement is 2011 US dollar. CC-BY-ND-NC

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Economics

What is Economics?



Economics is a **scientific pursuit** involving the formulation and **refinement of theories** that can help us better understand **how economies work** and how they can be improved