

I. INTRODUCTION

How Economists Learn from Facts

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Principles of Macroeconomics

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Foundation of Macroeconomic Analysis

Basic problem: If you were the Thai government, ...

What **information** do you need in order to design, implement, and evaluate macroeconomics policies?

- What indicators?
- What does it inform?
- How useful is the indicator?

Perhaps these are more interesting macroeconomic questions?

In order to answer these questions, what do you want to know and compare?

- How did the Industrial Revolution happen first in the 18th century, on an island off the coast of Europe?
- Why are some country so rich, yet some so poor?
- How does the lending rate affect spending in the economy?
- Is putting in place a policy that limit how much interest a lender can charge on a loan *a good idea*?

How economists learn from facts: the theoretical model

Two main ingredients: data & model

- Macroeconomics deals with **aggregates**.
- For each question, distinguish what *[we think]* the essential features of the economy are, and what are not.
- The steps are:
 1. Construct a simplified description of the conditions under which people take actions;
 2. Describe in simple terms what determines the actions that people take;
 3. Determine how each of their actions affect each other;
 4. Determine the outcome of these actions – this is often called the equilibrium;
 5. Get more insight by studying to certain variables when conditions change.

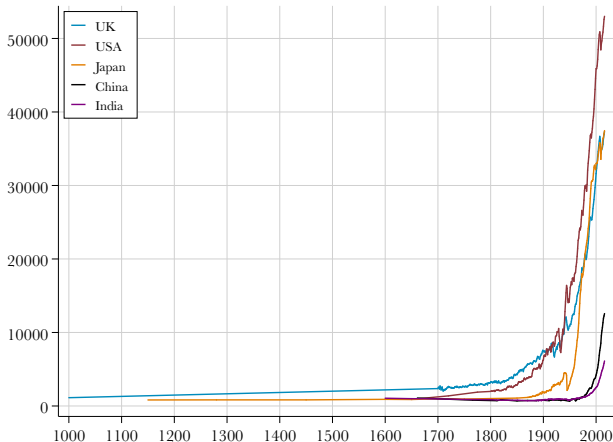
Mathematics is a *part* of the economic language – it helps us communicate. But mathematics is neither (i) sufficient for a good model; nor (ii) can explain every knowledge of economics.

There are mainly four attributes of a good economic model

1. It is clear: helps us better understand what is important
2. It predicts accurately: consistent with evidence
3. It improves communication: it clarifies what we agree/disagree about
4. It is useful: we can use it to improve how the economy works

A quick example: *Malthusian economics*

Do you remember the flat part of the hockey stick?



Source: The Maddison Project. See document: [Bolt et al. \(2018\)](#). Levels are in 2011US\$.

Malthusian economics [cont.]

Thomas Malthus (1766-1834), in *Principle of Population*, provided a model to explain (Malthus, 1798). Two key concepts:

1. The law of diminishing average product of labour

$$\begin{aligned} Y &= f(K, L) \\ \text{and } Y_0 = f(0) &= 0 \\ \frac{\partial Y}{\partial L} = f'(L) &> 0 \\ \frac{\partial^2 Y}{\partial L^2} = f''(L) &\leq 0 \end{aligned}$$

Two possible reasons why?

2. Living standard improvement leads to population expansion

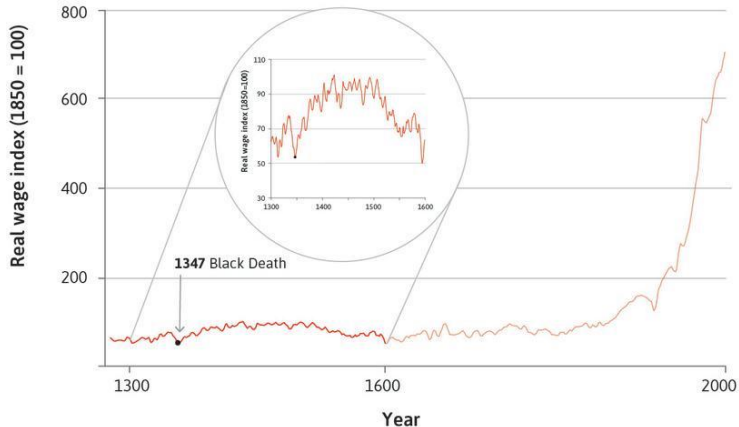
Malthusian economics [cont.]

Intuition: as living standards increase above **subsistent level**, human population multiply rapidly. But due to the law of diminishing return to labour, food production won't be able to catch up $\Rightarrow$ decreasing living standards $\Rightarrow$ lower population growth.

- What do you think is the Malthusian equilibrium ?
- What happens when there is an improvement in technology ?
- How can we do this graphically ?

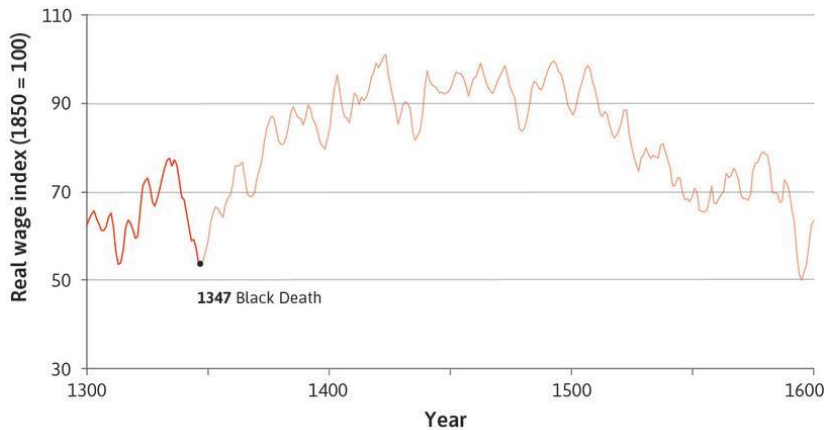
Malthusian economics [cont.]

Perhaps this can explain the long flat part of the hockey stick. More specifically, the famous Malthusian stagnation between 1350-1600.



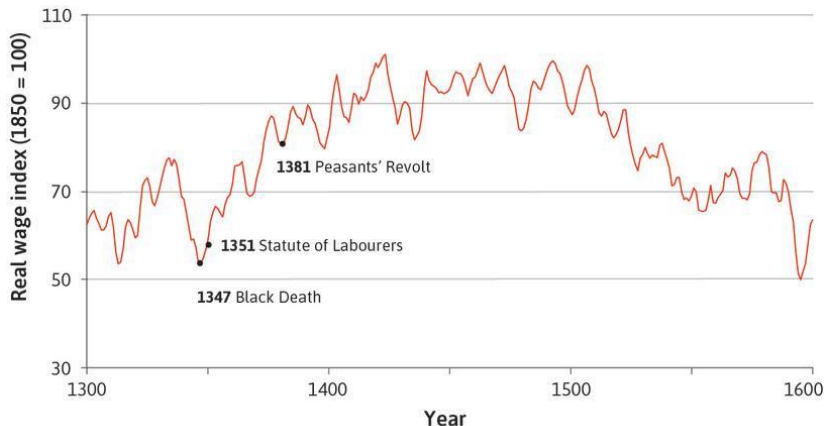
Source: Reprinted from O'Rourke, K., Bowles, S., Carlin, W., and Stevens, M. (2017) 'Technology, Population, and Growth'. Unit 2 in the Core Team, The Economy. Data is based on Allen (2001).

Malthusian economics [cont.]



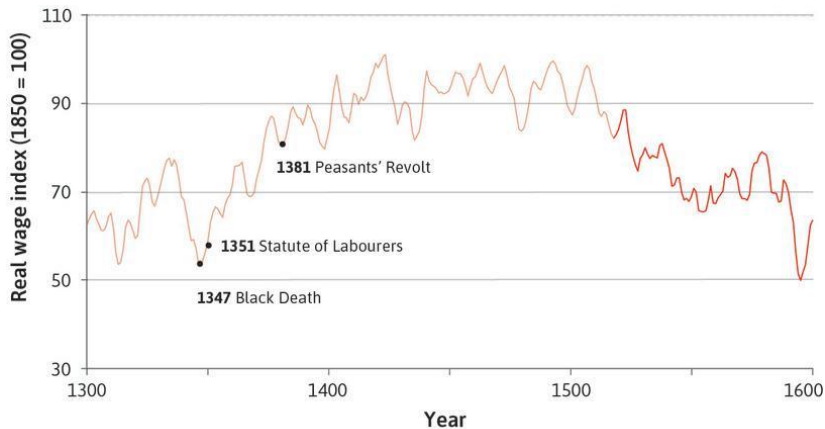
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A quick view of main macroeconomic indicators

Key concepts: stock vs. flow

Most macroeconomic variables can be categorised into stock or flow variables. **Stock** variable refers to the quantity of a variable at a point in time. **Flow** variables are expressed per unit of time. Which one is which?

- Capital and wealth
- Investment
- Income
- Inflation
- GDP
- Unemployment

Example of relationship between flow and stock variables:

$$W_{t+1} = sY_t - dW_t$$

Key concepts: real vs. nominal

The issue of *space* and *time* exists in economic analysis. How can we say A is richer than B , but the gap is getting smaller?

$$Y_A = \sum_i^N P_{A,i} Q_{A,i}$$
$$Y_B = \sum_j^M P_{B,j} Q_{B,j}$$

First, take care of *time*. We need to convert *nominal* GDP to *real* GDP — by taking price changes into account. Why?

Key concepts: real variables

In our notations, π symbolise price changes. There are two phenomena:

- **inflation** is when price rises;
- **deflation** is when price decreases.

We use a *base year* as the year of reference. For instance, we can pick the year 2018 – and say that real GDP is the same as nominal GDP in 2018.

For the years that follow, we use the actual level of output (Q_t), but we use 2018 price level (P_{2018})! We also say that these real variables are in *constant* prices. (Nominal are in *current* prices).

How can we express this using the previous equation?

Measuring price changes

Measuring inflation: GDP deflator vs. CPI

Now, what should we look at: *price* or *both*? Assume that your country produces only apples and oranges. We can have two indicators, in constant 2000 prices:

$$\begin{aligned}\text{GDP deflator (Paasche)} &= \frac{\text{Nominal GDP}}{\text{Real GDP}} = \frac{\sum_i^N P_i Q_i}{\sum_i^N P_i^{2000} Q_i} \\ &= \frac{(P_{\text{apples}} \times Q_{\text{apples}}) + (P_{\text{oranges}} \times Q_{\text{oranges}})}{(P_{\text{apples}}^{2000} \times Q_{\text{apples}}) + (P_{\text{oranges}}^{2000} \times Q_{\text{oranges}})}\end{aligned}$$

$$\begin{aligned}\text{Meanwhile, CPI (Laspeyres)} &= \frac{(P_{\text{apples}} \times Q_{\text{apples}}^{2000}) + (P_{\text{oranges}} \times Q_{\text{oranges}}^{2000})}{(P_{\text{apples}}^{2000} \times Q_{\text{apples}}^{2000}) + (P_{\text{oranges}}^{2000} \times Q_{\text{oranges}}^{2000})}\end{aligned}$$

Price changes & purchasing power: when to use which

These price indices themselves measure the cost of living. If price goes up, one overstates, while another understates – **guess(estimate) which !**

More points:

- CPI captures what consumers *actually* buys;
- GDP deflator captures all goods that are *produced* in the country;
- Inflation $\uparrow$ does not necessarily mean lower purchasing power;
- PPI (Producer Price Index) instead look at the price of intermediate goods;
- All indicators are nonetheless highly correlated.

Now, we have taken care of the issue of *time*.

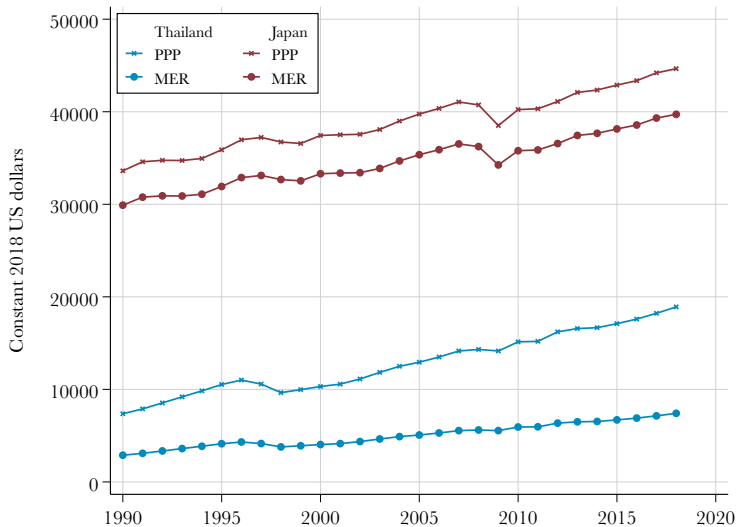
Measuring different cost of living

Dealing with space: price differences across countries

Imagine if two countries only produce *one* product: Americano. Based on the current exchange rate, a cup = \$2.5 in Thailand, while in France it is \$3.3. **But what is the limitation here?**

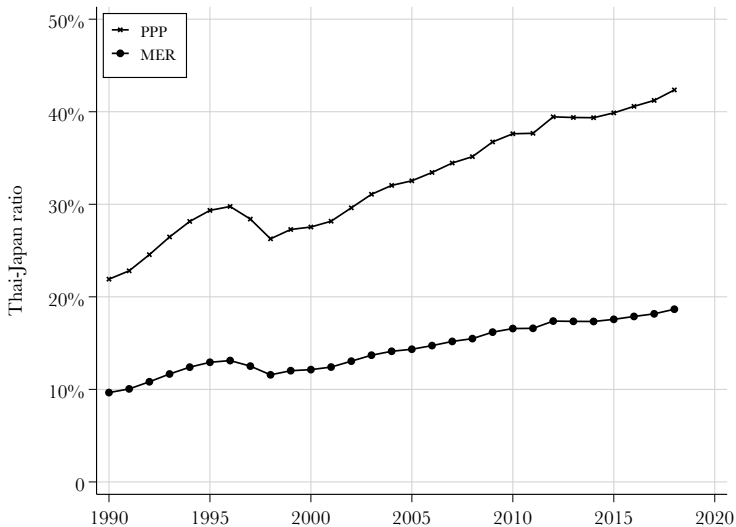
- Most of the time, we use **PPP** — Purchasing Power Parity.
- Normalise to the same living standards

Going through space & time.



Source: Lecturer's calculation based on WID.world data.

Going through space & time.



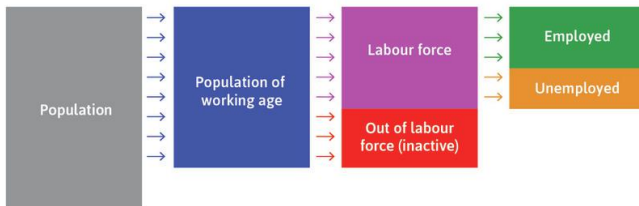
Source: Lecturer's calculation based on WID.world data.

Measuring unemployment

Are you older than 15, but younger than 64?

Because I have choices for you:

1. Not in the labour force: most of you
2. Employed
 - works for pay
 - works without pay, for family business
 - has a job but temporarily absent (no more than 4 weeks)
3. Unemployed: not working, want to work, can't find work (future you?)



Labour market: key indicators

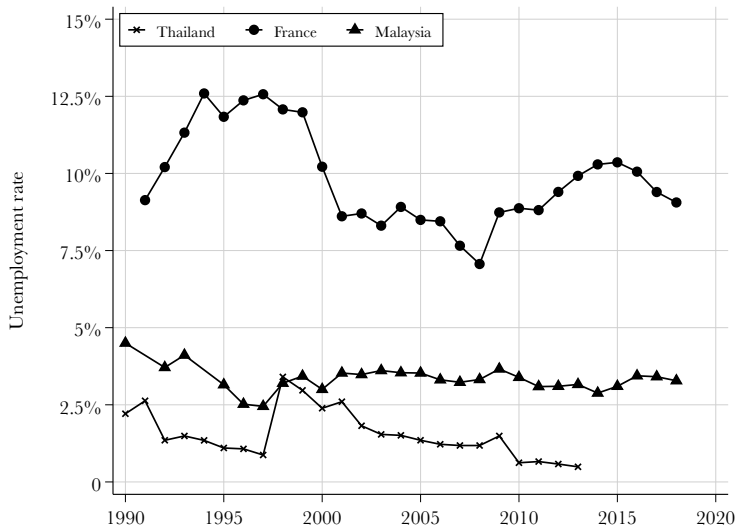
$$\begin{aligned}\text{Participation rate} &= \frac{\text{Labour force}}{\text{Working-age population}} \\ &= \frac{\text{Employed} + \text{Unemployed}}{\text{Working-age population}}\end{aligned}$$

$$\text{Unemployment rate} = \frac{\text{Unemployed}}{\text{Labour force}}$$

$$\text{Lastly, employment rate} = \frac{\text{Employed}}{\text{Working-age population}}$$

Why is the Thai unemployment rate so low?

Unemployment in selected countries



Source: International Labour Organization, ILOSTAT database. Data retrieved in December 2019.

Measuring distribution

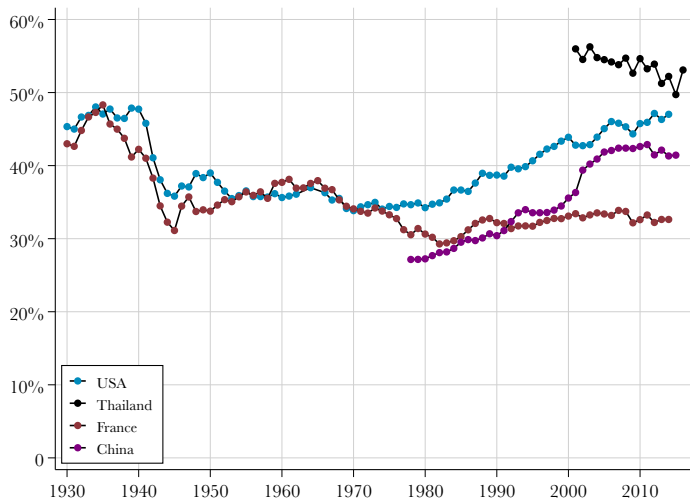
From the global view, there are two things: within and between components

- Having declined for most of the 20th century, within-country inequality is on the rise
- But overall global inequality has been improving – the rise of China & India
- Income disparities between people are due to what they (i) own ; (ii) are; (iii) have.
- Existing institutions and policies influences these determinants
- Inequality also restrict the opportunity to the less well-off, as well as can lead to conflicts – harming everyone.

An experiment: the veil of ignorance

*[N]o one knows his place in society, his class position or social status;
nor does he know his fortune in the distribution of natural assets and abilities,
his intelligence and strength, and the like. (Rawls, 1971)*

Distributional National Accounts



Source: WID.world.

Questions?

References

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