II. Macroeconomic Analysis

National Income and Product Accounts

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Principles of Macroeconomics
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Overview

Introduction: measuring growth & fluctuations

The System of National Accounts (SNA)

Shortcomings of national accounting

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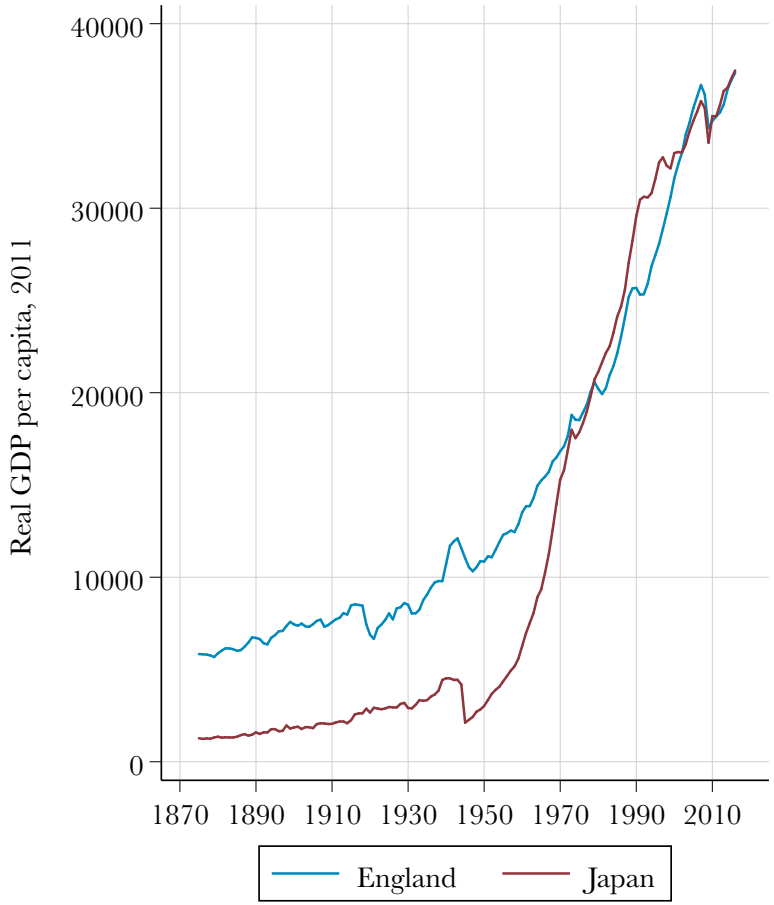
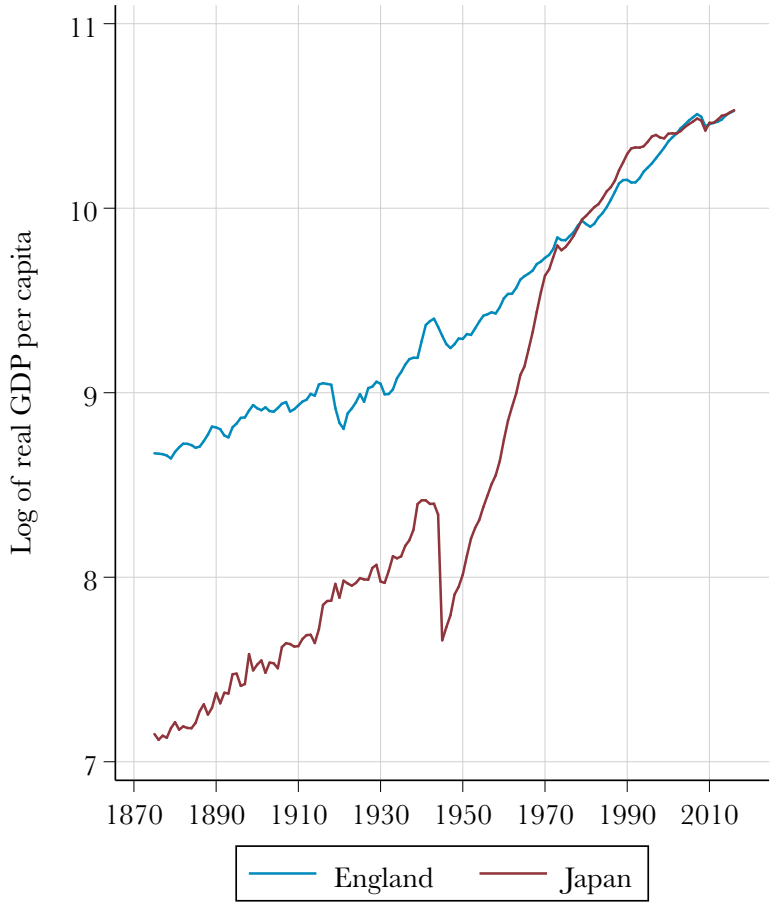
Introduction: measuring growth & fluctuations

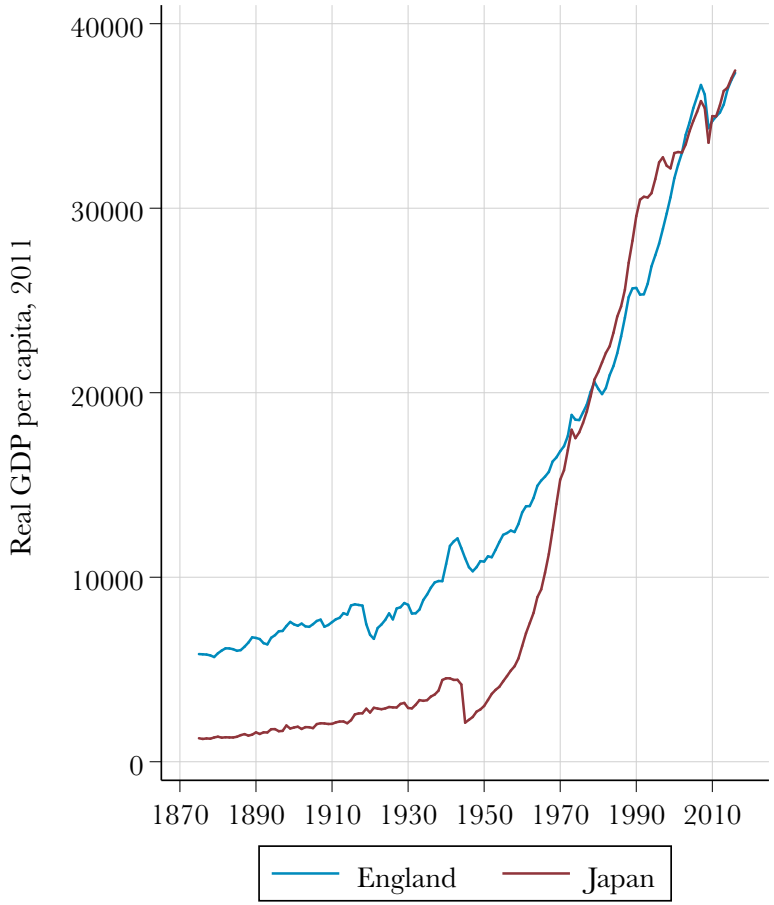
The stick part: actual vs. ratio scale

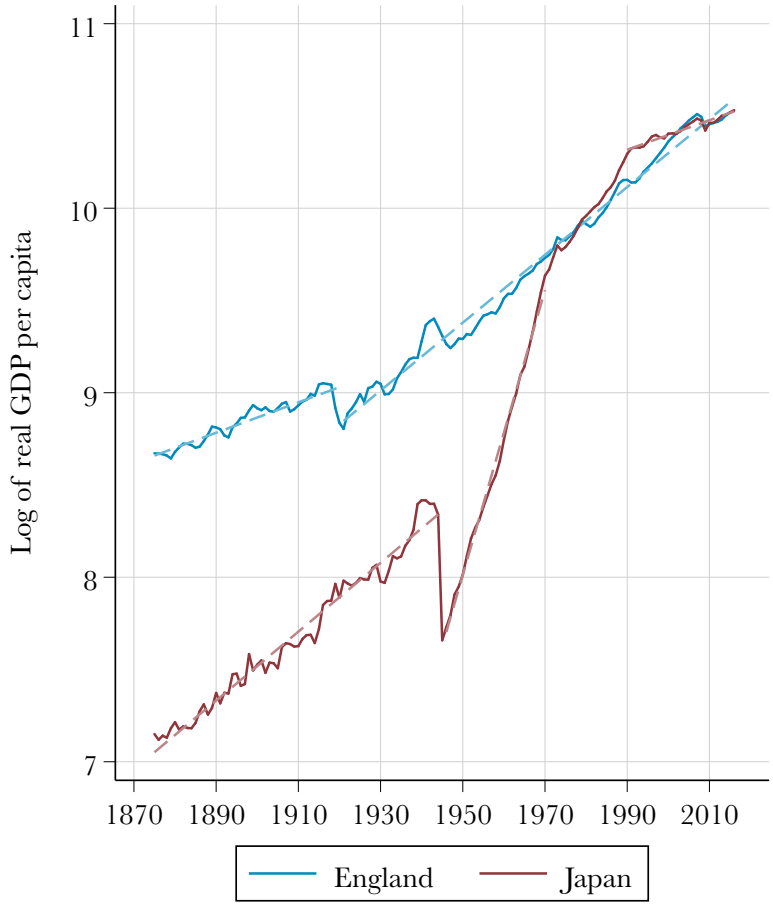




Source: Lecturer's calculation based on the Maddison Project. See document: Bolt et al. (2018). Levels are in 2011 US$.

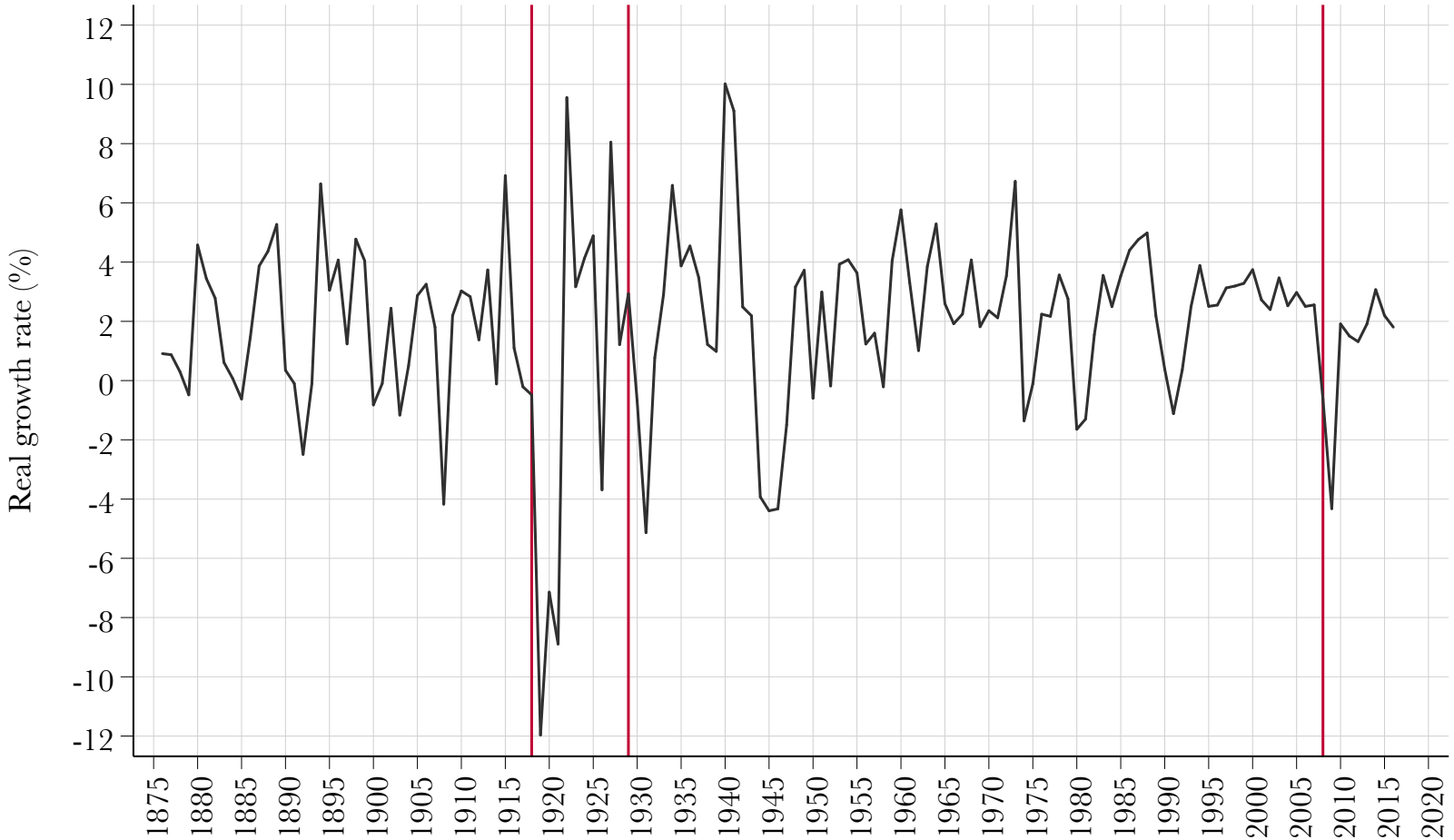
The stick part: actual vs. ratio scale [cont.]





Source: Lecturer's calculation based on the Maddison Project. See document: Bolt et al. (2018). Levels are in 2011 US$.

Visualising fluctuations: YoY growth rate, UK 1875-2016



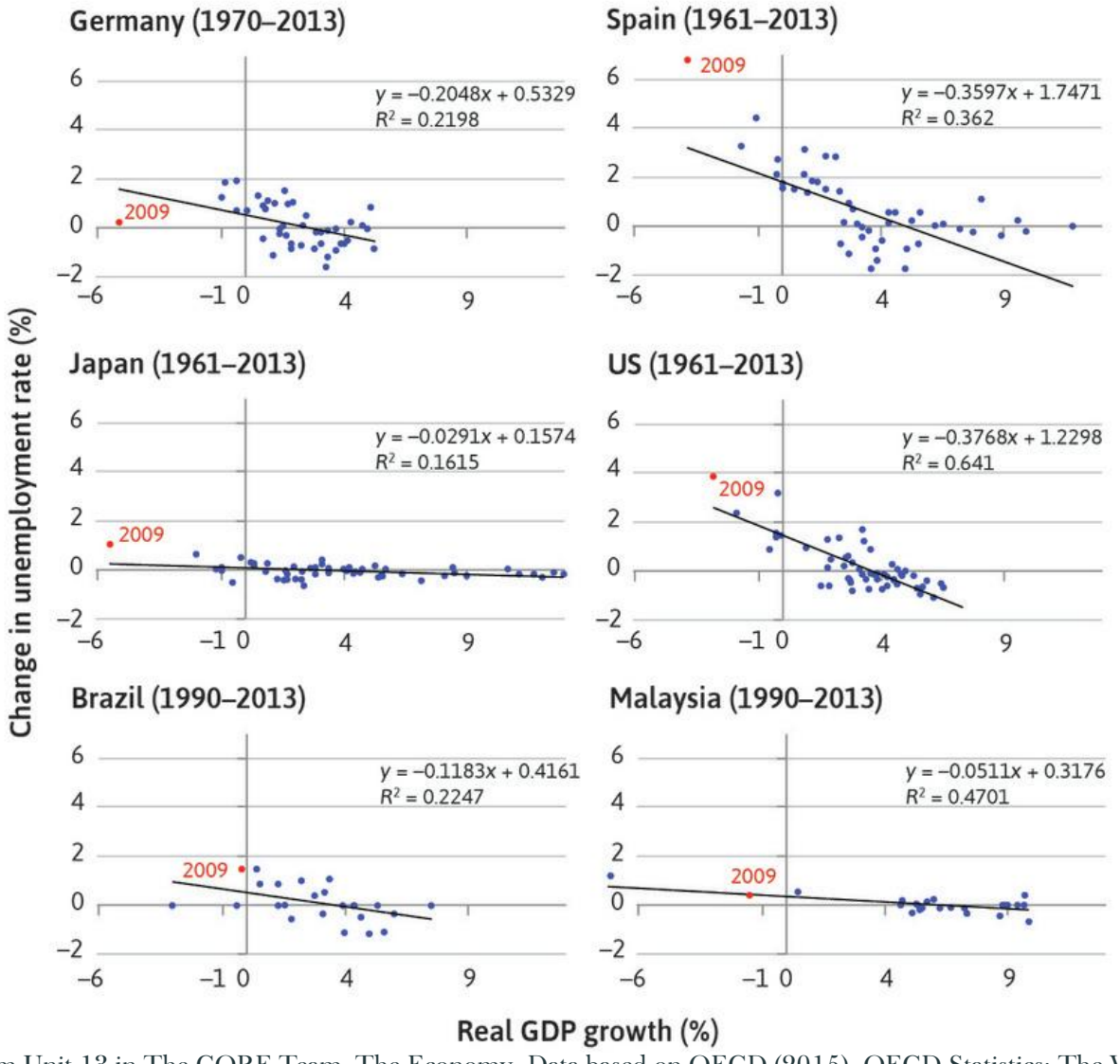
Source: Lecturer's calculation based on the Maddison Project. See document: Bolt et al. (2018).

Economic fluctuations

Economies are marked by *ups* and *downs*; booms or recessions – no standard definitions for this.

- Movements from boom $\rightarrow$ recession $\rightarrow$ boom $\equiv$ the business cycle
- One of the most reason why it is important: unemployment
- Okun's law: when a country's output growth was high, unemployment tended to decrease.

Okun's law



Source: Reprinted from Unit 13 in The CORE Team, The Economy. Data based on OECD (2015). OECD Statistics; The World Bank. 2015. World Development Indicators.

But let's hold our horses.

What goes into our measures of output?

The National Accounts

The National Accounts

Also called *national Income and product accounts*, national accounting is a recent thing.

- Conceptually by Kutnetz and Colin Clark in the 20s-30s. Why?
- First official SNA from the US in '47
- The first *SNA* guideline by the UN in '52

It keeps track of the economic activities in the country; income and consumption of each economic sector; sales of firms; investment spendings, and other variety of *flows* between economic sectors.

To really get the NA, it is a good start to look at…

The circular flow of the economy

4 sectors; 3 markets. Principle: what goes in must comes out.

Draw with me.

The Gross Domestic Product – in detail

The point is to measure the level of economic activity in terms of output during a specific set of time. GDP is the total *market value* of all final goods & services during a year. There are three approaches:

1. production approach
2. expenditure approach
3. income approach

Should they be equal to each other?

GDP: the production approach

We either consider (i) the sum of value added; or (ii) the value of final sales. Why don't we include intermediate goods?

- We keep track of this issue by calculating value added of each sectors
- Ideally, summing up all value added should equal the total market value of final goods and services
- Same principle: used or second-handed goods

We also only considered domestically produced goods — why? We exclude

1. Goods produced abroad by domestically-owned factors of production
2. Transfer payment

Calculating the GDP: value added (production)

Let's say Thailand is only composed of these three firms.

	Thai Ore, Inc.	Thai Steel, Inc.	Thai Motors, inc.
Value of sales	$4,200	$9,000	$21,500
Intermediate goods	0	4,200	9,000
Value added/firm	4,200	4,800	?

GDP: the expenditure approach

Another way of getting the GDP (or Y): summing aggregate spendings on domestically produced goods and services.

Remember this by heart

$$Y_t = C_t + I_t + G_t + (X_t - M_t)$$

- C denotes household expenditure
- I denotes household's and firm's investment
- G denotes government's consumption and investment expenditure
- $(X - M)$ denotes export minus import – i.e. the trade balance.
- Question: how does *Grab* get counted in the GDP?
- What about goods produced abroad by our factors of production?

Calculating the GDP: expenditure approach

Going back to the previous case. Assume that, this year, there is no investment, nor government spendings. Where can we find the number of the GDP based on this approach?

	Thai Ore, Inc.	Thai Steel, Inc.	Thai Motors, inc.
Value of sales	$4,200	$9,000	$21,500
Intermediate goods	0	4,200	9,000
Value added/firm	4,200	4,800	12,500

Discuss: which of the following would increase the GDP?

1. A decline in imports, holding other GDP components constant.
2. An increase in remittances paid to domestic residents by relatives living abroad.
3. An increase in government spending
4. A decline in exports

The Income Approach: the funkiest part!

Add up all the income accrued to different factors of production!

- **Labour**: compensation of employees
- **Financial assets**: interests
- **Land**: rents
- **Other production capital**: dividends and profits
- **Entrepreneurship is not a factor of production.**

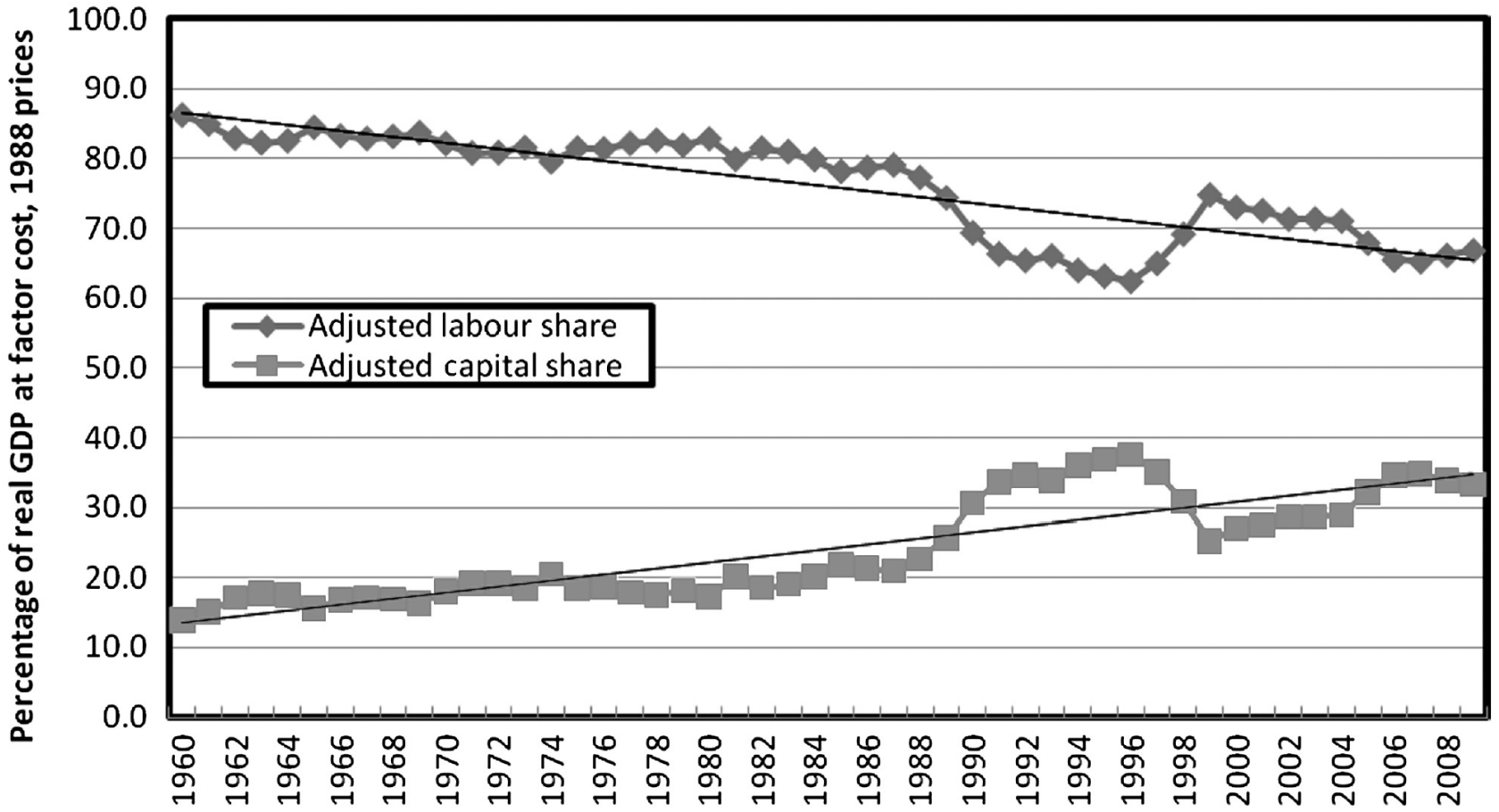
What about unincorporated businesses and the self-employed?
Publicly-owned enterprises?

Calculating the GDP: income approach

Going back to the same example. Now, we know based on the firms' annual reports that their expenses are…

	Thai Ore, Inc.	Thai Steel, Inc.	Thai Motors, inc.	Total factor income
Value of sales	\$4,200	\$9,000	\$21,500	
Intermediate goods	0	4,200	9,000	
Wages	2,000	3,700	10,000	\$15,700
Interest payments	1,000	600	1,000	\$2,600
Rent	200	300	500	\$1,000
Profit	1,000	200	1,000	\$2,200
Total expenditure	4,200	9,000	21,500	
Value added/firm	4,200	4,800	12,500	

Labour vs. capital share in Thailand, 1960-2009



Source: Reprinted from Jetin (2012). The labour and capital share are calculated based on NSO and NESDC data.

From GDP to National Income

Sometimes it is useful to consider the national income, instead of GDP. National income accounts for flows in and out of the country as well.

More formally, let D_t stands for *consumption of fixed capital*, and $NFFI_t$ for *net* foreign factor income.

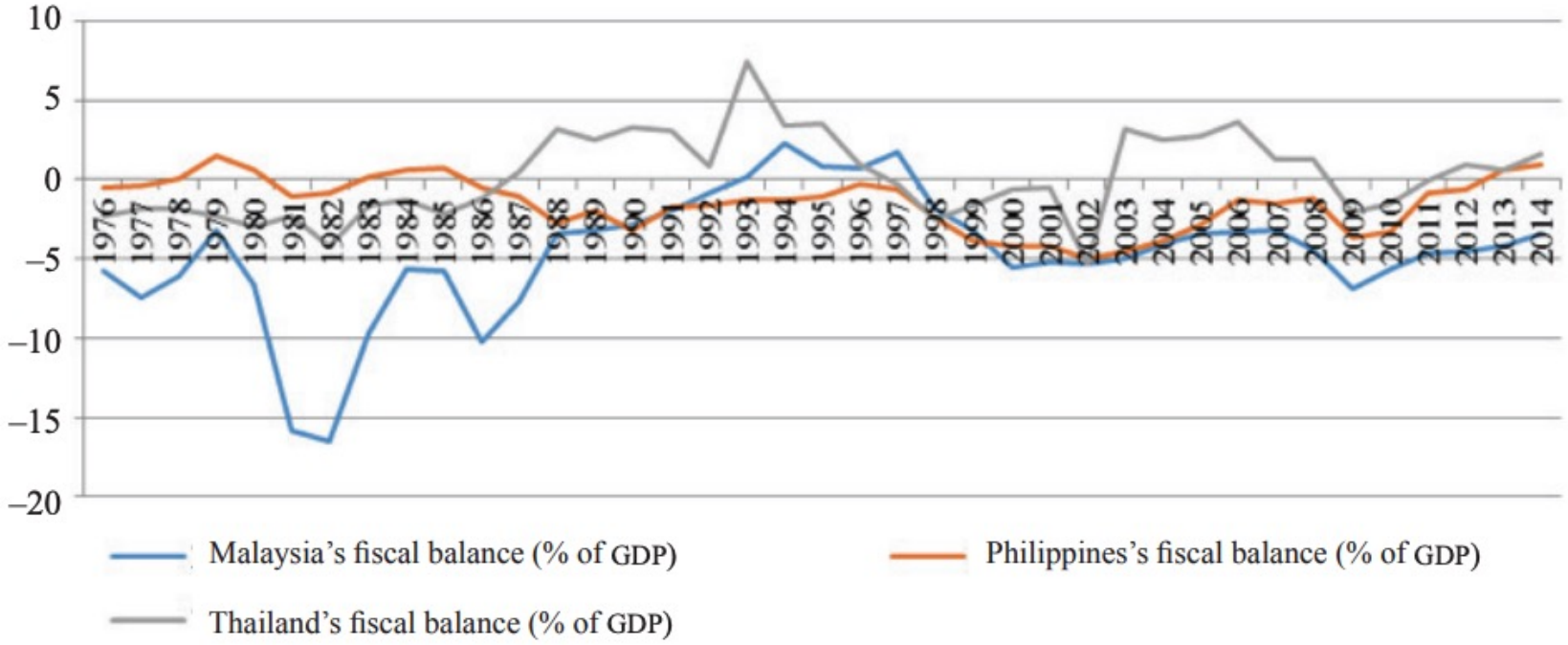
$$
\begin{aligned}
GNP &= GDP_t + NFFI_t && (1)\\
NDP &= GDP_t - D_t && (2)\\
NI_t &= GDP_t - D_t + NFFI_t && (3)\\
&= (1) - D_t\\
&= (2) + NFFI_t
\end{aligned}
$$

The balance of nature goes on...

Based on this, we have some notions of balances that we are interested in:

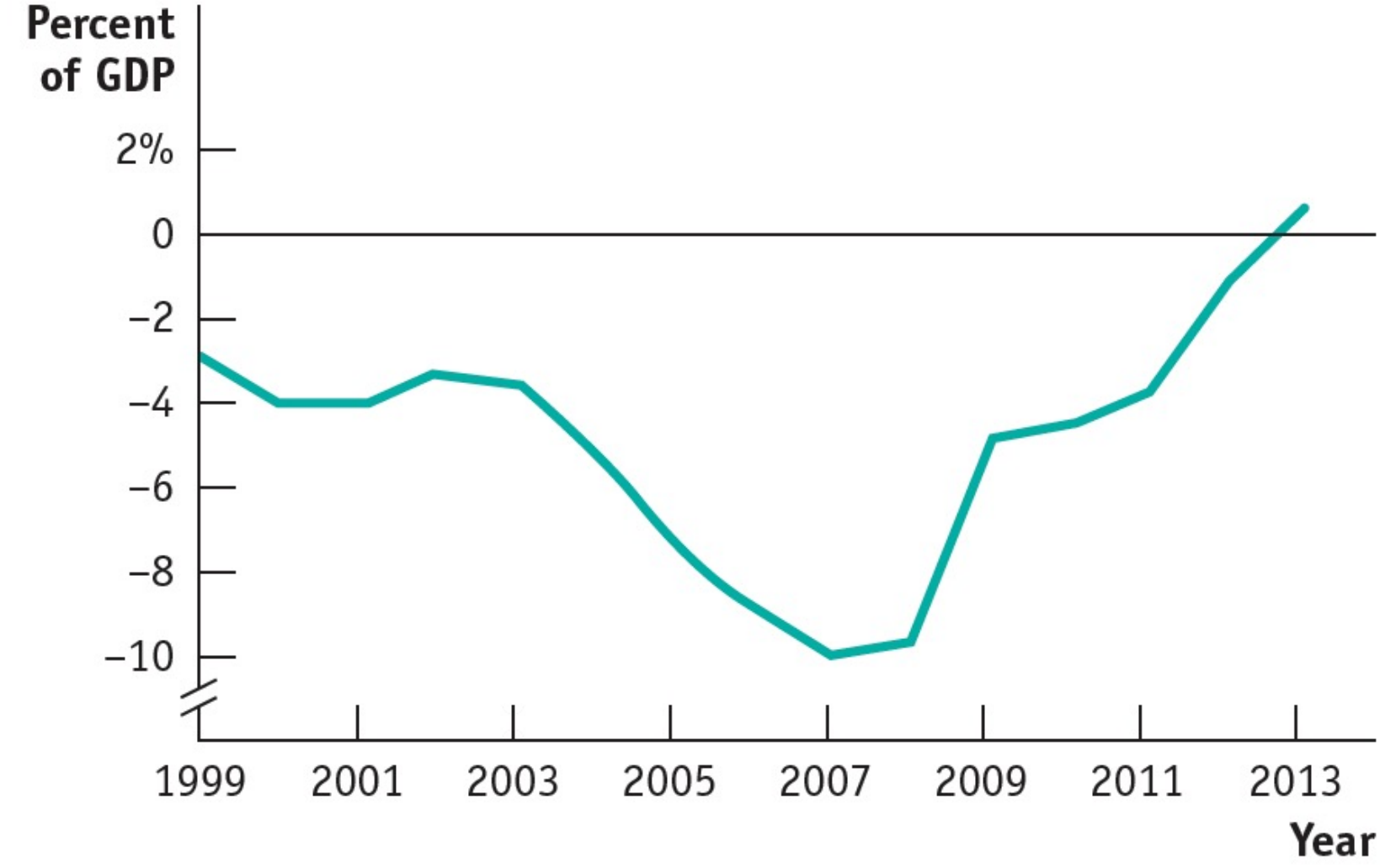
1. **Government** $\Rightarrow$ Budget balance: if the government is running a deficit or a surplus.
$$S_{\text{Gov}} = T - G - TR$$
2. **Financial market** $\Rightarrow$ Saving-investment balance = national savings - national investment !
3. **External sector** $\Rightarrow$ Trade balance $= X - M$. Is a trade surplus a signal for a good economy? *More on this in the last chapter.*
4. $\Rightarrow$ Current account balance = Trade balance + Net foreign income

Budget (fiscal) balance in Thailand, Malaysia, and the Philippines



Source: Reprinted from Lau and Syn-Yee (2018). Data from IMF Country Report, various issues.

Spain's current account, 1999-2013



Source: International Monetary Fund.

Source: Reprinted from Krugman and Wells (2015), *Macroeconomics*. Data from the IMF.

Shortcomings of National Accounting

Shortcoming of the GDP as a measure

"It [GDP] measures everything in short,
except that which makes life worthwhile."
Robert Kennedy, 1968 election speech

There are three things to keep in mind when using the concept of GDP.

1. it is a conventional measure of the size of an economy;
2. Distinguish aggregate GDP from GDP per capita;
3. GDP per capita is a flawed measure of living standards: what about health? education? Poetry?

Moving beyond GDP: the green economy

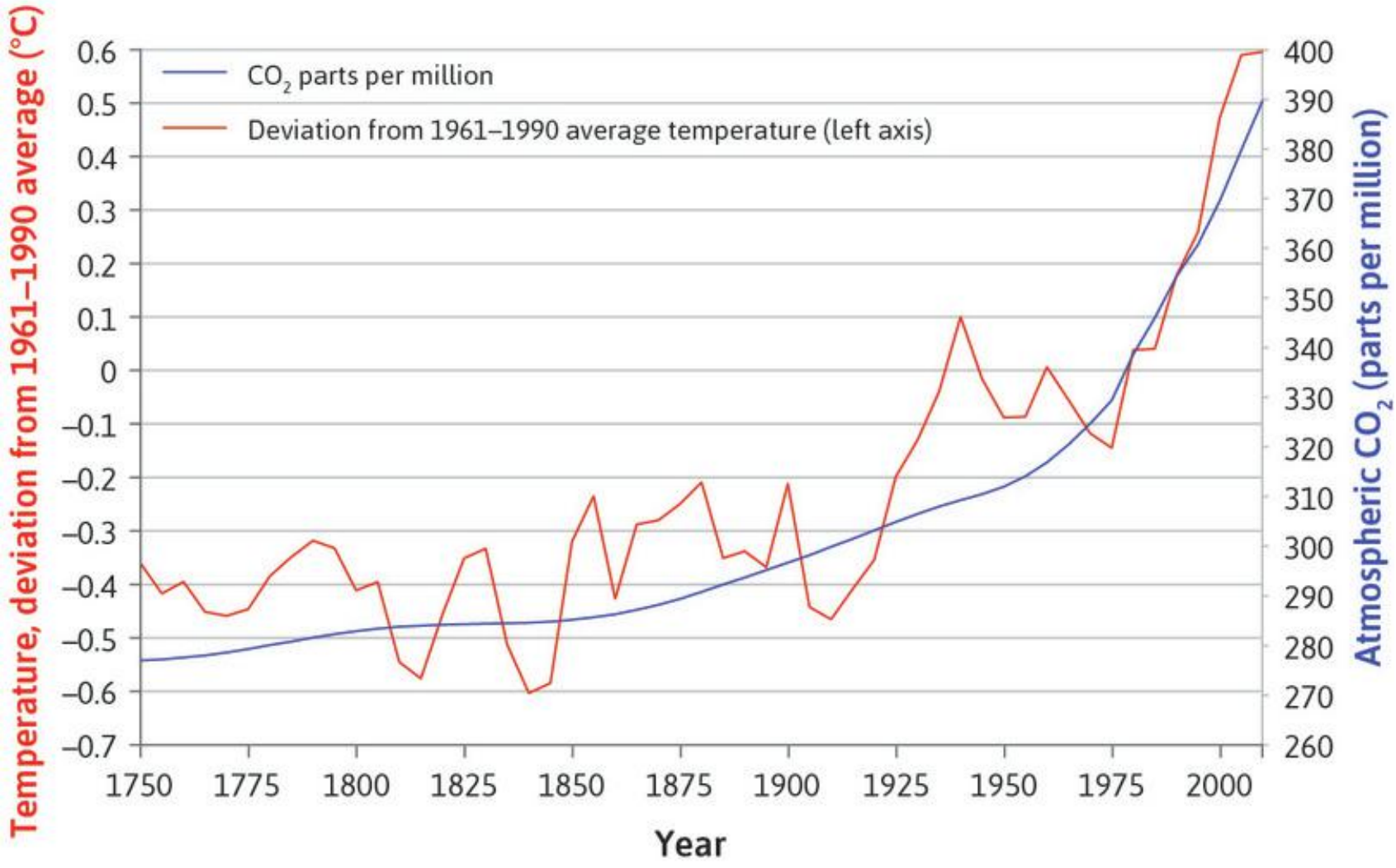
Our biosphere has been radically altered by our production and distribution of goods and services. The resulting climate change will be a major threat to us and our children.

Governments have been trying to fix this through:

1. Changes through price incentive (how?);
2. Prohibition of practices and harmful materials.

But, depleting natural resources is easier to fix since they tend to self-correct. It is much, much harder to deal with negative external environmental effects.

Another kind of hockey stick...



Source: Reprinted from Unit 20 in The CORE Team, The Economy. Indicators.

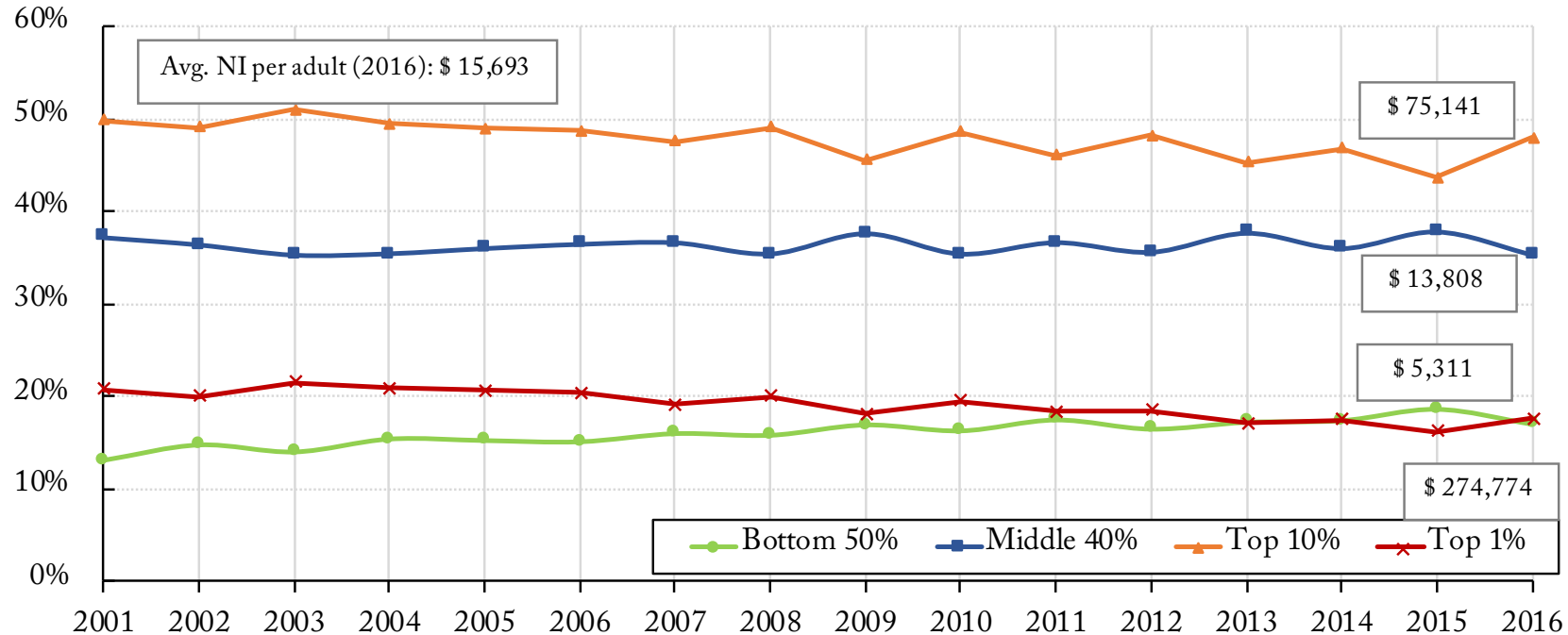
The environment as capital

Remember depreciation: can the same concept be introduced in the NA, but for the environment?

- Natural capital comprises 36% of low-income countries' wealth (World Bank).
- These *green adjustment* makes economic success stories look much less impressive
- The World Resources Institute estimated that Indonesia's use of natural capital during the economic boom between 1971-1984 (7.1% per annum) would make the real growth rate only . . . %

Moving beyond GDP: the Distributional National Accounts

Goal: Annual estimates of the distribution of income and wealth using concepts of income and wealth that are consistent with SNA.



Source: Jenmana (2018).

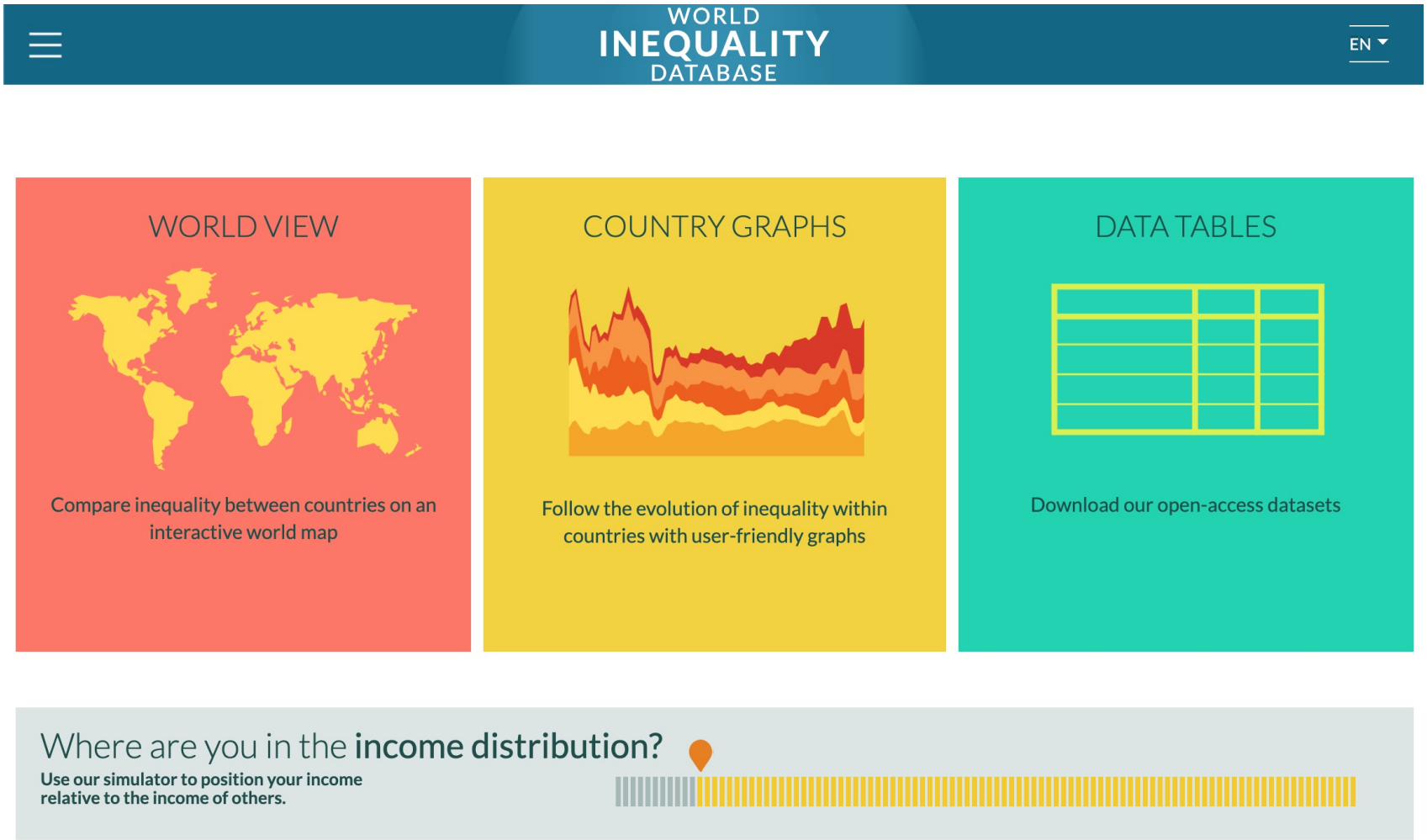
What do you expect to earn after BE?

Thresholds, averages, and national income shares in Thailand, 2016

Income groups	Number of adults	Threshold (monthly) 2017 Thai Baht	Threshold (monthly) 2017 Dollar	Average income (monthly) 2017 Thai Baht	Average income (monthly) 2017 Dollar	Income share
Full population	51,954,056	0.00	0.00	18,661	550	100%
Bottom 50%	25,977,028	0.00	0.00	4,941	146	13%
Middle 40%	20,781,622	8,613	254	15,707	463	34%
Top 10%	5,195,406	37,783	1,114	99,072	2,920	53%
incl. Top 1%	519,541	161,489	4,760	377,426	11,124	20%
Top 0.1%	51,954	609,716	17,970	1,426,474	42,042	8%
Top 0.01%	5,195	2,150,996	63,395	5,668,244	167,057	3%
Top 0.001%	520	8,679,363	255,802	24,329,051	717,037	1%

Source: Jenmana (2018), 'Democratisation and the Emergence of Class Conflict: Income Inequality in Thailand, 2001-2016'. All data series can be downloaded from `http:/wid.world`.

Check out WID.world !

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