The Meaning and Measurement of Macro-economic Activity

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Block 3
Economics for Everyone

Lecture 8

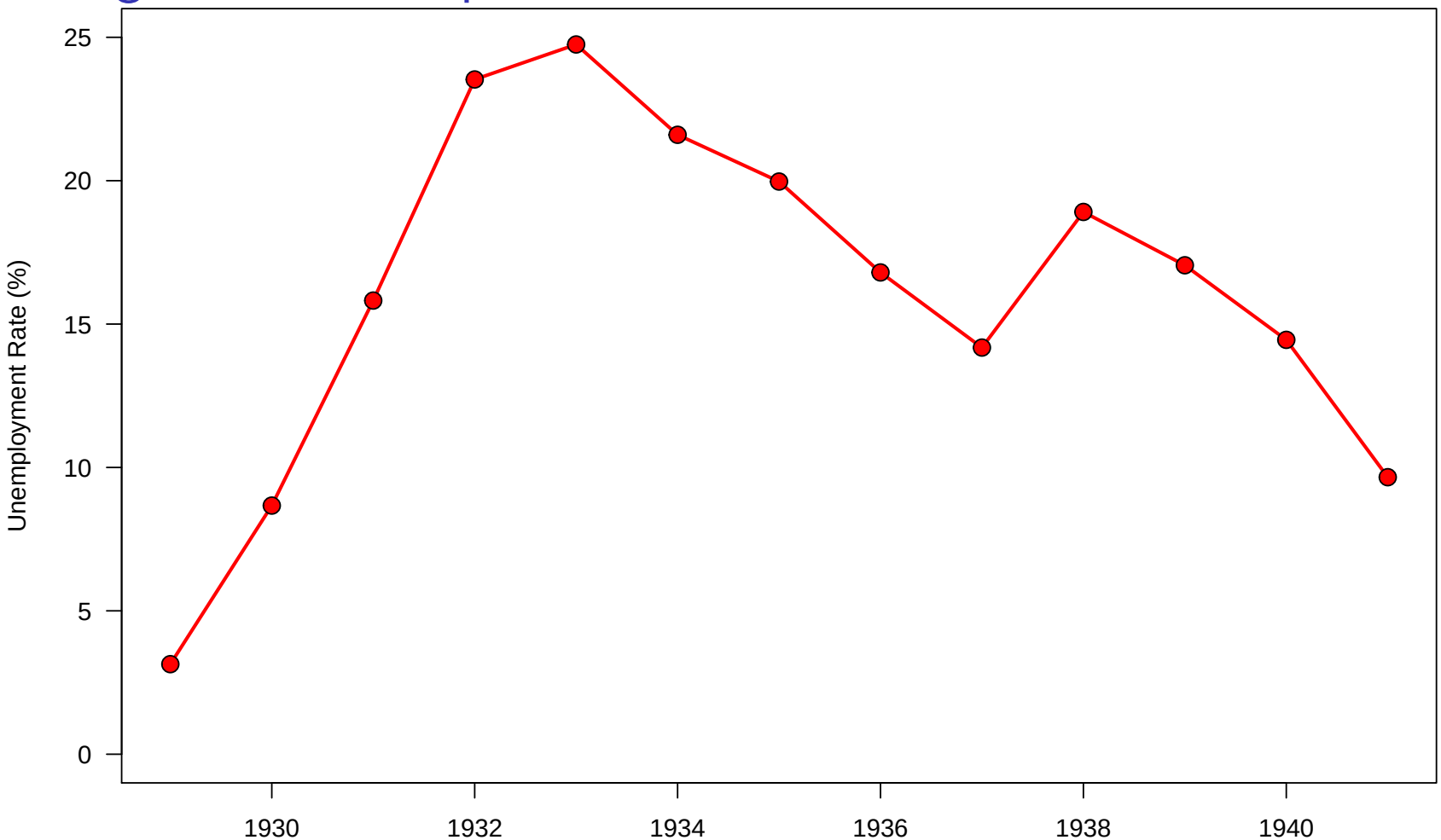
Motivation

Objectives for this block of classes

1. The measurement of macro-economic indicators
   - Gross Domestic Product
   - Unemployment, Inflation
2. A model of macro-economic activity
   - The Keynesian short run model
   - The "classical" model
3. Macro-economic public policy
   - fiscal policy
   - monetary policy

The substance of macro-economics

Some history of thought rooted in the unemployment rate during the Great Depression



Unemployment rate in the United States during the Great Depression
Source: https://u−s−history.com/pages/h1528.html

The substance of macro-economics

Some history of thought, micro-economic reasoning

Figure 1: Arthur C. Pigou

* made lasting contributions to microeconomics, but not to macro-economics * taught at Cambridge University during the first decades of the 1900s * makes a cameo appearance in one of the greatest books on macro-economics

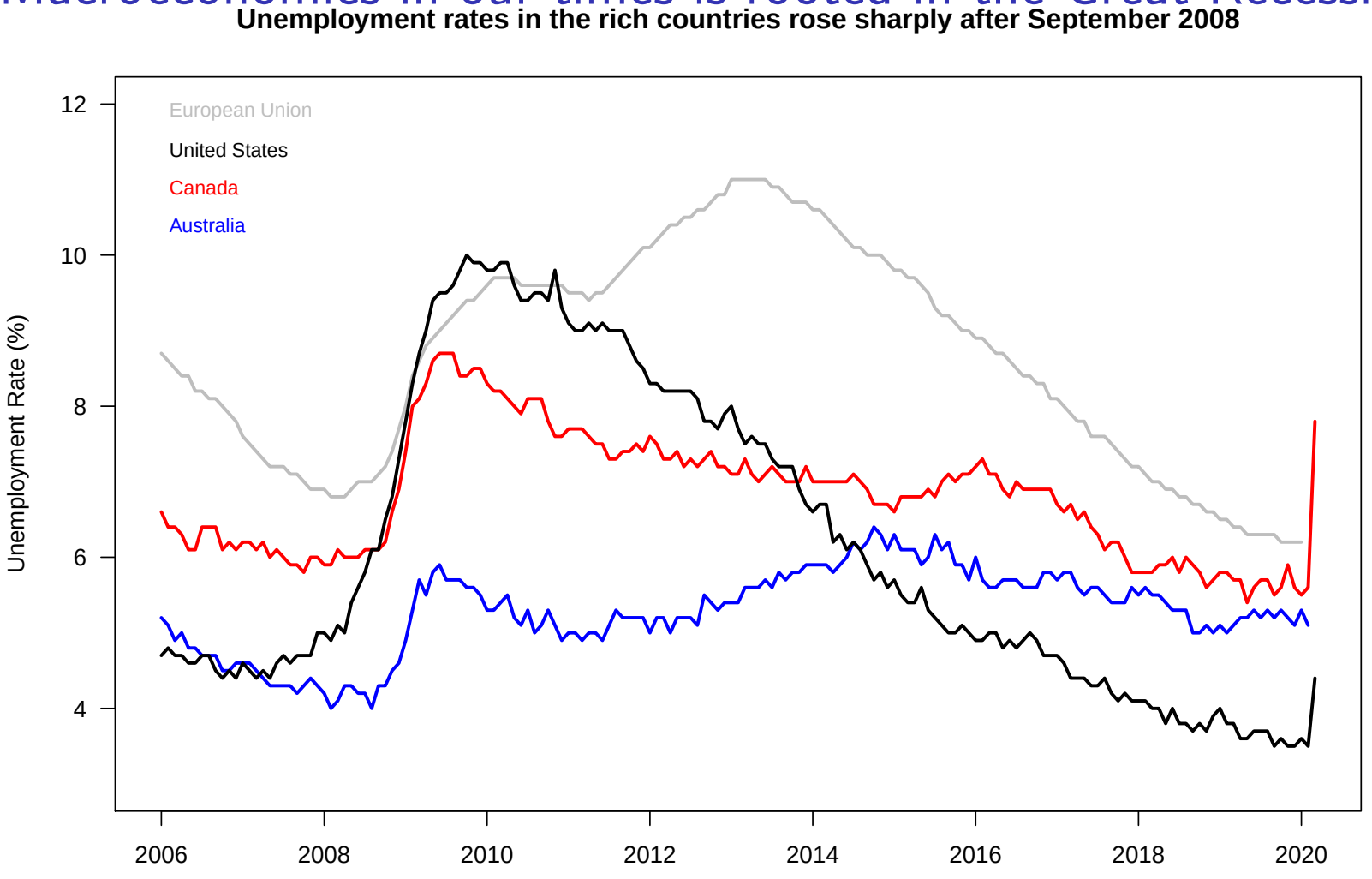
The substance of macro-economics

The General Theory of Employment, Interest and Money (1936)

Figure 2: John Maynard Keynes, born in 1883 and died in 1946

The substance of macro-economics

Macroeconomics in our times is rooted in the Great Recession



Source: OECD.stat

The substance of macro-economics

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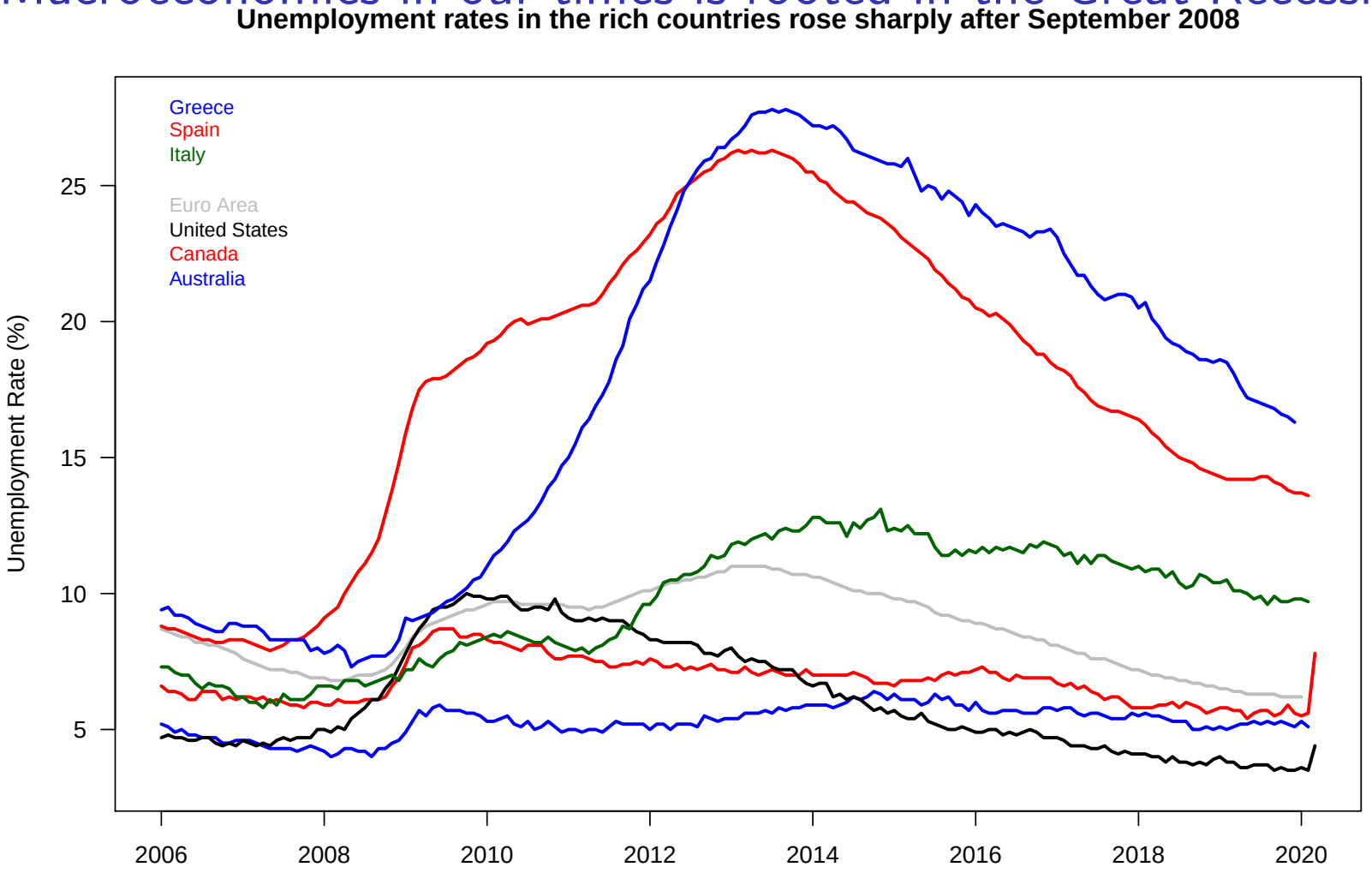


Source: OECD.stat

The substance of macro-economics

Chapter 1 of the *General Theory* is one page in length

I have called this book the *General Theory of Employment, Interest and Money*, placing the emphasis on the prefix *general*. The object of such a title is to contrast the character of my arguments and conclusions with those of the *classical* [1] theory of the subject, upon which I was brought up and which dominates the economic thought, both practical and theoretical, of the governing and academic classes of this generation, as it has for a hundred years past. I shall argue that the postulates of the classical theory are applicable to a special case only and not to the general case, the situation which it assumes being a limiting point of the possible positions of equilibrium. Moreover, the characteristics of the special case assumed by the classical theory happen not to be those of the economic society in which we actually live, with the result that its teaching is misleading and disastrous if we attempt to apply it to the facts of experience.

The meaning of GDP

Gross Domestic Product, a defintion based in theory

> *"To ascertain income it is necessary to set up a theory from which income is derived as a concept by postulation and then associate this concept with a certain set of primary facts."*

Richard Stone (1951), *The Role of Measurement in Economics*, Cambridge: Cambridge Universty Press, page 9.

Gross Domestic Product, a defintion based in theory

- Gross Domestic Product is not a physical entity in the real world, it is an abstract idea given shape by economic theory
- That theory is based upon the concepts and categories in John Maynard Keynes's 1936 book *The General Theory of Employment, Interest and Money*.
- As such it has its roots in the challenges facing policy makers during the Great Depression, and also the management of the economy during World War II
  - Simon Kuznets, Richard Stone, Wasily Leontief were important pioneers in developing the statistical methodology used to measure GDP in the United Kingdom and the United States

Gross Domestic Product, a defintion based in theory

Figure 3: The entrance to the office I temporarily occupied at Harvard

Gross Domestic Product (GDP)

the total final market value of all goods and services produced in a country's economy (during a year)

1. "Gross"
   - it does not account for the depreciation of assets used in the production process
   - Net Domestic Product

Gross Domestic Product (GDP)

the total final market value of all goods and services produced in a country's economy (during a year)

1. "Gross"
2. final market value
   - market valuation
   - avoids double counting
   - market versus non-market activities

Gross Domestic Product (GDP)

the total final market value of all goods and services produced in a country's economy (during a year)

1. "Gross"
2. final market value
3. all goods and services
   - physical goods, but also services
   - Adam Smith thought that services were "unproductive"

Gross Domestic Product (GDP)

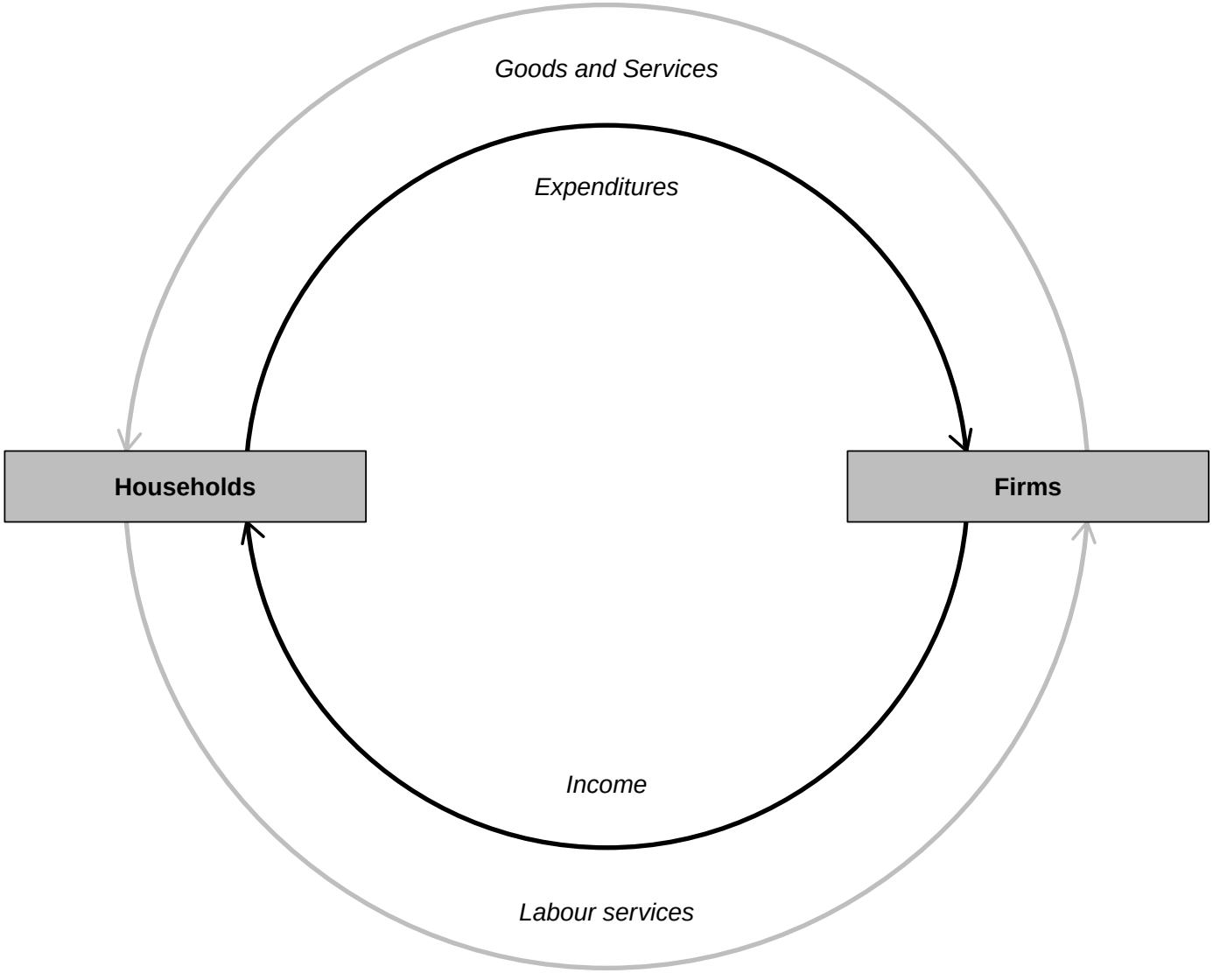
the total final market value of all goods and services produced in a country's economy (during a year)

1. "Gross"
2. final market value
3. all goods and services
4. in a country's economy
   - the economic activity within a country's boundary, and not based on the nationality of residents
   - *GNP* = *GDP* + *net foreign payments* refers to all the economic output generated by national entities, whether produced at home or abroad

Gross Domestic Product (GDP)

the total final market value of all goods and services produced in a country's economy (during a year)

1. "Gross"
2. final market value
3. all goods and services
4. in a country's economy
5. during a year
   - implies a "flow" rather than a "stock"
   - income versus wealth
   - natural resources


Goods and Services
Expenditures
Households
Firms
Income
Labour services

The measurement of GDP

Gross Domestic Product can be measured in three ways

three equivalent methods of measuring GDP

1. **Expenditure Method**
   - the sum of all final purchases
   - $GDP = C + I + G + (X - M)$
   - government expenditures do not include transfer payments such as income support or pensions
2. **Income Method**
   - the sum of all incomes earned by the factors of production
   - *wages & salaries + profits + other incomes + (taxes - subsidies)*
3. **Output Method**
   - the sum of "value added" in the production process
   - gross industrial output (less change in inventories) - immediate inputs

Gross Domestic Product in the US was over $21 trillion

Expenditure method

Expenditures in 2019	billions dollars	per cent
Gross Domestic Product	**21,427.7**	
personal consumption expenditures	**14,526.7**	67.8
goods	4,505.0	
services	10,057.7	
gross private domestic investment	**3,743.9**	17.5
non residential fixed investment	2,878.1	
residential fixed investment	797.5	
change in inventories	68.3	
net exports of goods and services	**-631.9**	-3.0
exports	2,504.3	
imports	3,136.1	
government	**3,753.0**	17.5

Source: Bureau of Economic Analysis, News Release, March 26, 2020, Table 3.

Statistical practice

Practical issues in measurement

1. A lot of detail in refining the definitions and implementing measurement
2. Time, stocks, flows
   - consumer durables versus company purchases subject to depreciation
   - inventories
   - owner occupied housing
3. Seasonality
4. Government spending
   - valued at cost not at market prices
5. The statistical discrepancy

Using GDP

Comparing GDP over time

Nominal versus "real" prices

1. "Nominal" or "Current" Prices
   - the terms are synonyms and refer to the prices actually observed at a particular point in time
2. "Real" or "Constant" Prices
   - these terms are also synonyms, and are constructed relative to some base year, not being actually observed
3. Care is needed in making comparisons of GDP over time
   - which price is being used to value the goods and services?

Comparing GDP over time

Nominal versus "real" prices

changes in overall prices will misrepresent the quantity of goods and services produced

Gross Domestic Product	2015	2016	2017	2018	2019
at market prices	18,224.8	18,715.0	19,519.4	20,580.2	21,427.7
real 2012 dollars	17,403.8	17,688.9	18,108.1	18,638.2	19,073.1

Source: Bureau of Economic Analysis, Tables 1.1.5, 1.1.6.

Comparing GDP across countries

population size and prices

using Purchasing Power Parity and per capita GDP

Country	Population	GDP	Price level	GDP
	(millions)	(billions)	(2011=1 USD)	(per capita)
Brazil	209	2,952	0.71	14,124
Canada	37	1,630	1.04	44,054
China	1,409	18,396	0.80	13,056
Ghana	29	149	0.40	5,138
Japan	128	5,108	0.93	39,906
United States	324	18,220	1.08	56,173

Source: Penn World Tables v 9.1.

GDP as a social goal?

GDP as a measure of "well-being"

1. Just what is the purpose of GDP? In what sense is it a measure of societal well-being? In what sense is it not?
2. What properties should a measure (or index) of well-being have?
3. What are the properties and uses of other measures of well-being?

Next class

Class continues Block III

1. Next lecture continues our discussion of measurement
   - focus on the "unemployment" and "inflation" rates
2. Class assignment
   - will be returned by email
3. Is it time to discuss questions and concerns?
   - from the assignment
   - administrative issues
   - set up student interviews?
     - collectively or in small groups