1.2 — Measuring Development

ECON 317 • Economic Development • Fall 2021
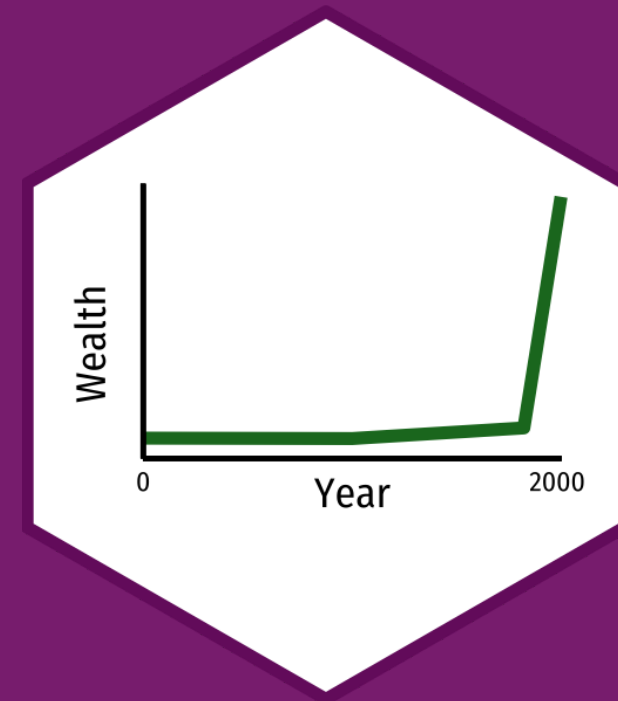
Ryan Safner

Assistant Professor of Economics
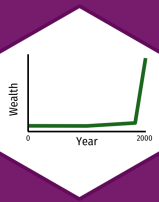
✈ safner@hood.edu

 ryansafner/devF21

 devF21.classes.ryansafner.com

Outline

Is There Such a Thing as "Political Development"?

Example 1: Life in Medellin, Colombia I

Blattman, Christopher, Gustavo Duncan, Benjamin Lessing, and Santiago Tobon, 2019, "Gangs of Medellin: How Organized Crime is Organized," Working Paper
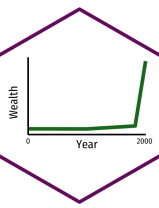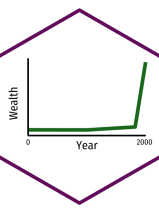
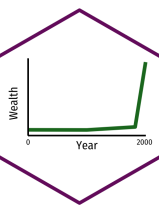# Example 1: Life in Medellin, Colombia II

- Historically, weak State presence into peripheries
- Hillsides full of displaced people, immigrants, poor
- Limited access to public goods (police, courts, services, etc)

Blattman, Christopher, Gustavo Duncan, Benjamin Lessing, and Santiago Tobon, 2019, "Gangs of Medellin: How Organized Crime is Organized," Working Paper

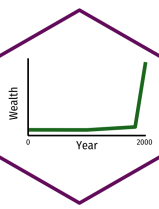# Example 1: Life in Medellin, Colombia III

- More than 300 local youth gangs
- Began in low income neighborhoods
- with business in illicit trade:
  - Protection rackets
  - Local trafficking
  - Moneylending, loan sharking
  - Voter "mobilization"

Blattman, Christopher, Gustavo Duncan, Benjamin Lessing, and Santiago Tobon, 2019, "Gangs of Medellin: How Organized Crime is Organized," Working Paper

Example 1: Life in Medellin, Colombia IV

- Gangs take on other "stately" roles:
  - Adjudicating disputes, enforcing property rights
  - Police against (outside) thieves
  - Local employment programs
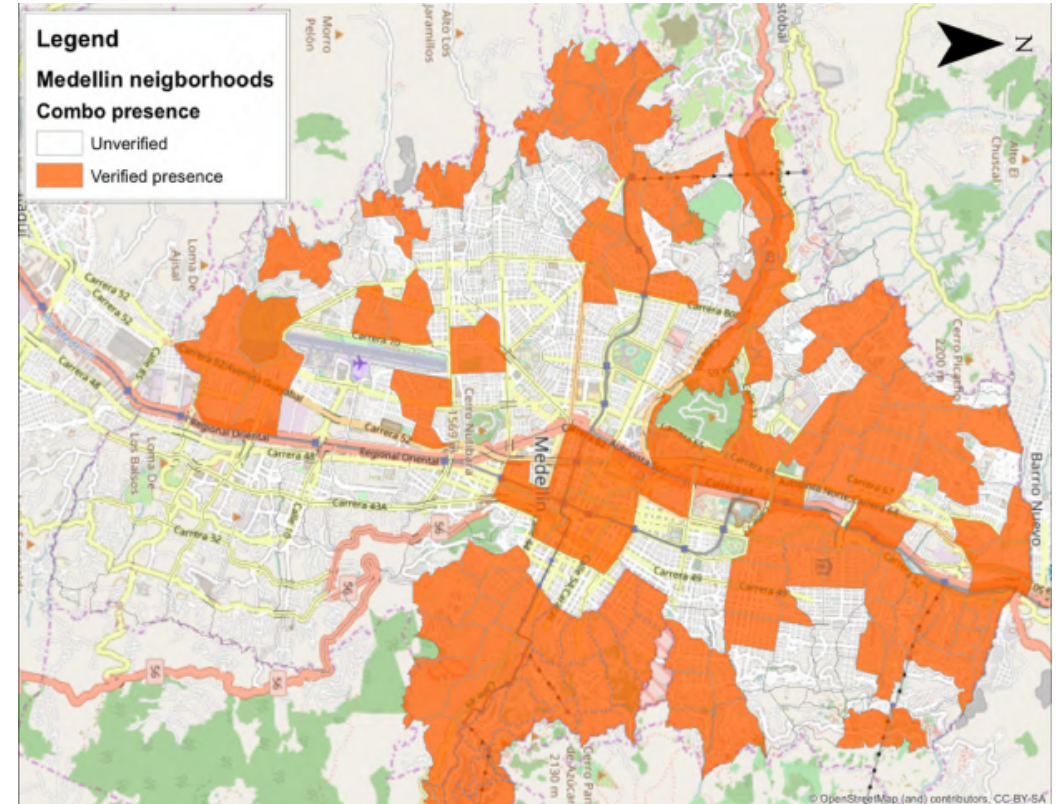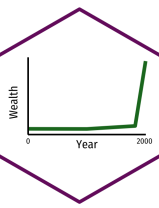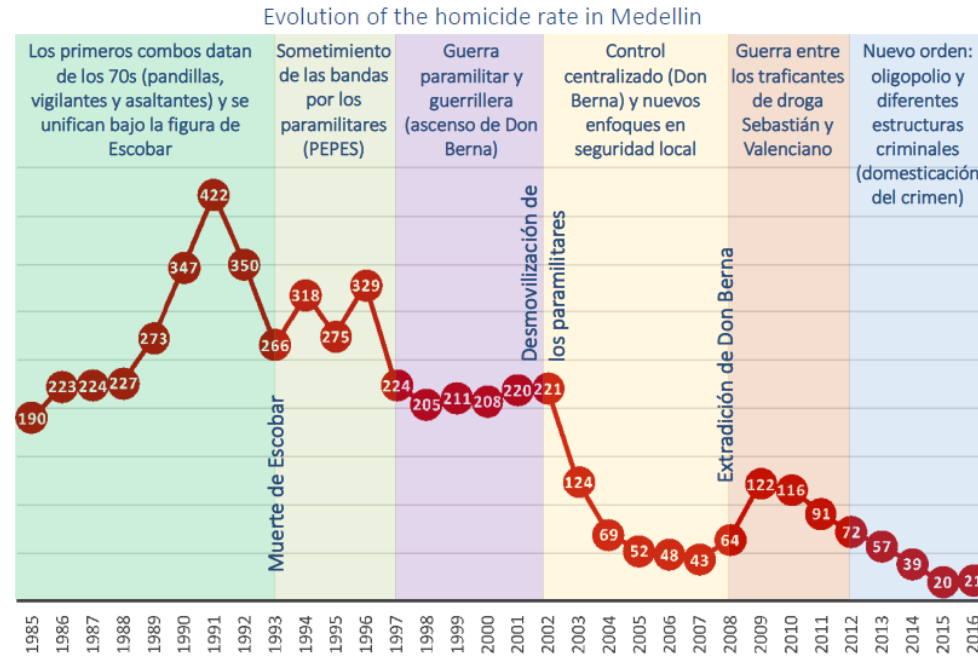 - Collecting "taxes" regularly

Blattman, Christopher, Gustavo Duncan, Benjamin Lessing, and Santiago Tobon, 2019, "Gangs of Medellin: How Organized Crime is Organized," Working Paper

Example 1: Life in Medellin, Colombia V

- Violence has been reduced and stabilized, with periodic flare ups

Evolution of the homicide rate in Medellin

Blattman, Christopher, Gustavo Duncan, Benjamin Lessing, and Santiago Tobon, 2019, "Gangs of Medellin: How Organized Crime is Organized," Working Paper
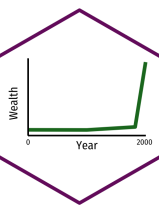
Example 1: Life in Medellin, Colombia VI

In what sense is Medellin "underdeveloped?"

Example 2: United States in the 18th-19th Century I

- On the one hand:
  - Nation founded on principles that "all men are created equal" and endowed with "unalienable rights [to] life, liberty, and the pursuit of happiness"
  - Vibrant "Town Hall" culture of civic participation in democracy and civil society
  - de Tocqueville: Americans have mastered "the art of association"
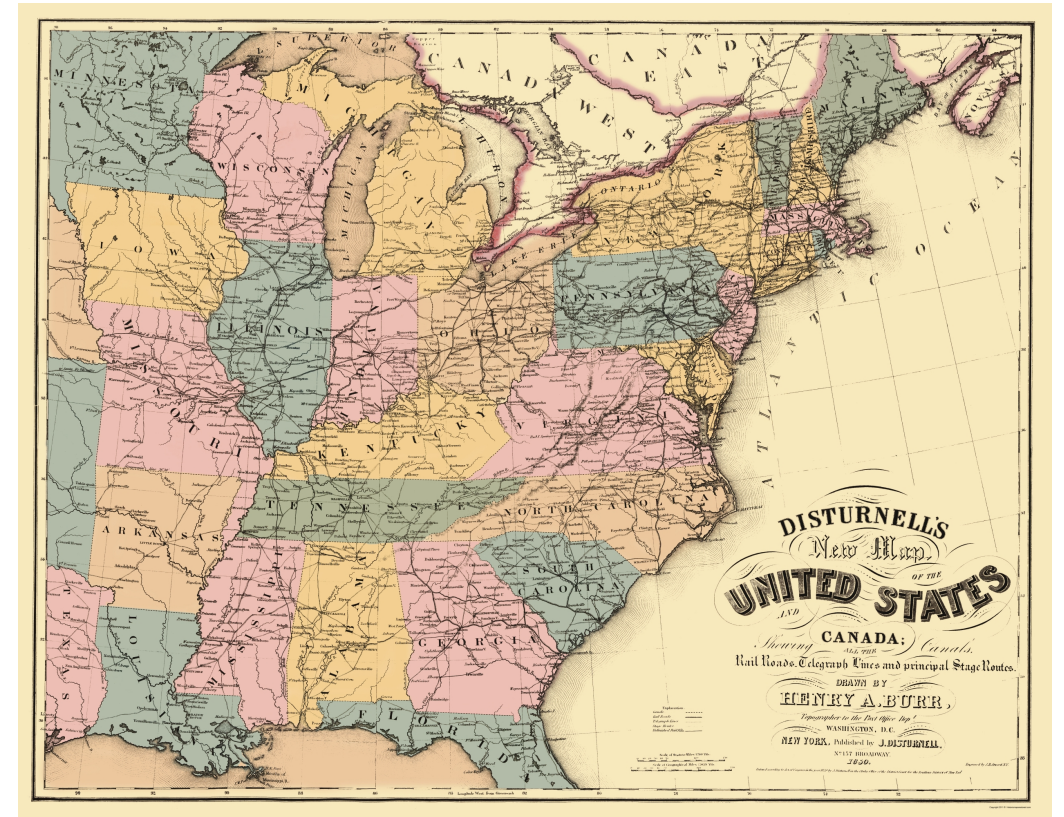
Example 2: United States in the 18th-19th Century II
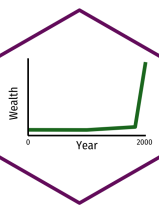
- On the other hand:
  - Revolution was led by elite land-owners, merchants, and some slave-owners
  - Voting restricted to a small number of male property owners
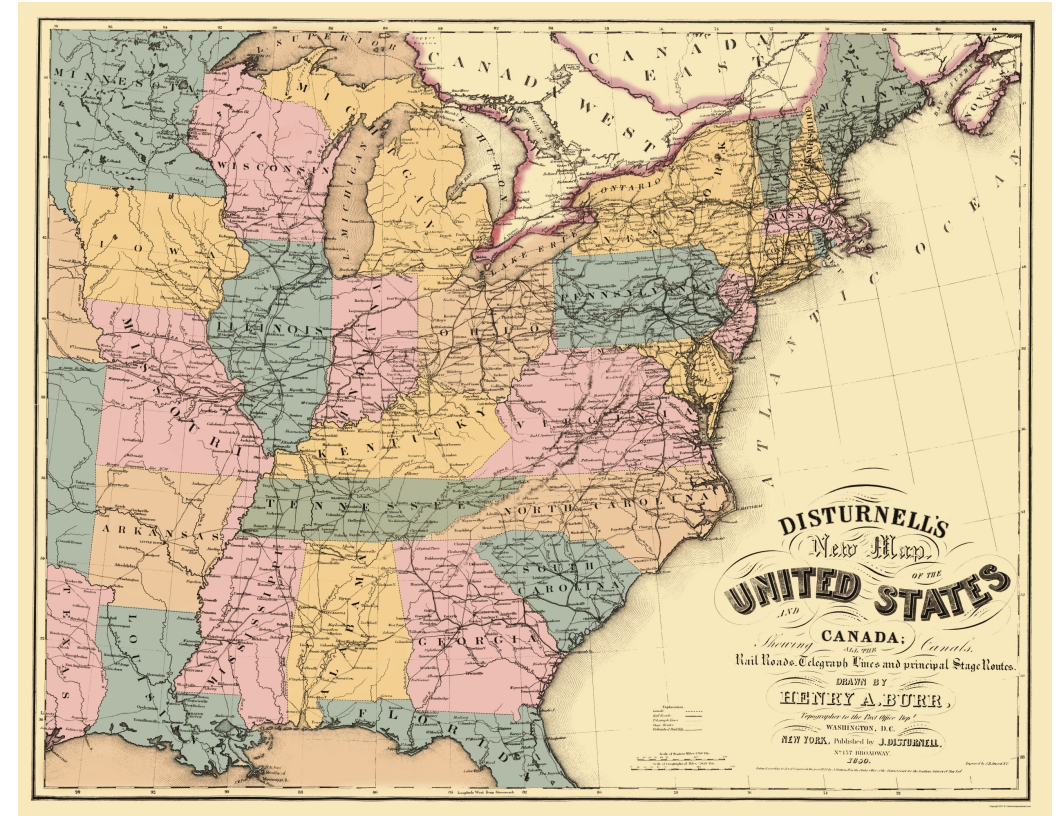
Example 2: United States in the 18ᵗʰ-19ᵗʰ Century III

U.S. Popular Vote for President as Percentage of Total Population
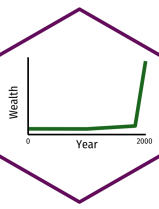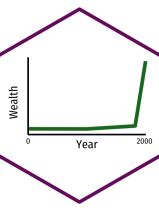
- U.S. States and Federal Government was *clientelist*[1], no *professional* bureaucracy until the Pendelton Civil Service Reform Act of 1883
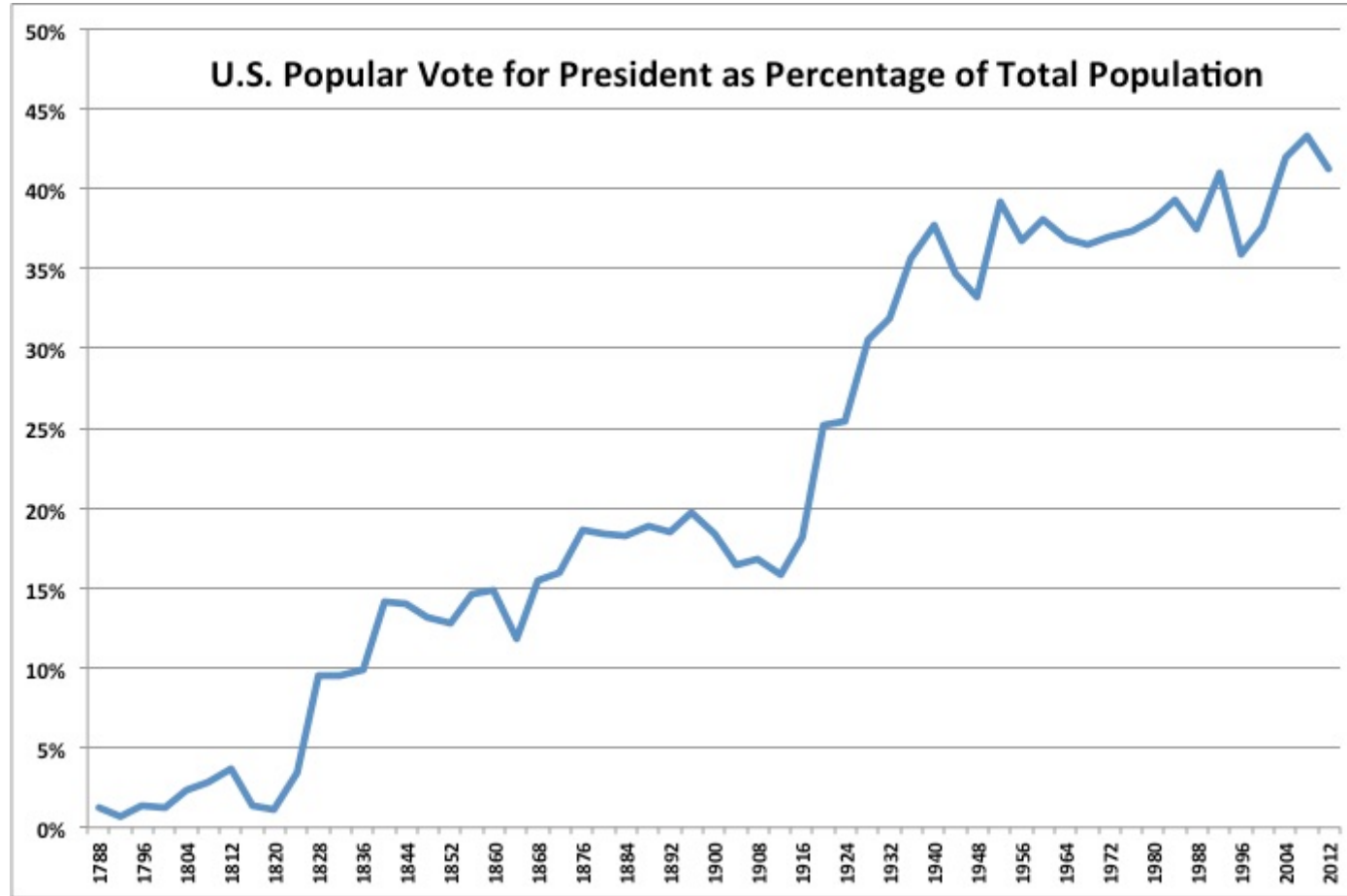
  - Political parties delegated public offices to political allies

- Cities governed by "political machines"

  - Vote buying, fraud, intimidation

[1] Also called "patronage" or "the spoils system".

"THAT'S WHAT'S THE MATTER."

BOSS TWEED. "As long as I count the Votes, what are you going to do about it? say?"

Example 2: United States in the 18th-19th Century IV
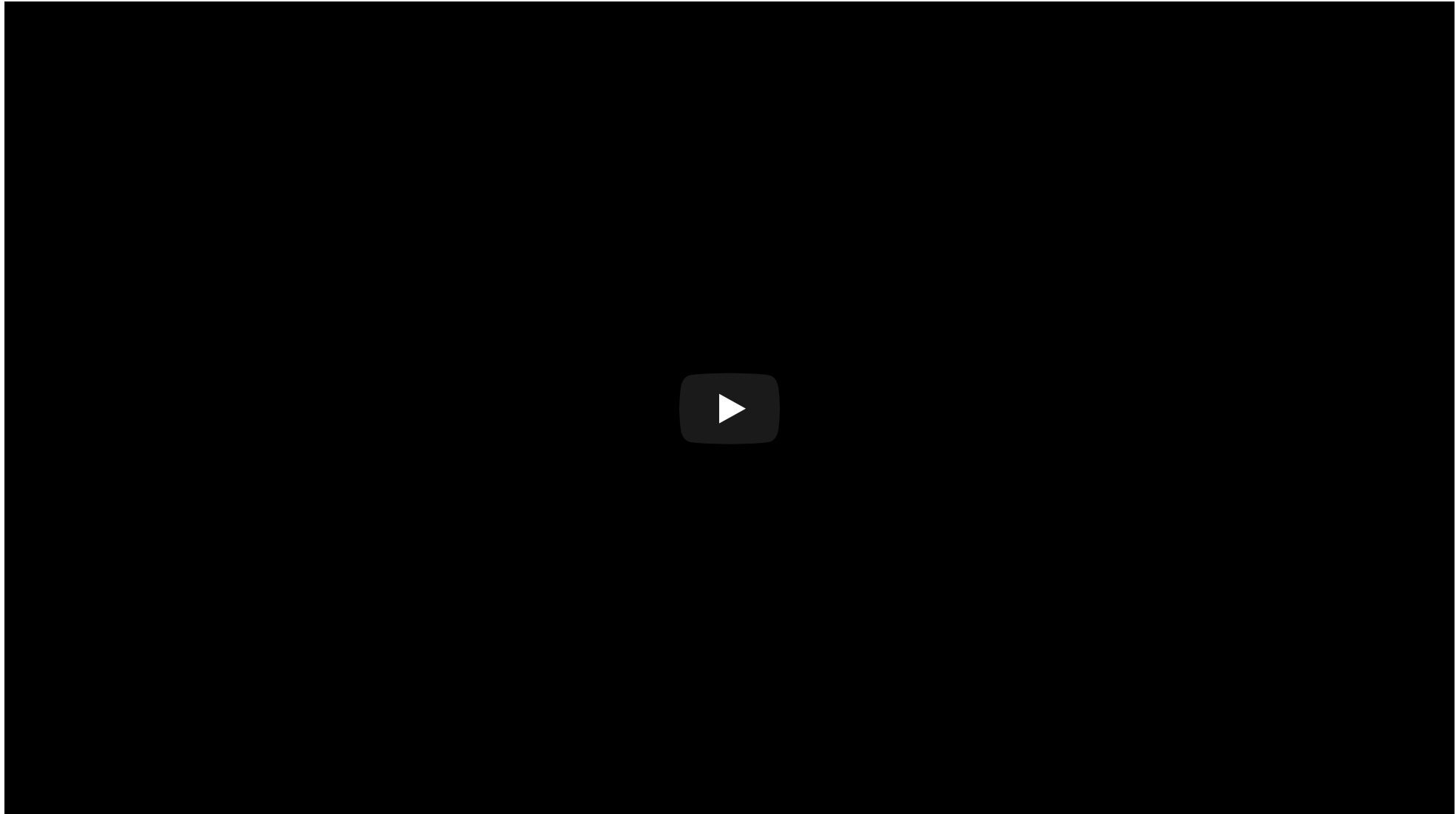
Example 2: United States in the 18th-19th Century V

George Washington Plunkitt

1842-1924

EVERYBODY is talkin' these days about Tammany men growin' rich on graft, but nobody thinks of drawin' the distinction between honest graft and dishonest graft. There's all the difference in the world between the two. Yes, many of our men have grown rich in politics. I have myself. I've made a big fortune out of the game, and I'm gettin' richer every day, but I've not gone in for dishonest graft—blackmailin' gamblers, saloonkeepers, disorderly people, etc.—and neither has any of the men who have made big fortunes in politics.

There's an honest graft, and I'm an example of how it works. I might sum up the whole thing by sayin': "I seen my opportunities and I took 'em."

Plunkitt of Tammany Hall, Ch. 1

A Hypothesis to Consider

- These are characteristics of "normal countries"

  - Middle-income, still industrializing economies
  - Endemic corruption, but can still be consistent with economic growth
    - "honest graft vs. dishonest graft?"

- Note: "normal" ≠ "good" or "just"!

- Democratic, politically free countries with open access and low corruption are a *very* new thing historically!

Political Development and Economic Development I
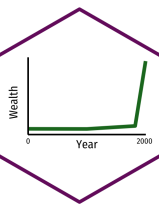
- Is a "developed country" *politically* developed?

- What does that mean? **Democracy**?

- Is democracy important for

  - economic development?
  - human flourishing?
  - (how do those two concepts overlap?)

- If not (or not only) democracy, then what?

- **state capacity**

Political Development and Economic Development II

Political Regime, 2015

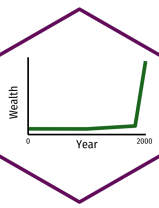The Polity IV score classifies the type of political regime for each country on a range from -10 (full autocracy) to +10 (full democracy). Regimes that fall into the middle of this spectrum are called anocracies.

No data | Colony | Autocracy (-10 to -6) | Open Anocracy (1 to 5)
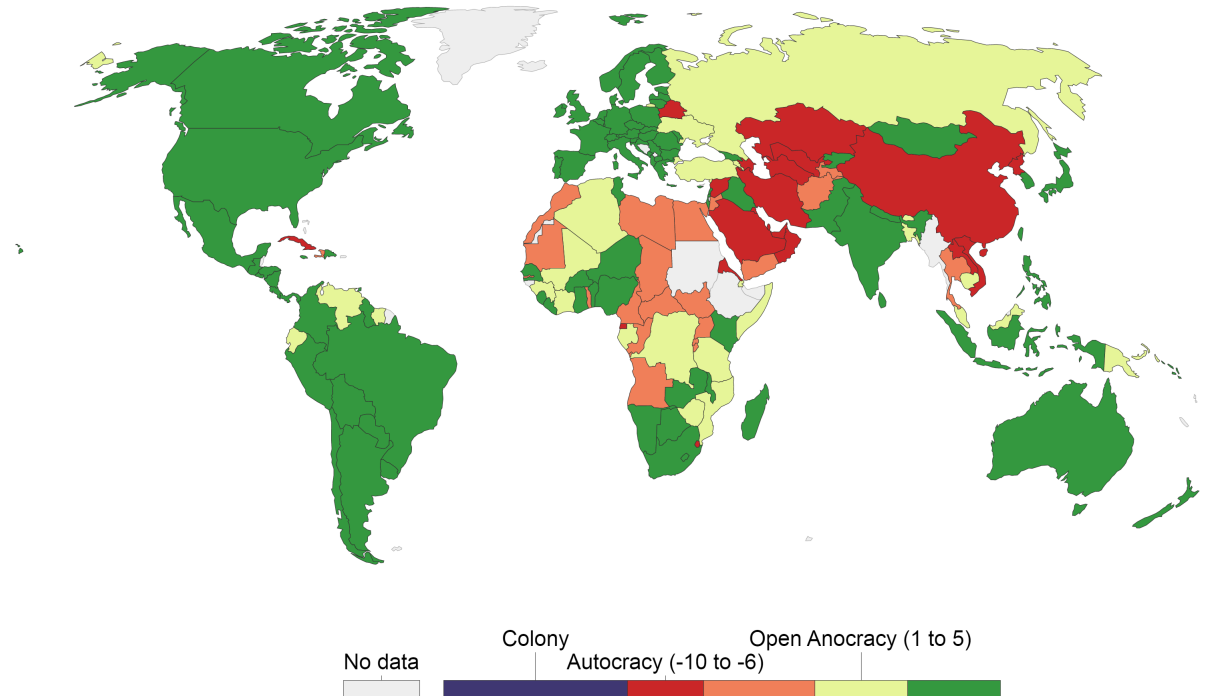
Source: Political Regime (OWID based on Polity IV and Wimmer & Min)
Note: See the linked democracy entry for some discussion of the complexity in defining democracy and the limitations of this data.

OurWorldInData.org/democracy/ • CC BY-SA

Political Development and Economic Development III

Number of democracies between 1800-2010[1]

Source: Our World in Data: Democracy

Political Development and Economic Development IV
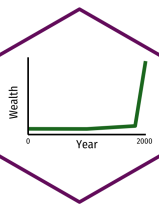
Number of world citizens living under different political regimes

The Polity IV score captures the type of political regime for each country on a range from -10 (full autocracy) to +10 (full democracy). Regimes that fall into the middle of this spectrum are called anocracies.

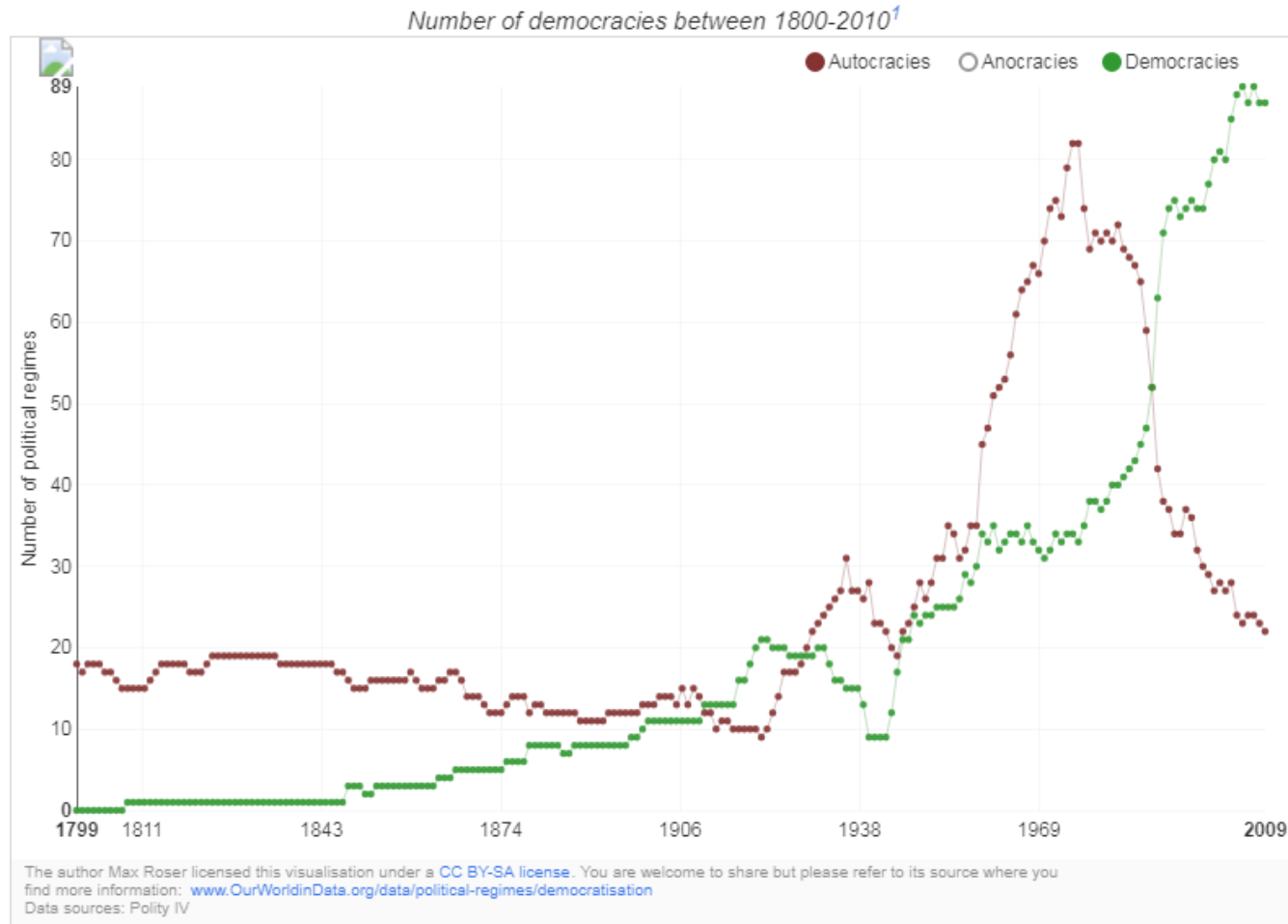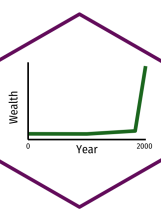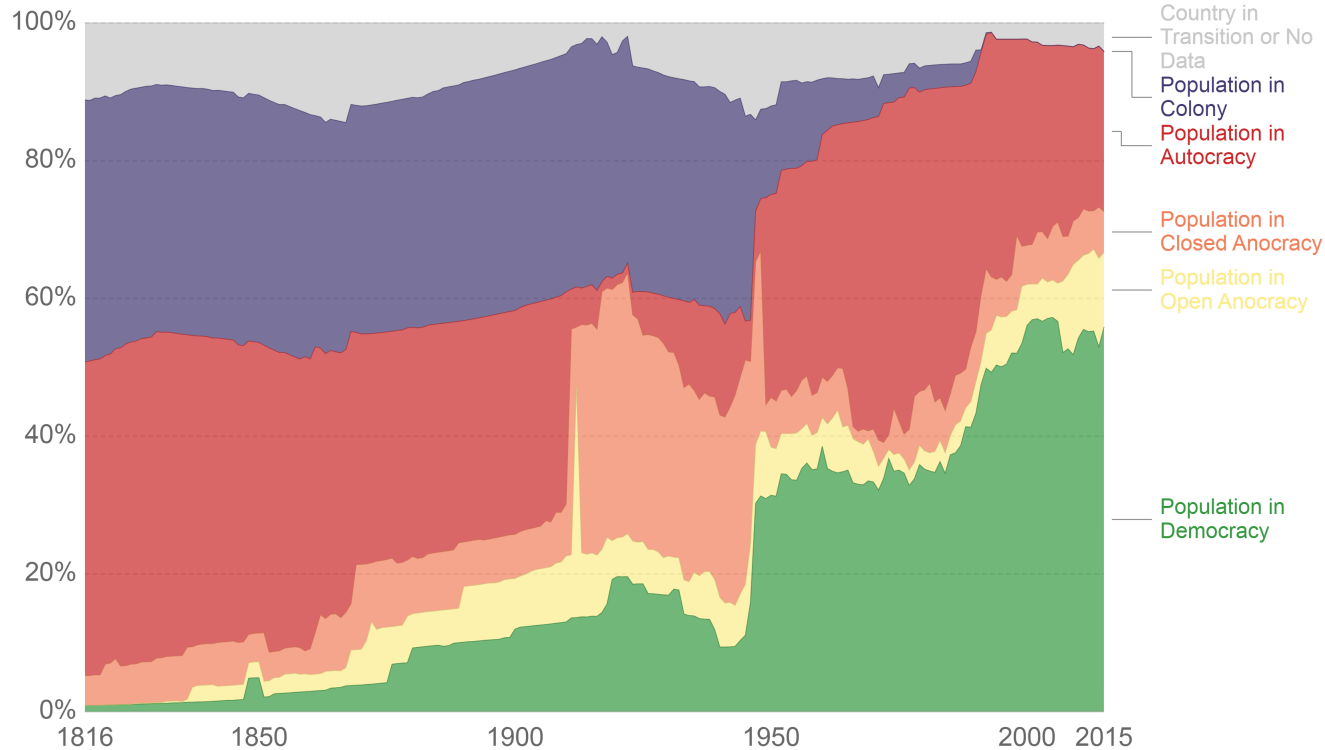Source: World Population by Political Regime they live in (OWID (2016))
OurWorldInData.org/a-history-of-global-living-conditions-in-5-charts/ • CC BY-SA

Political Development and Economic Development V
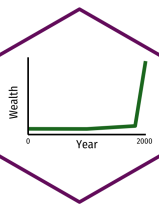
Income vs type of political regime, 2014

Political regime are classified on a range from -10 (full autocracy) to +10 (full democracy). Incomes are adjusted for price differences between countries to allow comparisons.

Legend:
- Africa
- Asia
- Europe
- North America
- Oceania
- South America
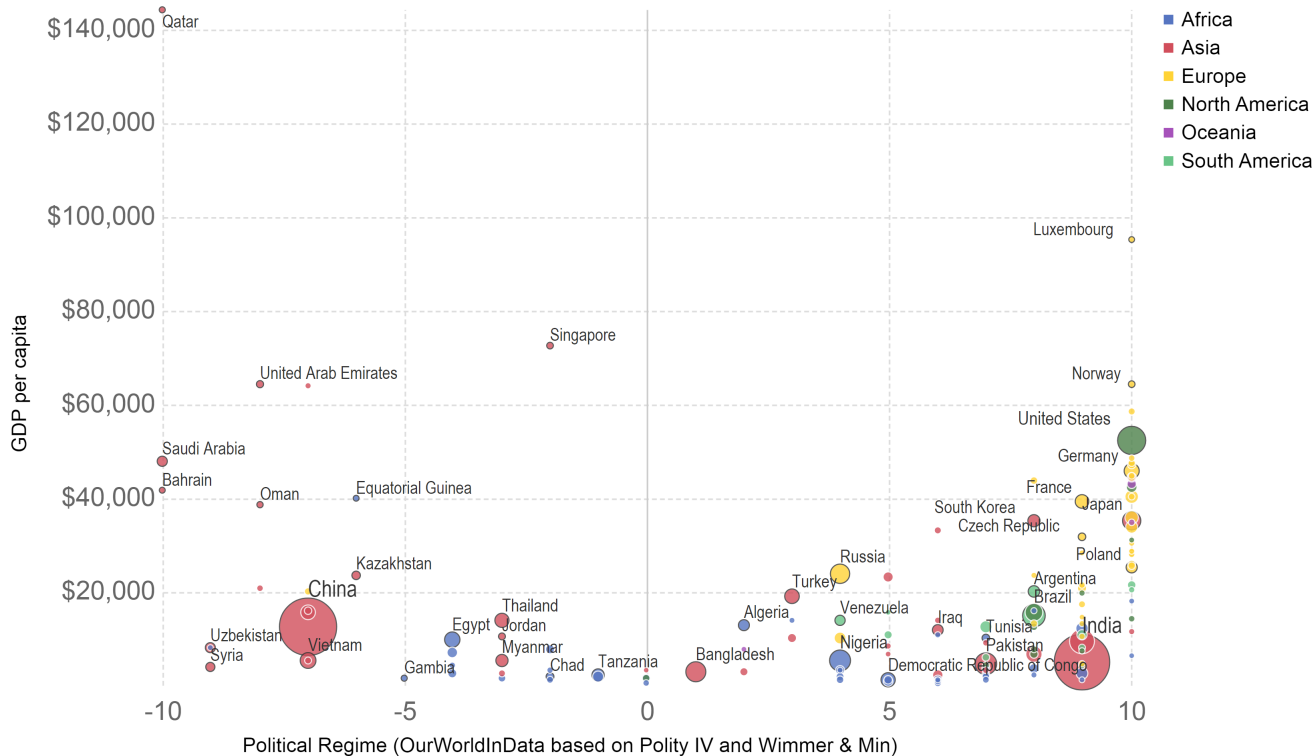
Source: GDP per capita, Political Regime (OWID based on Polity IV and Wimmer & Min)

OurWorldInData.org/democracy/ • CC BY-SA

Political Development and Economic Development VI

FREEDOM IN THE WORLD 2018

Status	Countries
FREE	88
PARTLY FREE	58
NOT FREE	49
Total	**195**

Freedom in the World 2018 assessed 195 countries around the globe.

FREE   PARTLY FREE   NOT FREE

www.freedomhouse.org

Freedom House, 2018, Freedom of the World
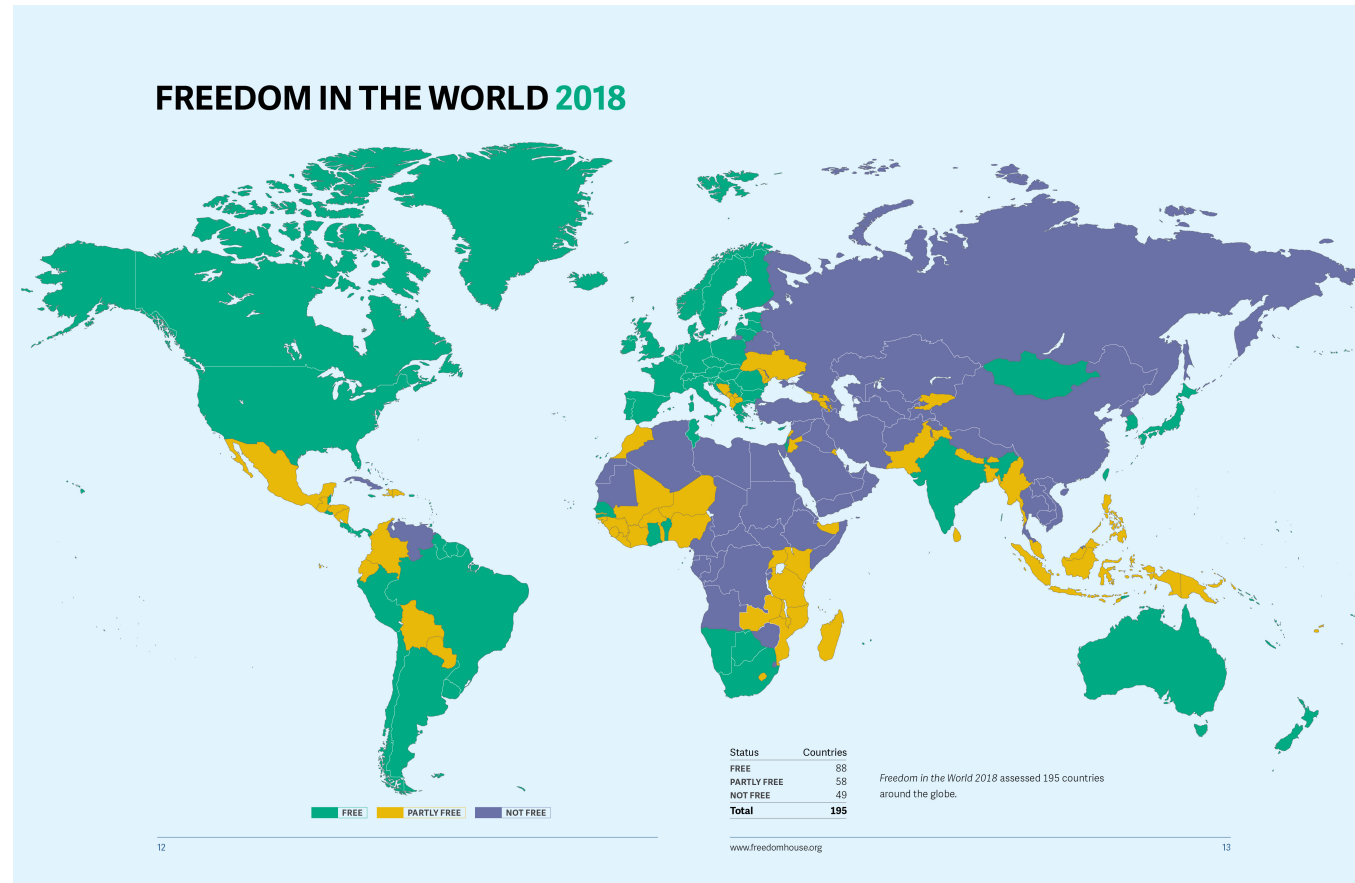
Political Development and Economic Development VII
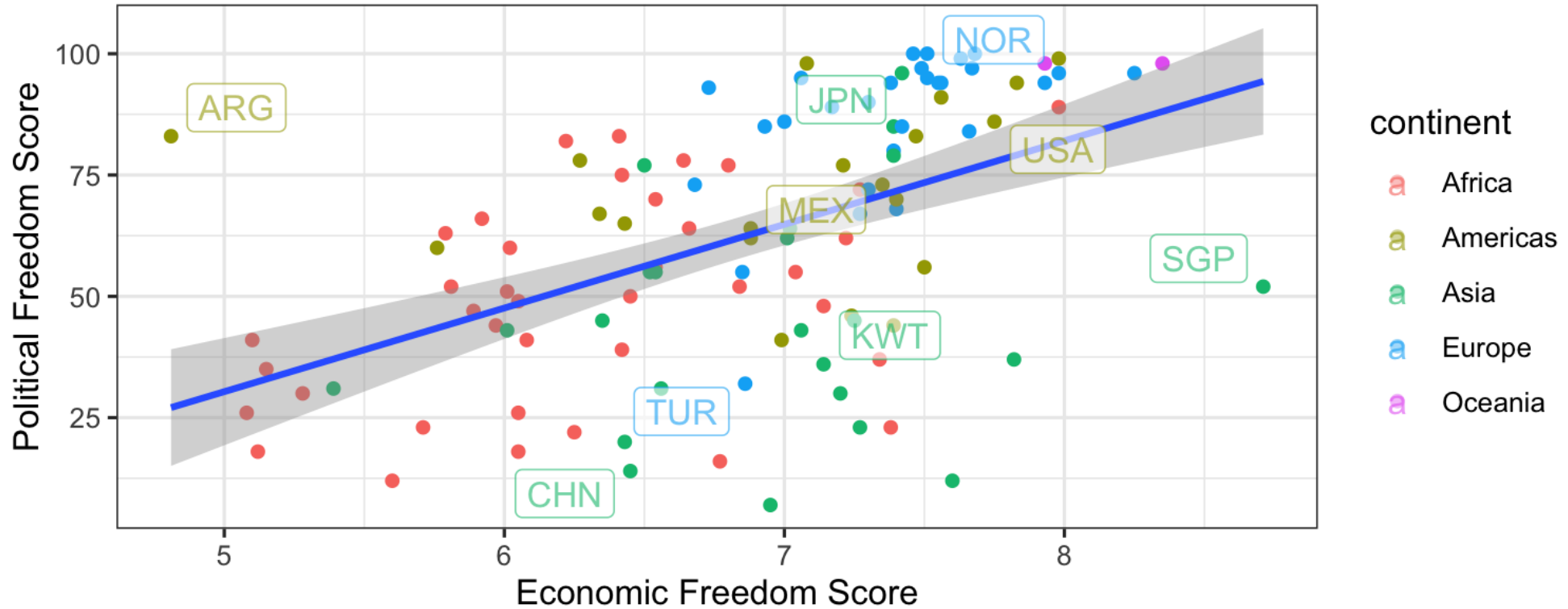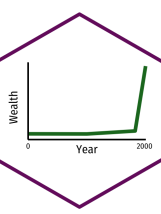
Sources: Frasier Institute, Freedom House

Economic Freedom Score (2016) from Fraser Institute Data; Political Freedom Score from Freedom House Data

Political Development and Economic Development VIII
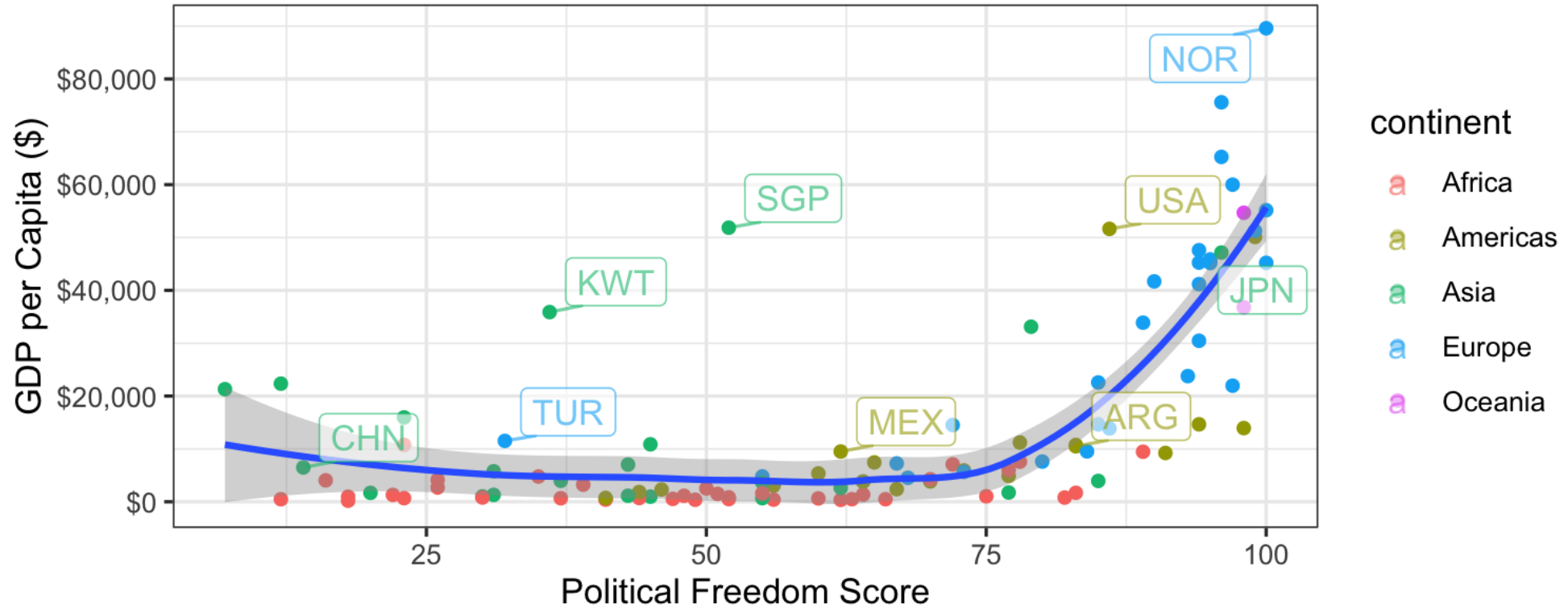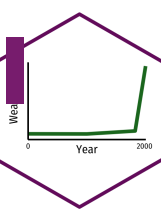
Sources: Gapminder, Freedom House

GDP per Capita (2018) from Gapminder; Political Freedom Score from Freedom House Data
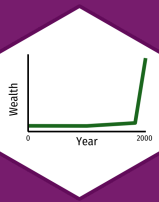
Measuring *Economic* Development

What Do We Care About?
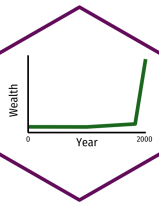
Among the major things, macroeconomists care about:

1. **Economic growth** (rising GDP)

2. **A large working population** (low unemployment rate)

3. **Stable purchasing power** (low inflation rate)

The three most common *macroeconomic* measures of an economy's performance

We Might Also Care About...
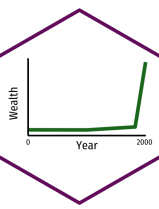
- Wealth (in)equality

- Health outcomes

- Life quality/satisfaction

- Environmental quality

- Political stability

- Low corruption

- Human and civil rights (especially for minority groups)

GDP
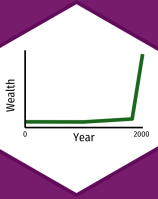
Gross Domestic Product (GDP)

- **Gross Domestic Product (GDP)**: market value of all final goods and services produced within a country in a year
  - market value, measured in current prices (dollars, euros, yen, etc.)
  - final goods and services
    - Avoid double-counting intermediate goods
    - Sales of used goods not included
  - produced within a year (new things only, nothing old)
  - measured within an individual country (inside the borders)
    - includes foreign nationals living here

Gross Domestic Product (GDP)

- **Gross Domestic Product (GDP)**: the market value of all final goods and services produced within a country in a year

$$Y = C + I + G + NX$$

- Y: national income
- C: consumption
- I: investment
- G: government spending
- NX: net exports $=$ exports $(X)-$imports (M)

GDP in the U.S.

Table 1.1.5. Gross Domestic Product

[Billions of dollars] Seasonally adjusted at annual rates

Last Revised on: September 27, 2018 - Next Release Date October 26, 2018

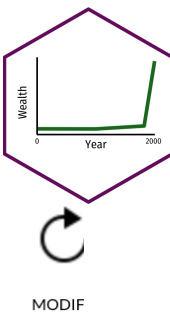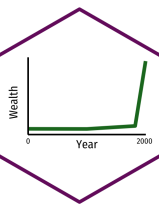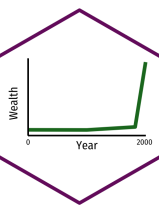| Line		2016				2017				2018	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	**Gross domestic product**	**18,409.1**	**18,640.7**	**18,799.6**	**18,979.2**	**19,162.6**	**19,359.1**	**19,588.1**	**19,831.8**	**20,041.0**	**20,411.9**
2	**Personal consumption expenditures**	**12,526.5**	**12,706.5**	**12,845.2**	**12,989.4**	**13,114.1**	**13,233.2**	**13,359.1**	**13,579.2**	**13,679.6**	**13,875.6**
3	Goods	3,932.2	3,990.3	4,013.9	4,048.8	4,090.4	4,117.1	4,166.0	4,250.9	4,267.7	4,329.5
4	Durable goods	1,323.7	1,336.3	1,357.7	1,368.7	1,375.6	1,393.4	1,411.2	1,445.7	1,434.5	1,458.7
5	Nondurable goods	2,608.5	2,654.0	2,656.3	2,680.1	2,714.8	2,723.7	2,754.8	2,805.2	2,833.2	2,870.8
6	Services	8,594.3	8,716.2	8,831.2	8,940.6	9,023.7	9,116.1	9,193.1	9,328.3	9,411.9	9,546.1
7	**Gross private domestic investment**	**3,142.1**	**3,152.2**	**3,157.7**	**3,227.6**	**3,278.6**	**3,337.9**	**3,413.9**	**3,441.4**	**3,543.8**	**3,579.5**
8	Fixed investment	3,094.1	3,127.1	3,157.2	3,185.4	3,270.6	3,320.8	3,358.5	3,420.0	3,507.4	3,589.9
9	Nonresidential	2,409.8	2,435.6	2,458.4	2,464.7	2,525.2	2,576.7	2,607.0	2,642.6	2,720.3	2,791.4
10	Structures	531.2	539.7	555.1	556.7	577.5	588.3	585.3	590.6	614.9	644.1
11	Equipment	1,092.8	1,091.4	1,090.2	1,089.3	1,112.3	1,137.4	1,162.8	1,189.1	1,212.6	1,228.8
12	Intellectual property products	785.8	804.5	813.2	818.7	835.4	850.9	858.9	862.9	892.7	918.6
13	Residential	684.2	691.5	698.8	720.8	745.5	744.1	751.5	777.4	787.2	798.5
14	Change in private inventories	48.0	25.1	0.5	42.1	8.0	17.1	55.4	21.5	36.3	-10.4

Bureau of Economic Analysis: GDP Interactive Table
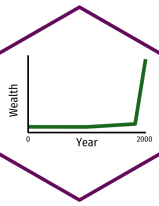
Gross National Income

- **Gross National Income (GNI)**[1]: market value of all final goods and services produced by resources owned by a country's citizens both at home *and* abroad

  - i.e. take GDP and add production by Americans *living abroad*

- Comparing GDP to GNP shows how much a nation's citizens' wealth comes from domestic vs. international sources

[1] This used to be called Gross National Product (GNP).

GDP per Capita

- GDP/GNI is a rough measure
  - If a tiny country and a large country have the same GDP, who is better off?
  - Want to weight GDP by the size of a country

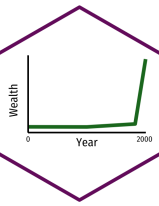- **GDP per capita** is a measure of **income per person**[1]:

$$\text{GDP per capita} = \frac{\text{Gross Domestic Product}}{\text{Population}}$$

- A better measure of how the "average" person is doing in a country
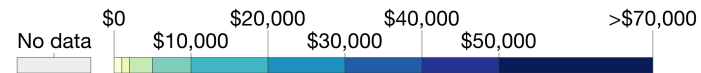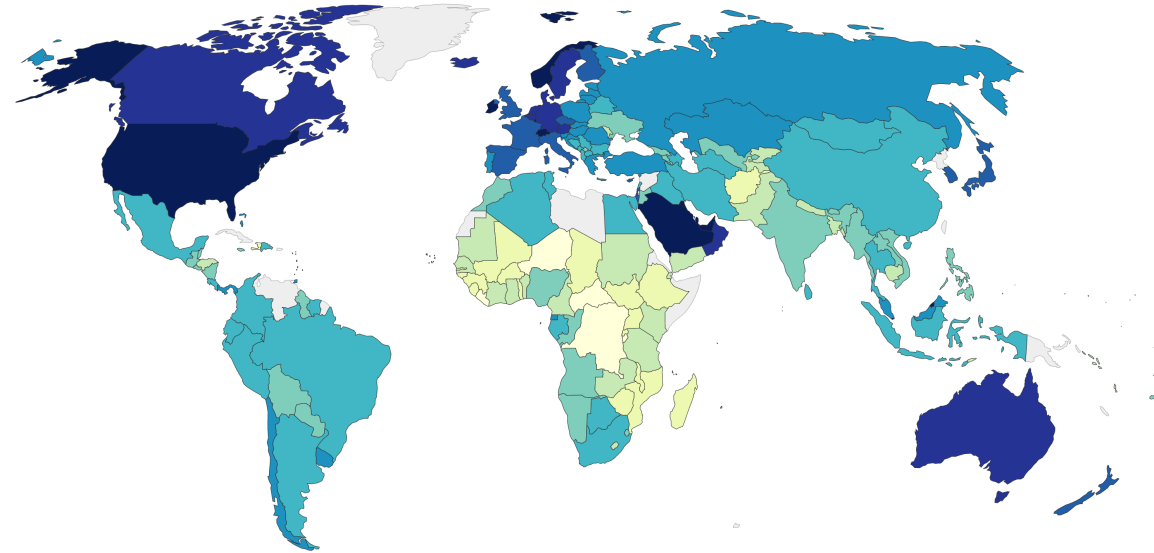
[1] Capita means person.
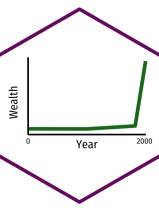
GDP per Capita II

World Bank data: GDP per capita

GDP per capita is adjusted for price changes over time and between countries. It is expressed in constant 2011 international dollars.

| No data | $0 | $10,000 | $20,000 | $30,000 | $40,000 | $50,000 | >$70,000 |

Source: World Bank – WDI

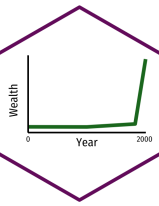OurWorldInData.org/economic-growth • CC BY-SA

Country "Income Levels"

The World Bank defines as of 1 July 2018 countries as being:

Income level	GNI per capita
High income	$> 12,055$
Upper-middle income	$3,896 - 12,055$
Middle income	$996 - 3,895$
Low income	≤ 995

Country "Income Levels" II

Number of countries have grown within the high income category and reduced in low income category
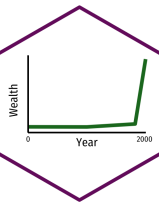
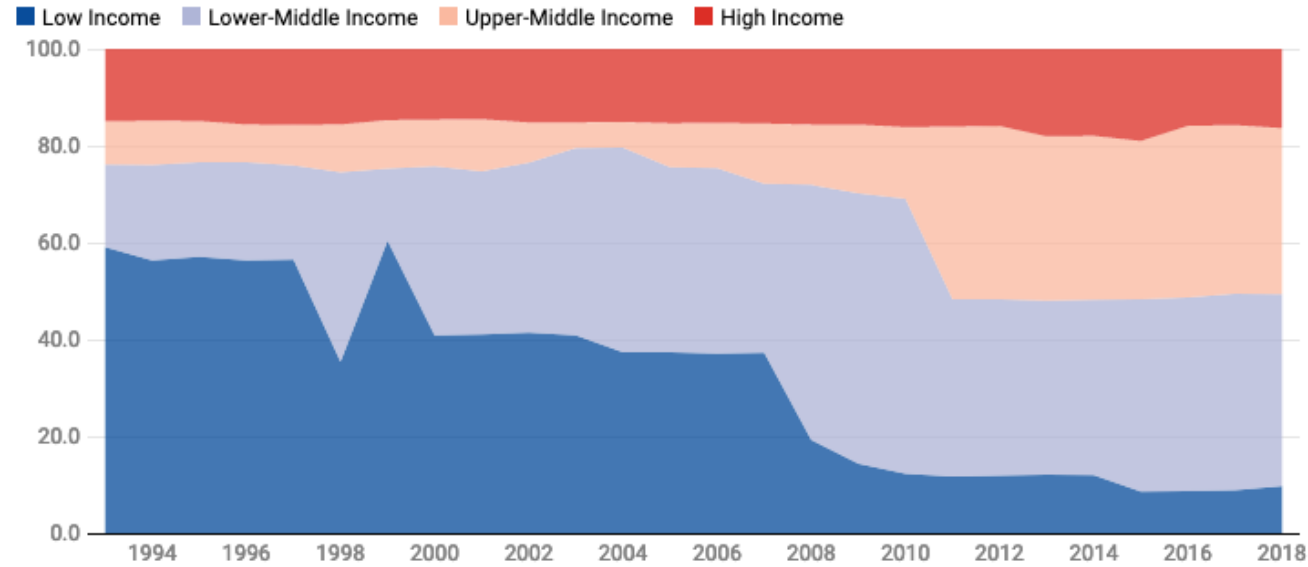Number of countries by region, 1993-2018
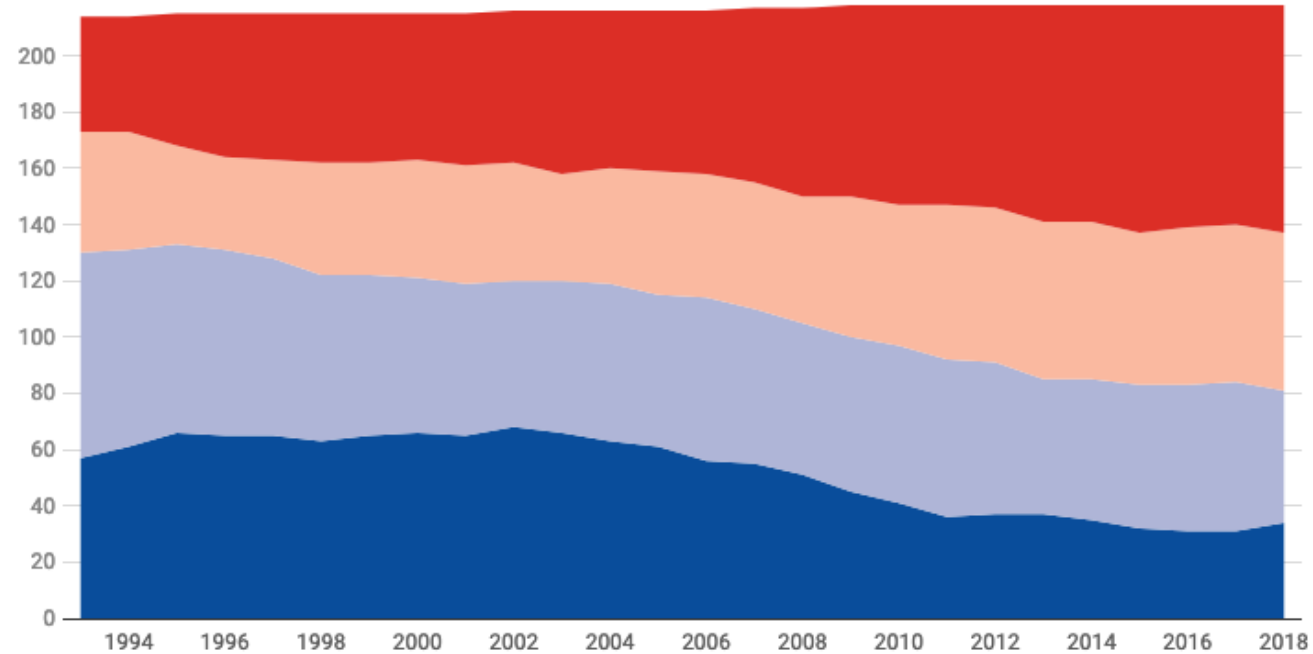
Source: World Development Indicators

Country "Income Levels" III

World population by income classification over the years

Population by income group, 1993-2018 (% of total)

■ Low Income   ■ Lower-Middle Income   ■ Upper-Middle Income   ■ High Income

Source: World Development Indicators (SP.POP.TOTL)

Source: World Bank

Comparing Across Countries I
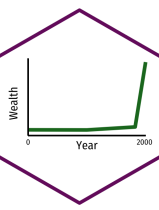
- To compare GDP across countries that use different currencies (e.g. Pounds, Euros, Yen, Yuan), we need a **common denominator** by using an **exchange rate** between currencies

- **Exchange Rates** express the amount of one currency needed to convert to 1 unit of another
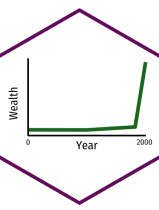
Comparing Across Countries I

- To compare GDP across countries that use different currencies (e.g. Pounds, Euros, Yen, Yuan), we need a **common denominator** by using an exchange rate between currencies

- **Exchange Rates** express the amount of one currency needed to convert to 1 unit of another

Example:

$$0.88 \text{ EUR} : 1 \text{ USD}$$

$$0.78 \text{ GBP} : 1 \text{ USD}$$

$$1.30 \text{ CAD} : 1 \text{ USD}$$
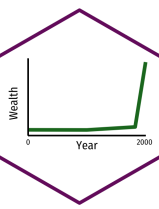
Comparing Across Countries II

- To calculate another country's GDP in US Dollars:

$$\text{Other Country's GDP in USD} = \frac{\text{Other Country's GDP in Local Currency}}{\text{Exchange Rate for 1 USD}}$$
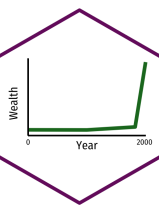
Comparing Across Countries: Example

Example: Great Britain's GDP in 2018 is £2.307 trillion GBP. One USD ($) exchanges for 0.88 pounds sterling (£). Calculate British GDP in US Dollars.

$$\text{Britain's GDP in USD} = \frac{£2.307 \text{ trillion}}{£0.88/\$1}$$
$$= \$2.622 \text{ trillion}$$

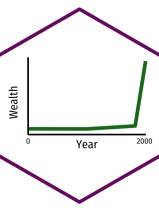# Purchasing Power Parity (PPP) I

- Economists hypothesize that once converted to a common currency, prices should be roughly identical across countries, i.e. there should be **purchasing power parity**

e.g. whether you buy using Dollars in US or Euros in EU, you should get the same amount of goods on average
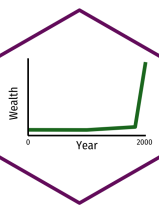
Purchasing Power Parity (PPP) II

- PPP is essentially an argument about **arbitrage** and the **law of one price**

Example: Suppose a sweater in the U.S. costs 50 USD.

- Suppose the exchange rate is 100 YEN: 1 USD
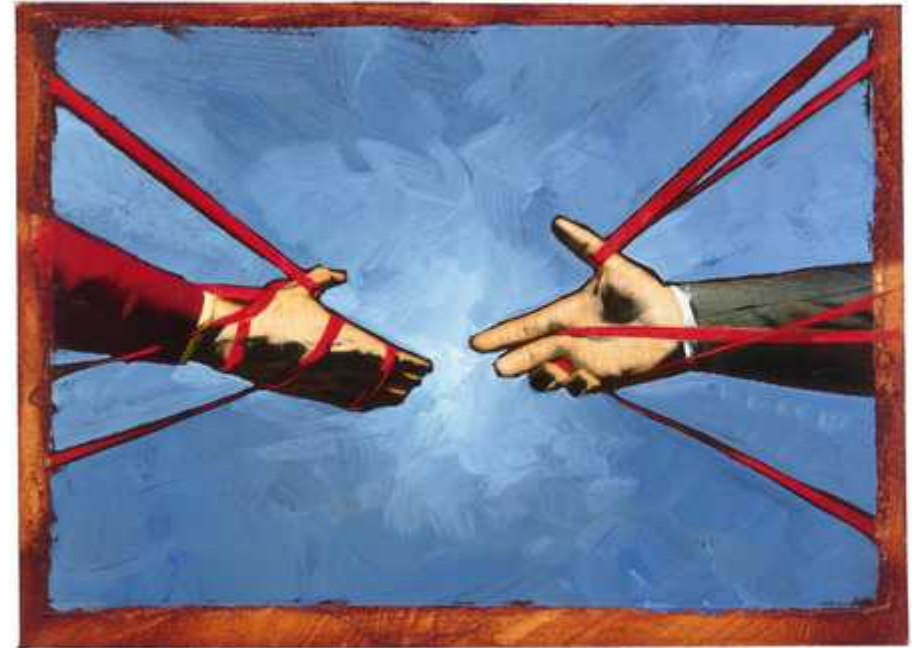
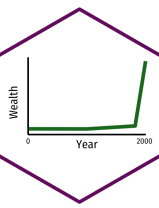- Then the price of the same sweater in Japan should be 5000 YEN

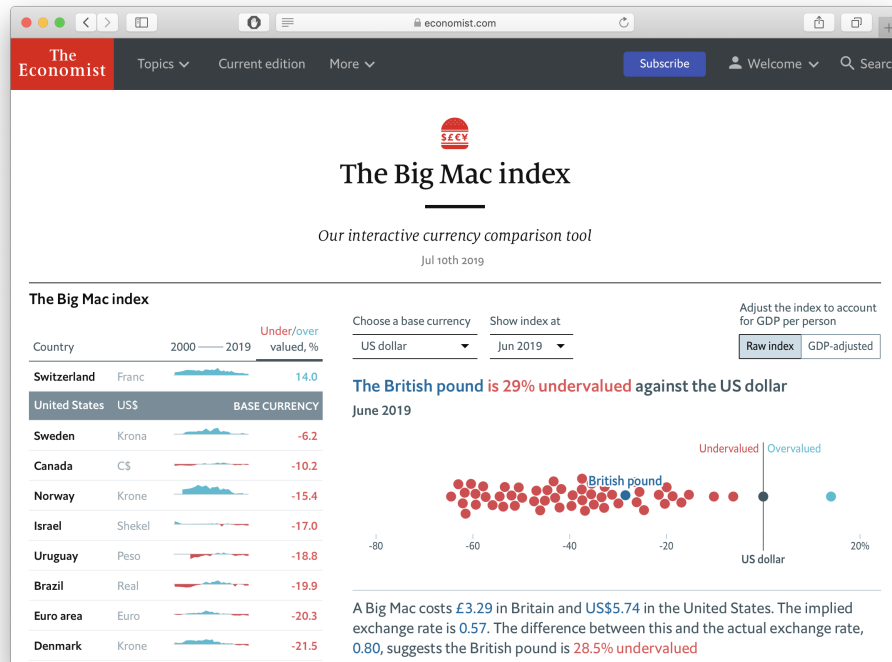# Purchasing Power Parity (PPP) II

- Ah, but transaction costs!

  - Transportation costs
  - Non-tradeable or transportable goods
  - Services?
  - Differences in institutions, culture, property rights
  - Baumol's "cost disease"

- Example: A haircut of similar quality in Norway is $65, $5 in Mexico, and $1 in India

Purchasing Power Parity (PPP) III

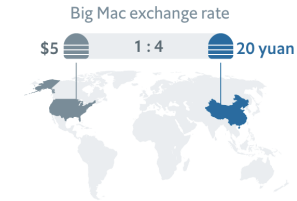## The Economist: Big Mac Index

How it works

Purchasing-power parity implies that exchange rates are determined by the value of goods that currencies can buy

Differences in local prices – in our case, for Big Macs – can suggest what the exchange rate should be

Raw index / GDP-adjusted

Using burgernomics, we can estimate how much one currency is under- or over-valued relative to another

Purchasing Power Parity (PPP) IV

- Economists often use the Geary-Khamis dollar, aka the "**international dollar**" as the standard hypothetical unit

  - The purchasing power of a US Dollar at a specified year, such as the *2000 US Dollar*

- Again, main purpose is to make accurate comparisons of measures such as GDP per capita across countries

Quantifying Changes I

- Several ways we can talk about how a measure **changes** over time, from time $t_1 \rightarrow t_2$

- **Difference** (Δ): the difference between the value at time t_1 and time t_2

$$\Delta t = t_2 - t_1$$

Quantifying Changes II

- Several ways we can talk about how a measure **changes** over time, from time $t_1 \rightarrow t_2$

- **Difference** (Δ)**:** the difference between the value at time t_1 and time t_2
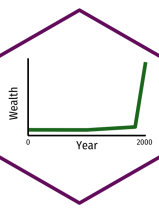
$$\Delta t = t_2 - t_1$$

- **Relative Difference**: the difference expressed **in terms of the original value**

$$\frac{\Delta t}{t_1} = \frac{t_2 - t_1}{t_1}$$

this becomes a proportion (a decimal)

Quantifying Changes III

- **Percentage Change (Growth Rate)**: **relative** difference expressed as a **percentage**

$$\%\Delta = \frac{\Delta t}{t_1} \times 100\%$$

$$= \frac{t_2 - t_1}{t_1} \times 100\%$$

A Simple Example Growth Rate

Example: A country's GDP is $100bn in 2019, and $120bn in 2020. Calculate the country's GDP growth rate for 2020:

GDP Growth Rates
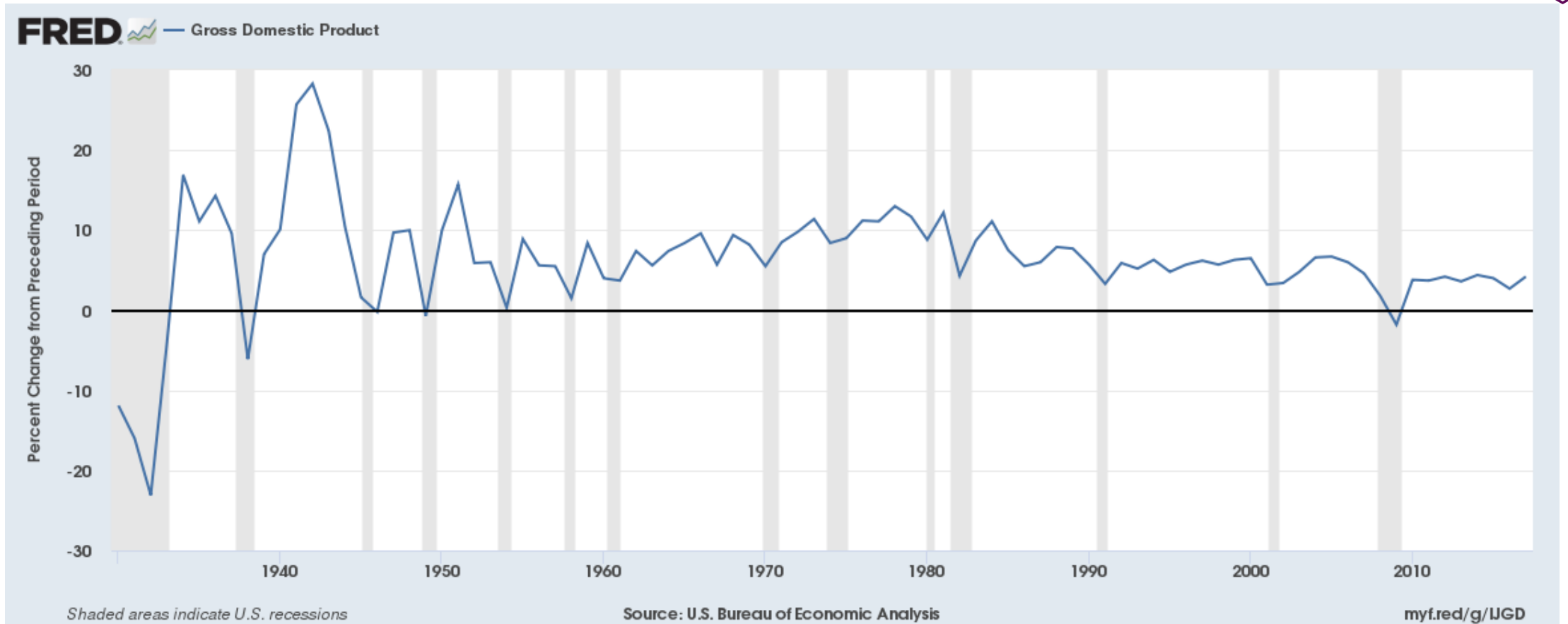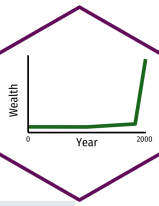
[Federal Reserve Economic Data: GDP Growth Rate](#)

The Rule of 72 I
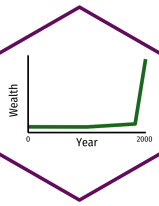
- A good **rule of thumb**: years for economy to *double*

$$= \frac{72}{\text{GDP Growth Rate}}$$

- This is known as the **Rule of 72**[*]

[*] Different people use other numbers, like 70. The point is more to make mental calculations easily rather than accurately.

The Rule of 72 II
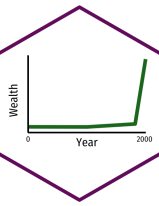
Example:

- If our economy is growing at **2% per year**, the economy doubles in $\frac{72}{2} = 36$ years

The Rule of 72 II

Example:

- If our economy is growing at **2% per year**, the economy doubles in $\frac{72}{2} = 36$ years

- If our economy is growing at **3% per year**, the economy doubles in $\frac{72}{3} = 24$ years

The Rule of 72 II

Example:

- If our economy is growing at **2% per year**, the economy doubles in $\frac{72}{2} = 36$ years

- If our economy is growing at **3% per year**, the economy doubles in $\frac{72}{3} = 24$ years

- If our economy is growing at **4% per year**, the economy doubles in $\frac{72}{4} = 18$ years

The Rule of 72 II
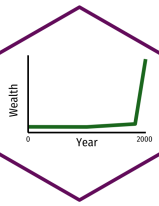
Example:

- If our economy is growing at **2% per year**, the economy doubles in $\frac{72}{2} = 36$ years
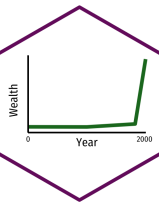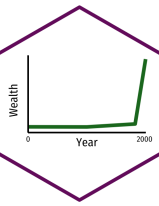
- If our economy is growing at **3% per year**, the economy doubles in $\frac{72}{3} = 24$ years

- If our economy is growing at **4% per year**, the economy doubles in $\frac{72}{4} = 18$ years

- If our economy is growing at **6% per year**, the economy doubles in $\frac{72}{6} = 12$ years

The Rule of 72 III

- Growth rates are **unbelievably** important!

- It makes *all the difference in the world* if we grow at 2% vs. 3% per year

  - Our economy would double in size in 36 vs. 24 years!

- More importantly, growth compounds!

  - A 2% increase from 100 is an increase of 2
  - A 2% increase from 1000 is an increase of 20!

The Rule of 72 IV

Example: Suppose 2 countries start with the same GDP of $1 Trillion

- Country A grows at 2% per year

- Country B grows at 4% per year

- After 72 years:

    - Country A doubles twice ($4 Trillion)
    - Country B doubles four times ($16 Trillion)
        - Country B is 4x as wealthy as Country A!

Limitations of GDP: Things Not Measured
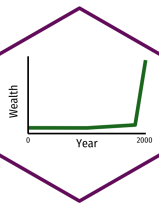
- GDP is a good but (like every other measure) an imperfect measure for social welfare and standard of living

- Things *NOT* included in GDP:

  - Increase in leisure time
  - Social media, digital networks (aside from advertising)
  - Increase in nonmarket or domestic activities (housework, unpaid child care)

Limitations of GDP: Quality Improvements?
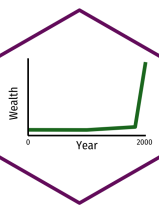
- How do we measure improvements in quality, or new innovations?

Limitations of GDP: Shadow Economies I

- GDP by definition cannot measure the **shadow economy** or the "**informal sector**"

- A major component of developing countries' economies

- Staggering numbers, % of recorded GDP:

  - Nigeria 1989-1990: 76%
  - Thailand 1989-1990: 71%
  - Russia 1994-1995: 41%
  - Norway 1989-1990: 9%

Limitations of GDP: Shadow Economies II

- Don't just think crime, drugs, and human trafficking!

- For various reasons, many citizens of many countries do not have access to legal markets for goods and services

- Resort to **informal economies** and **black markets** to exchange goods and services

Limitations of GDP: Shadow Economies II

A typical grocery store in Vilnius, Soviet-controlled Lithuania, 1990

The list of scarce items is practically endless. They are not permanently out of stock, but their appearance is unpredictable...Leningrad can be overstocked with cross-country skis and yet go several months without soap for washing dishes. In the Armenian capital of Yerevan, I found an ample supply of accord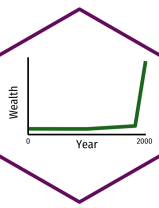ians but local people complained that they had gone for weeks without ordinary kitchen spoons or tea samovars. I knew a Moscow family that spent a frantic month hunting for a child's potty while radios were a glut on the market...

In an economy of chronic shortages and carefully parceled-out privileges, blat is an essential lubricant of life. The more rank and power one has, the more blat one normally has ... each has access to things or services that are hard to get and that other people want or need.

Limitations of GDP: Shadow Economies III

FP Foreign Policy
TUESDAY, OCTOBER 1, 2013
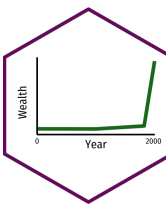
▶ **EXCERPT**   PRINT | TEXT SIZE ▬ ➕ | EMAIL | REPRINTS | SINGLE PAGE

The Shadow Superpower

Forget China: the $10 trillion global black market is the world's fastest growing economy -- and its future.
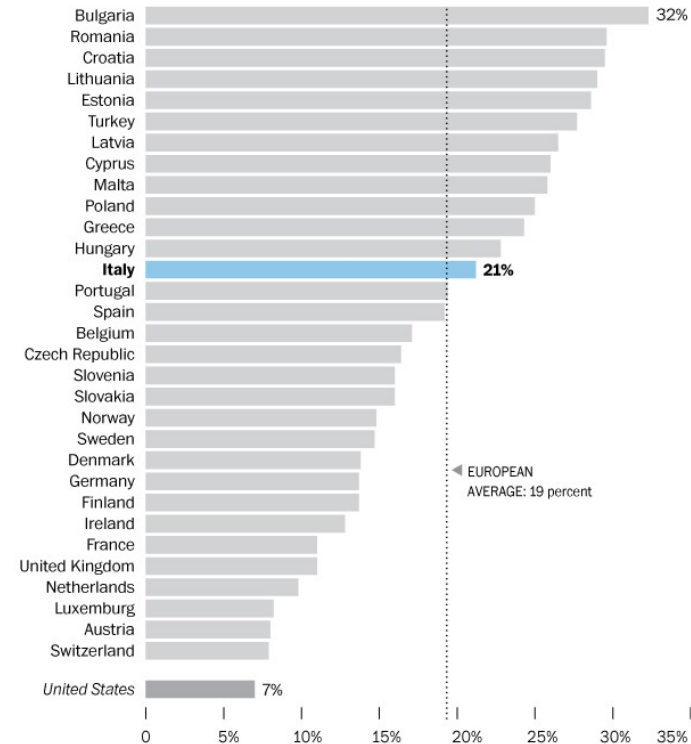
BY ROBERT NEUWIRTH | OCTOBER 28, 2011

SIZE OF EUROPEAN SHADOW ECONOMIES, 2011
(as percentage of GDP)

Country	Percentage
Bulgaria	32%
Romania	
Croatia	
Lithuania	
Estonia	
Turkey	
Latvia	
Cyprus	
Malta	
Poland	
Greece	
Hungary	
Italy	**21%**
Portugal	
Spain	
Belgium	
Czech Republic	
Slovenia	
Slovakia	
Norway	
Sweden	
Denmark	
Germany	
Finland	
Ireland	
France	
United Kingdom	
Netherlands	
Luxemburg	
Austria	
Switzerland	
United States	7%

◀ EUROPEAN AVERAGE: 19 percent
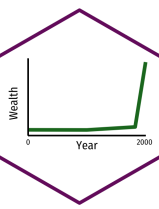
0   5%   10%   15%   20%   25%   30%   35%

Sources: Italian Ministry of Economy and Finance; Friedrich Schneider, Johannes Kepler University | Graphic by The Washington Post *November 24, 2011*

Source: *Foreign Policy*: "The Shadow Superpower" (October 28, 2011)

Source: *Washington Post*: "Italy's tax evasion culture" (November 24, 2011)
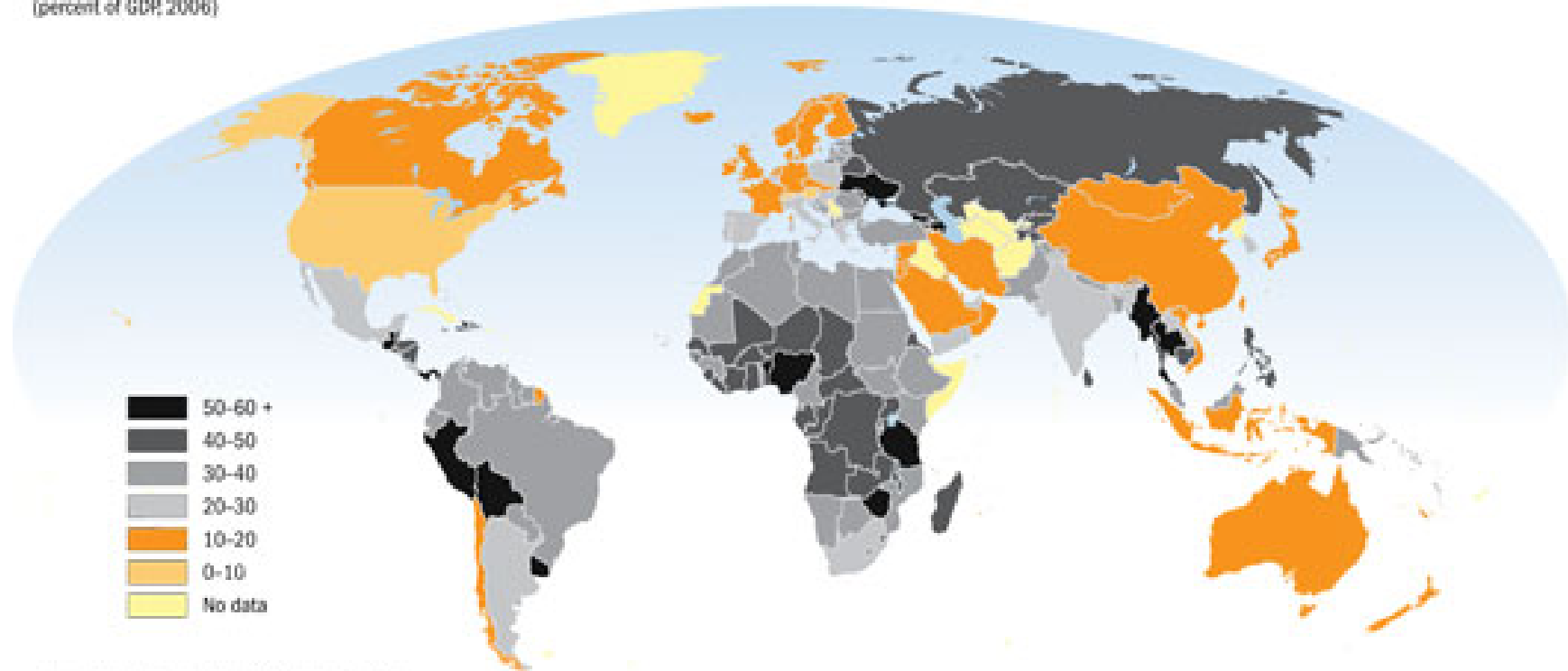
Limitations of GDP: Shadow Economies IV

Casting a long shadow

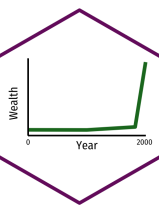The underground economy has a significant presence in much of the world.

(percent of GDP, 2006)

Legend:
- 50–60 +
- 40–50
- 30–40
- 20–30
- 10–20
- 0–10
- No data

Source: Schneider, Buehn., and Montenegro (2010).

Note: The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of the IMF, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

Limitations of GDP: Compared to What?

- Again, GDP is a flawed measure

- But remember, economists always ask, "compared to what?"

- You will see later on that variation in GDP between countries and over time strongly explain variation in other measures we care about