Introduction to Advanced Public Economics

(loosely follows Chapter 1 of Gruber)

ECON 3003
Advanced Public Economics

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[1]Thanks to Emmanuel Saez for sharing his teaching slides, many of which are reproduced in this course.

About me [webpage]

Ph.D. in Economics, UC Berkeley (Advisors: Saez, Auerbach, and Yagan)

- **Dissertation:** "Behavioral Responses of Workers and Businesses to Tax and Transfer Policies" [awarded the 2020 NTA's Outstanding Dissertation Prize]

I do empirical tax/spending research: plausibly exogenous policy changes combined with **quasi-experimental methods** + **big data**

Some topics I'm currently working on:

- **Income taxation:** Labour supply responses of high-wage earners
- **Tax incidence:** (i) Wage effects of cash transfers; (ii) Price and quantity effects of VAT cuts (pass-through)
- **Spillovers:** (i) Property tax (RCT), (ii) Firms as tax collectors
- **Tax avoidance/evasion:** (i) Self-employed workers (bunching), (ii) Offshore evasion by the rich

Logistics for ECON 3003

- **Lectures:**
  - Wednesdays 12pm-1pm in SCGB A40
  - Fridays 3pm-5pm in SCGB A41
- **Office Hours:** TBD (see Moodle)
- **Material:** everything posted on Moodle
- **Tutorials:**
  1. Week 8 (w/c 7 Nov) – asynchronous, solutions will be posted
  2. Week 10 (w/c 21 Nov)
  3. Week 12 (w/c 5 Dec)
- **Assessment:** 100% exam based; 3-hour online exam at the end of the Fall semester. The exam will consist of two sections:
  A) Long question with subparts (compulsory, worth 60%)
  B) Two questions, but you must choose one (worth 40%)
- *Important dates:* (1) w/c 7 November (week 8) is a reading week , (2) No lecture on Friday 28 Oct, (3) w/c 12 December (week 13) is a review week

PUBLIC ECONOMICS

It studies the Role of the Government in the Economy

Government is instrumental in most aspects of economic life:

1) Government in charge of huge **regulatory** structure

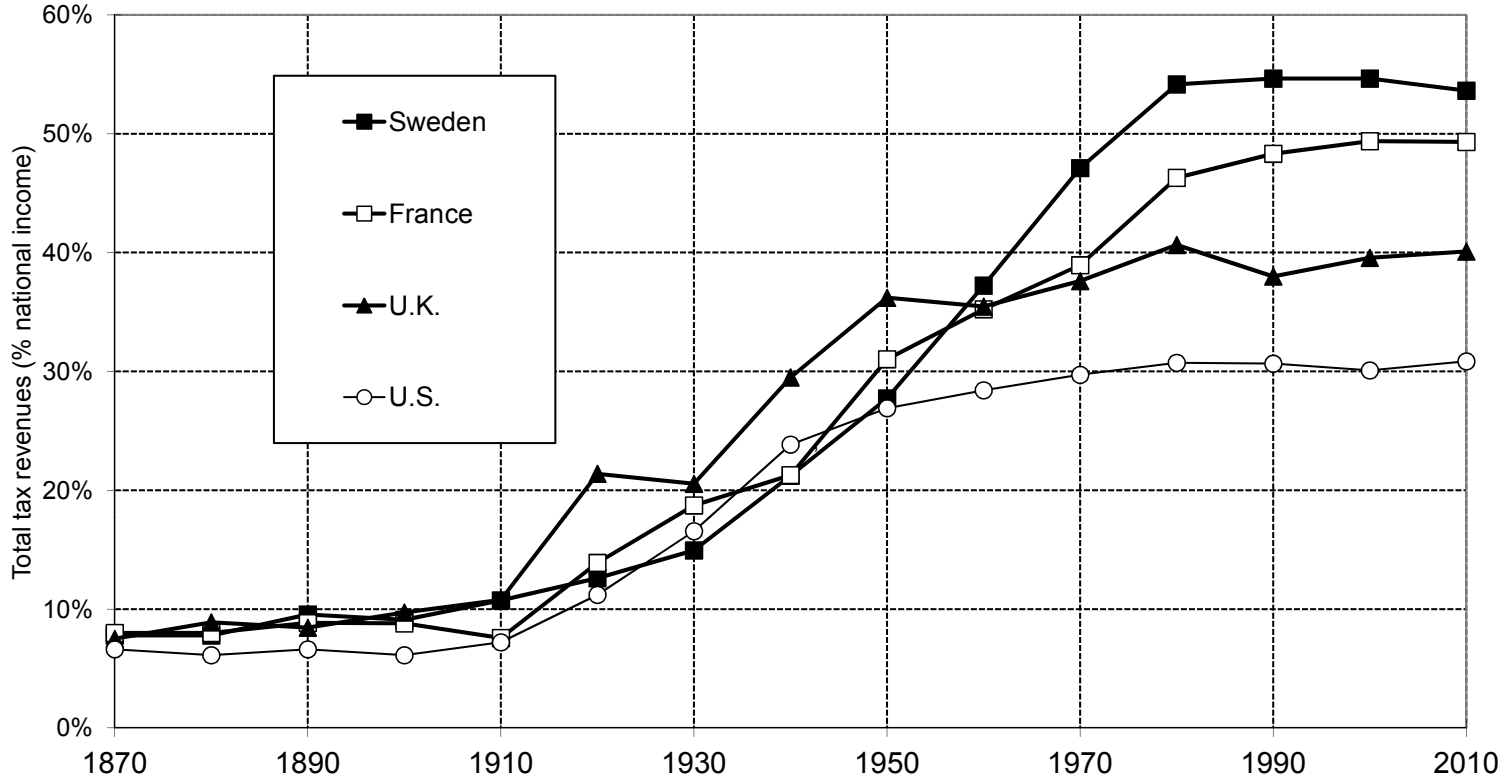
2) **Taxes:** governments in advanced economies collect 30-50% of National Income in taxes

3) **Expenditures:** taxes fund **public goods** (infrastructure, public order and safety, defense) and **social state** (Education, Retirement benefits, Health care, Income support)

4) Macro-economic **stabilization** through central bank (interest rate, inflation control), fiscal stimulus, bailout policies

$\Rightarrow$ We pool a large share of our incomes through government

Figure 13.1. Tax revenues in rich countries, 1870-2010



Total tax revenues were less than 10% of national income in rich countries until 1900-1910; they represent between 30% and 55% of national income in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Source: Piketty (2014)

Bigger view on government (Saez 2021)

Economists have a narrow-minded view of individual behavior: purely selfish and economically rational interacting through markets $\Rightarrow$ Limitation to fully understand **public economics**

Social interactions are critical for humans: we naturally cooperate at many levels: families, workplaces, communities, nation states with very strong/versatile in-group attachments

We produce in teams and then we have to split production $\Rightarrow$ We are cooperative and sensitive to distribution

Archaic human societies depended on social cooperation for protection and taking care of the young, sick, and old

$\Rightarrow$ Explains best why our modern nation states provide defense and education, health care, and retirement benefits

More modest role for economists

Replacing social institutions by markets does not always work:

Education: is primarily government funded: student loans work in economic theory but in practice end up being a huge lifetime burden. For-profit education has a tendency to become a scam

Retirement benefits: Saving for your own retirement works in theory but in practice most people unable to do so unless institutions (government/employers) help them

Health care: Health care relies heavily on government/employers support everywhere. People are not able to afford or shop rationally for health care

Economists can still play a useful role in understanding when markets can help and how individualistic forces can undermine institutions

Three questions in public economics

1) When should the government intervene in the economy?

2) What is the effect of those interventions on economic outcomes?

3) Why do governments choose to intervene in the way that they do? Political economy (e.g., voters' preferences)

When should the government intervene in the economy? Economists' traditional view:

1) Market Failures: Market economy sometimes fails to deliver an outcome that is efficient (e.g., externalities, imperfect competition, imperfect information, individual failures)

$\Rightarrow$ Government intervention may improve the situation

2) Redistribution: Market economy generates substantial inequality in economic resources across individuals

Inequality is an issue because we are "social beings"

$\Rightarrow$ People willing to pool their resources (through government taxes and transfers) to help reduce inequality

Main Market Failures

1) Externalities: (example: greenhouse carbon emissions) $\Rightarrow$ require govt interventions (such as corrective taxation)

2) Imperfect Competition: (example: monopoly) $\Rightarrow$ requires regulation (typically studied in Industrial Organization)

3) Imperfect or Asymmetric Information: (example: health insurance markets are subject to death spirals)

4) Individual Failures: People do not behave as "fully rational individuals". This is analyzed in behavioral economics a field in huge expansion (e.g., myopic people may not save enough for retirement)

Inequality and Redistribution

Even if market outcome is efficient, society might not be happy with the market outcome because market equilibrium might generate very high economic disparity across individuals

Governments use taxes and transfers to redistribute from rich to poor and **reduce inequality**

Redistribution through taxes and transfers might reduce incentives to work (**efficiency costs**)

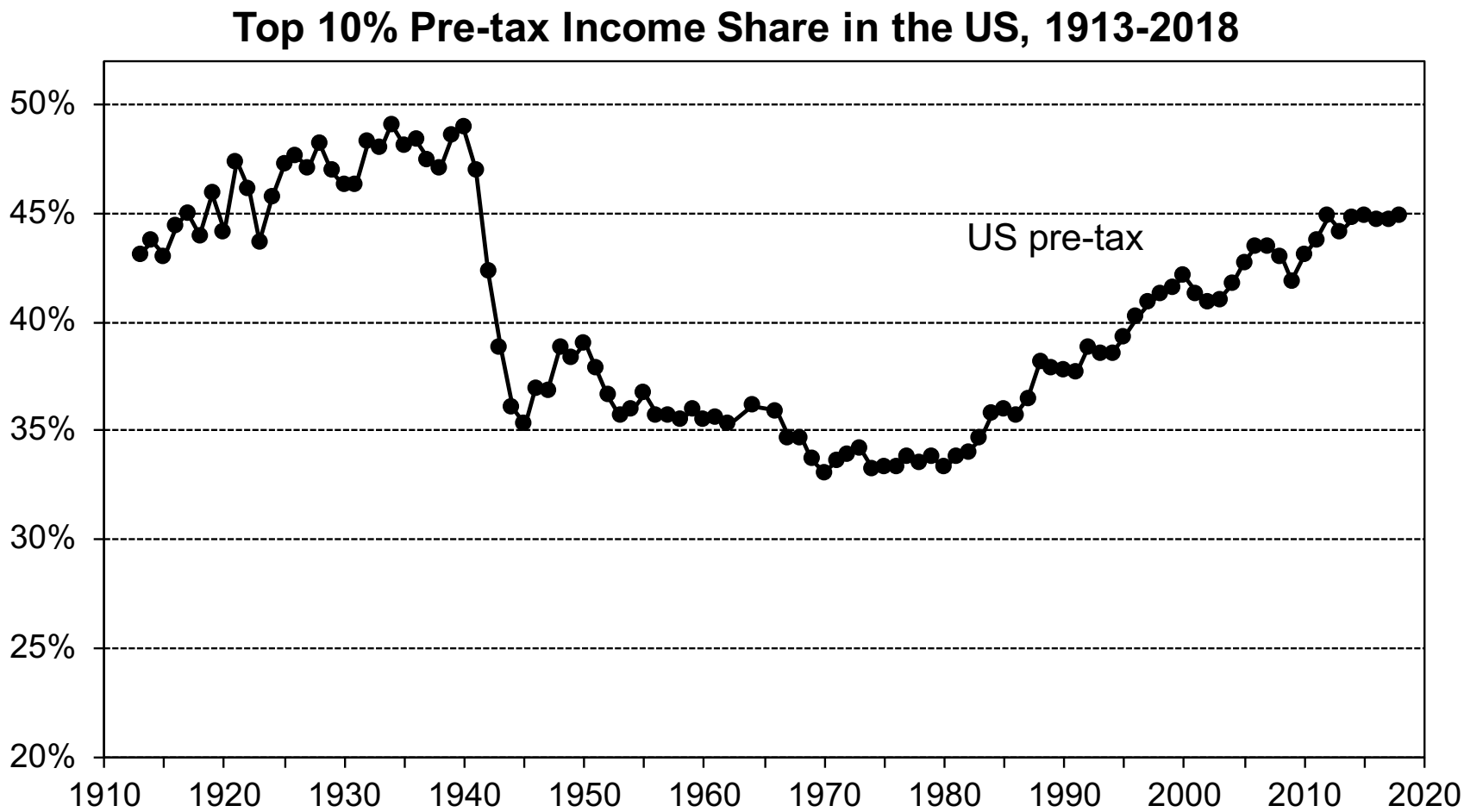
$\Rightarrow$ Redistribution creates an **equity-efficiency trade-off**

Income inequality has soared in the United States in recent decades, and has moved to the forefront in the public debate (Piketty's 2014 book success, stats from Piketty-Saez-Zucman '18)

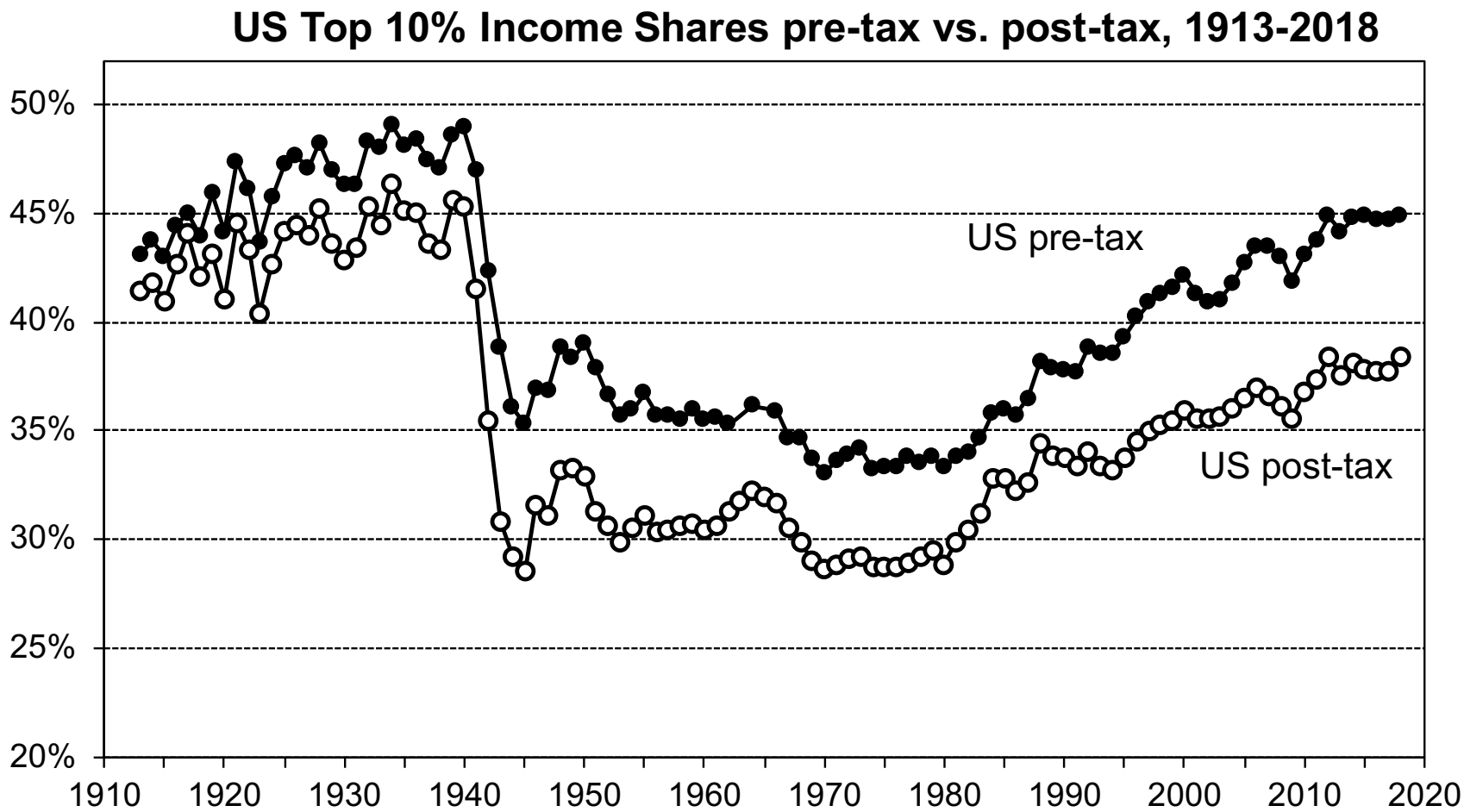
Redistribution with Taxes and Transfers

Govt taxes people based on income & consumption and provides transfers: z is pre-tax income, $y = z - T(z) + B(z)$ is post-tax income

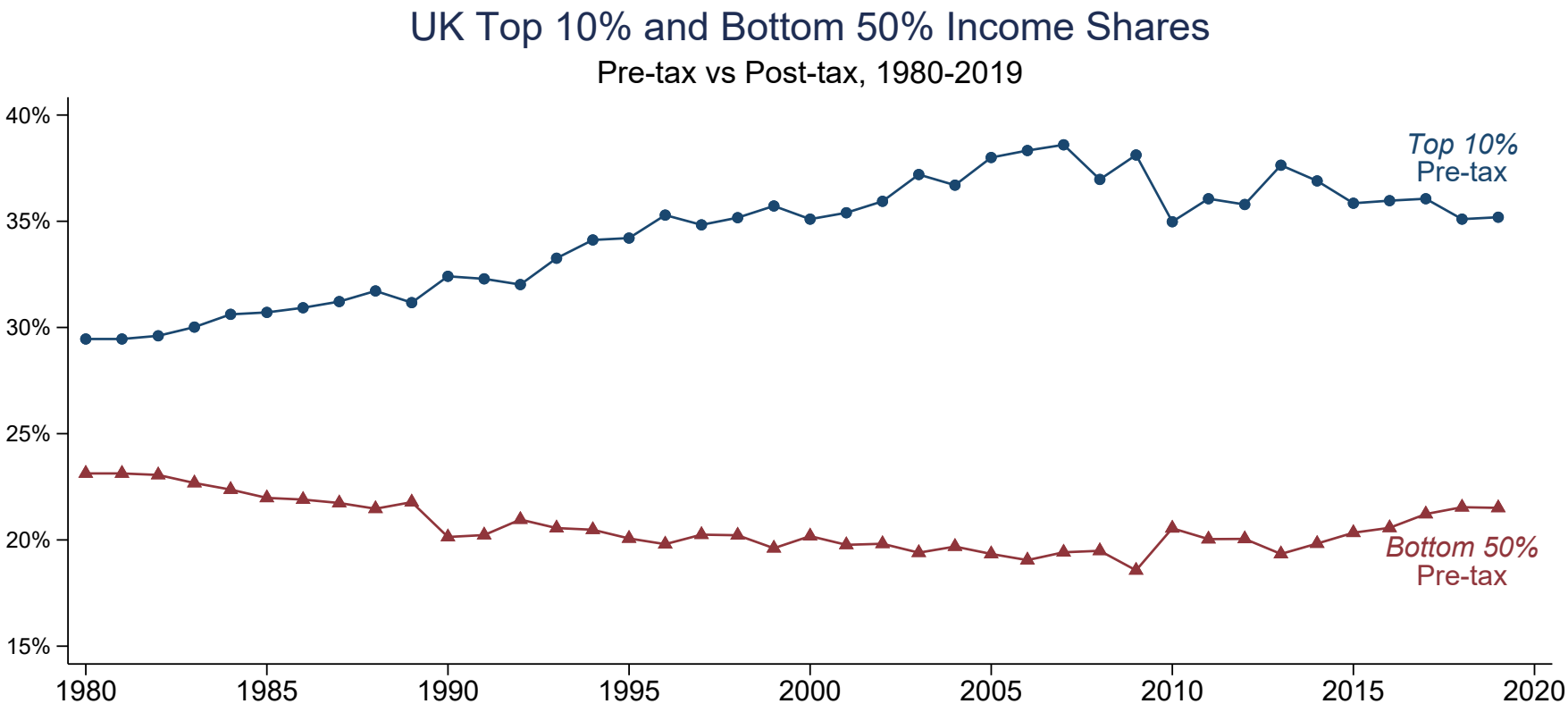
1) If inequality in y is less than inequality in $z \Leftrightarrow$ tax and transfer system is redistributive (o progressive)
2) If inequality in y is more than inequality in $z \Leftrightarrow$ tax and transfer system is regressive



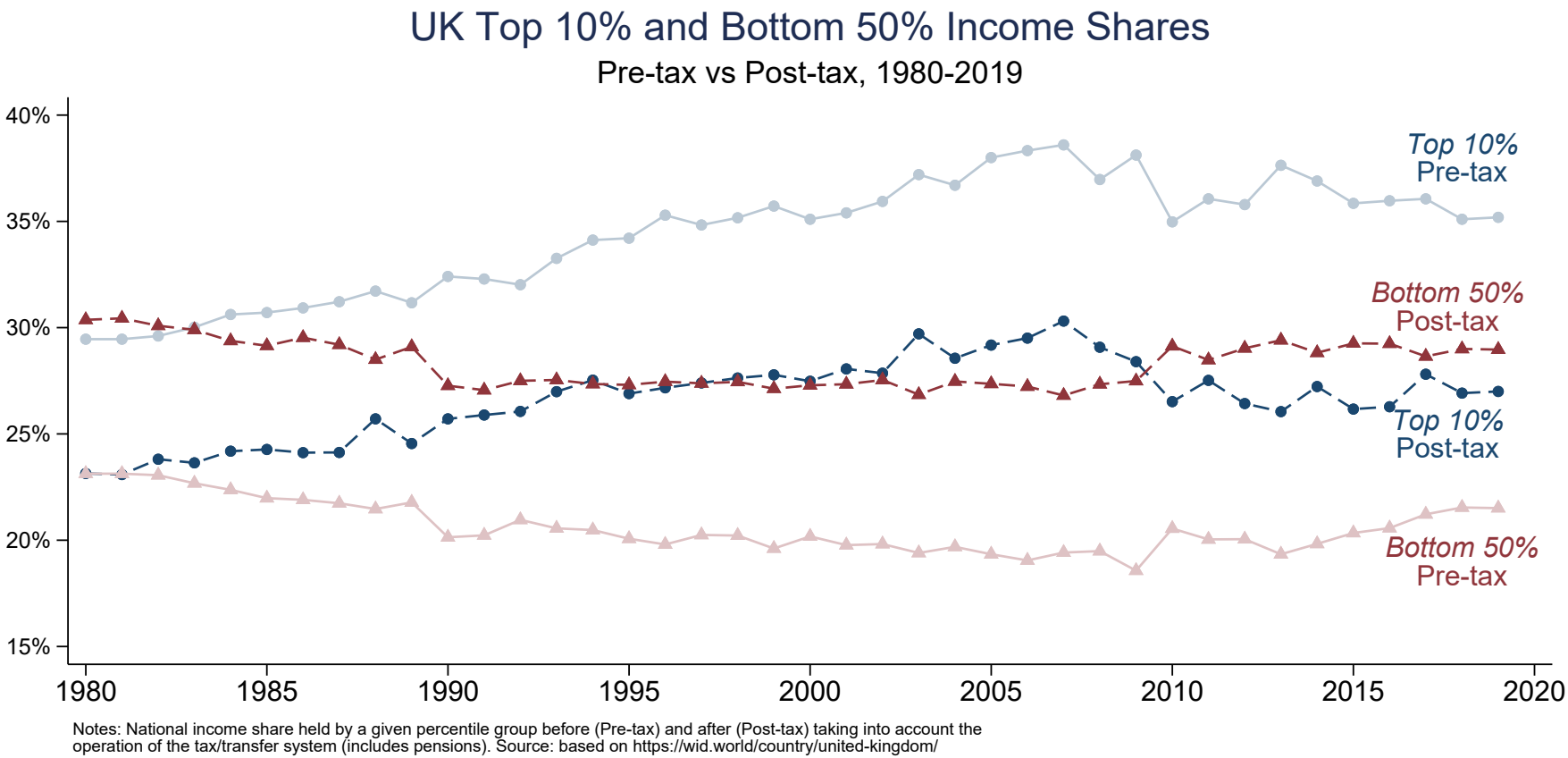
Top income shares of pretax national income among adults aged 20+ (income within couples equally split).
Source is World Inequality Database wid.world (from Piketty, Saez, Zucman 2018).



Top income shares of pretax and posttax national income among adults (income within married couples equally split). Source is Piketty, Saez, Zucman (2018) for US and Piketty et al. (2020) for France.



Notes: National income share held by a given percentile group before (Pre-tax) and after (Post-tax) taking into account the operation of the tax/transfer system (includes pensions). Source: based on https://wid.world/country/united-kingdom/



Notes: National income share held by a given percentile group before (Pre-tax) and after (Post-tax) taking into account the operation of the tax/transfer system (includes pensions). Source: based on https://wid.world/country/united-kingdom/

What Are the Effects of Alternative Interventions?

1) Direct Effects: The effects of government interventions that would be predicted if individuals did not change their behavior in response to the interventions.

Direct effects are relatively easy to compute

2) Indirect Effects: The effects of government interventions that arise only because individuals change their behavior in response to the interventions (sometimes called **unintended effects**)

Empirical public economics analysis tries to estimate indirect effects to inform the policy debate

Example: increasing top income tax rates mechanically raises tax revenue but top earners might find ways to evade/avoid taxes, reducing tax revenue relative to mechanical calculation

Normative vs. Positive Public Economics

Normative Public Economics: Analysis of How Things Should be (e.g., should the government intervene in health insurance market? how high should taxes be?, etc.)

Positive Public Economics: Analysis of How Things Really Are (e.g., Does govt provided health care crowd out private health care insurance? Do higher taxes reduce labor supply?)

Positive Public Economics is a required 1st step before we can complete Normative Public Economics

Positive analysis is primarily empirical and Normative analysis is primarily theoretical

Key Facts on Taxes and Spending

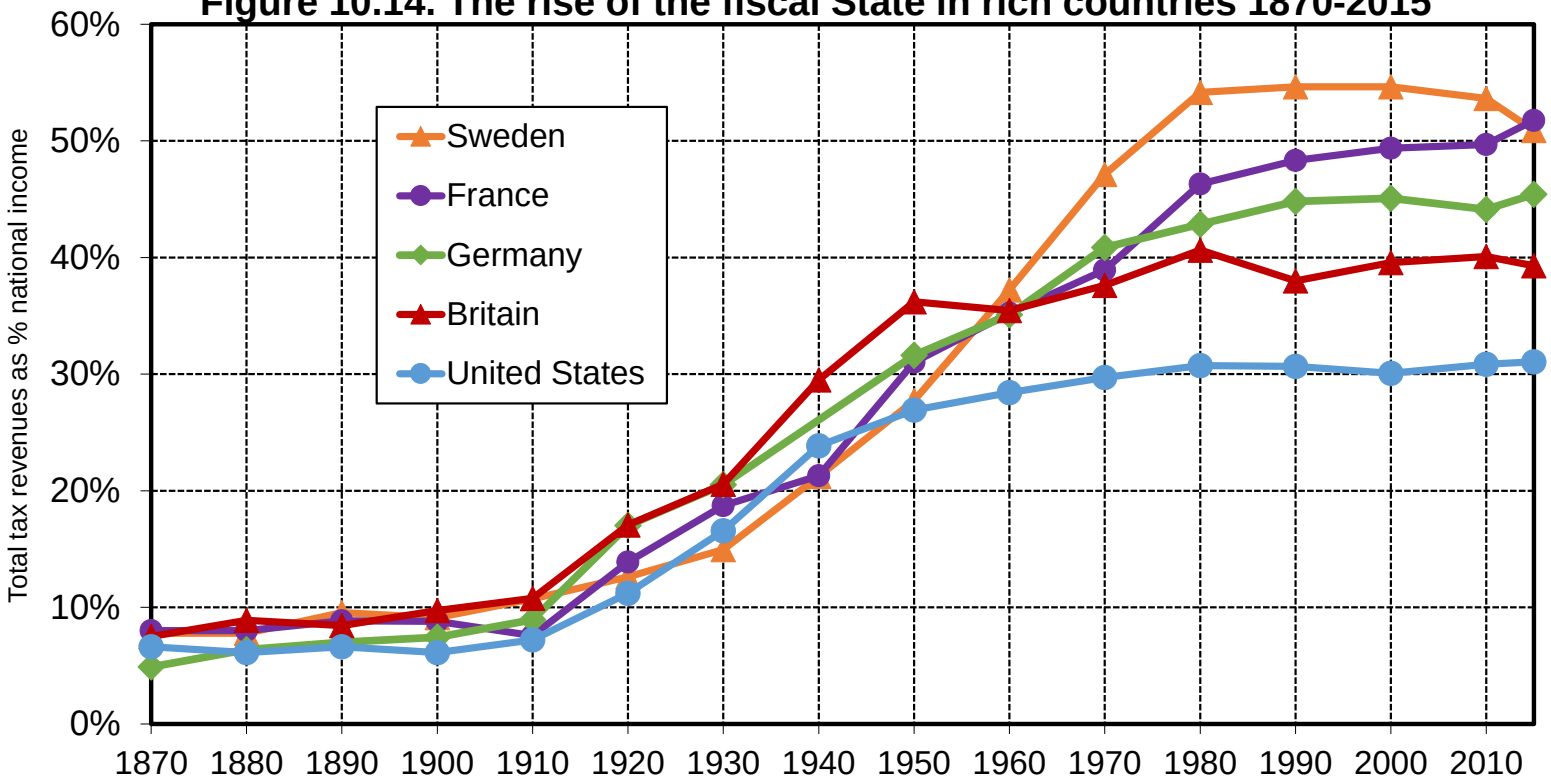
1) Government Growth: Size of government relative to National Income grows dramatically over the process of development from less than 10% in less developed economies to 30-50% in most advanced economies

2) Government Size Stable in richest countries after 1980

3) Government Growth is due to the expansion of the **social state:** (a) public education, (b) public retirement benefits, (c) public health insurance, (d) income support programs

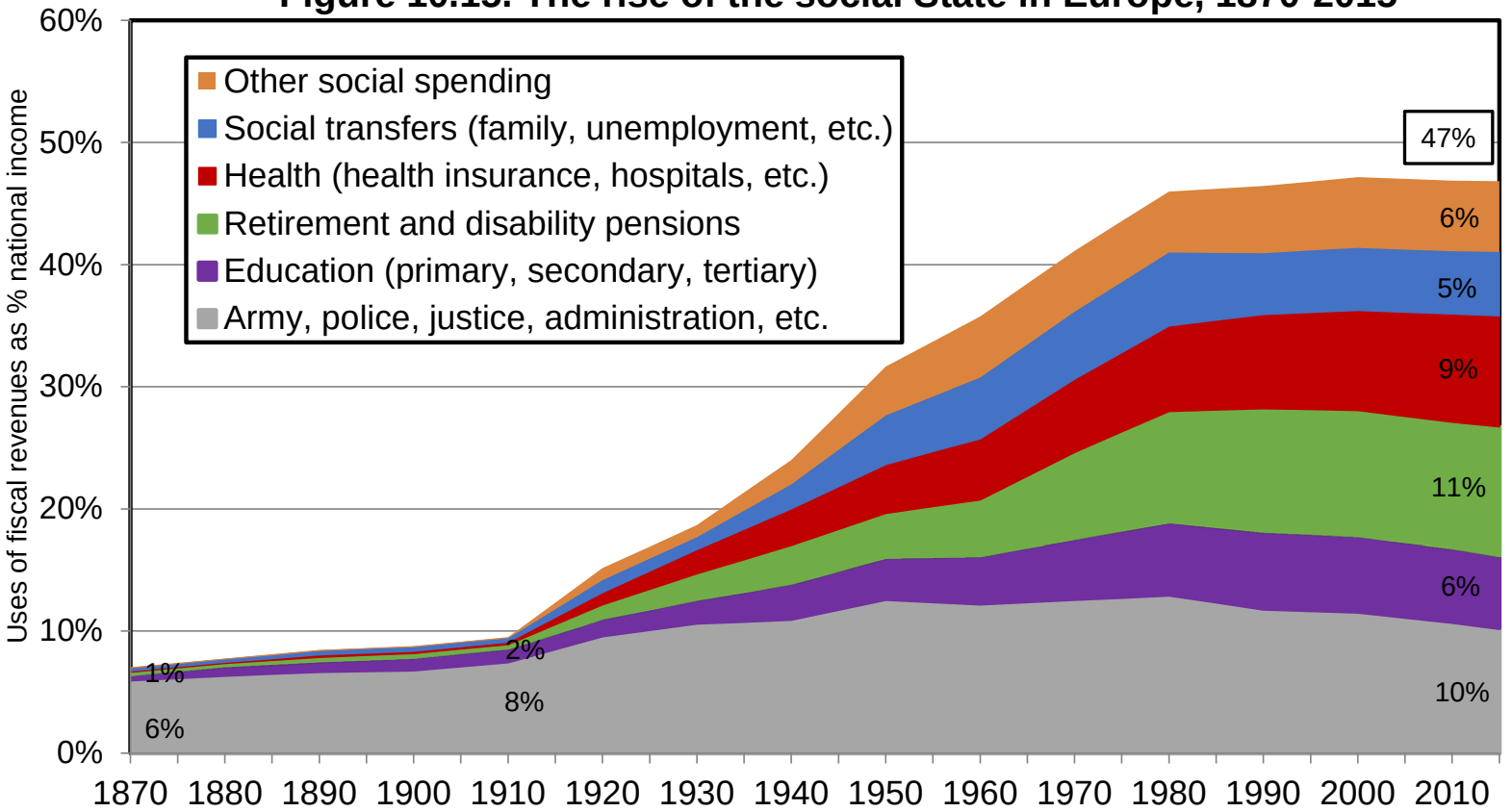
4) Govt spending $>$ **Taxes:** Most rich countries run deficits and have significant public debt (relative to GDP), particularly during Great Recession of 2008-10 and Covid 2020-21

Figure 10.14. The rise of the fiscal State in rich countries 1870-2015



Interpretation. Total fiscal revenues (all taxes and social contributions included) made less than 10% of national income in rich countries during the 19th century and until World War 1, before rising strongly from the 1910s-1920s until the 1970s-1980s and then stabilizing at different levels across countries: around 30% in the U.S., 40% in Britain and 45%-55% in Germany, France and Sweden.
Sources and series: see piketty.pse.ens.fr/ideology.

Figure 10.15. The rise of the social State in Europe, 1870-2015



Interpretation. In 2015, fiscal revenues represented 47% of national income on average in Western Europe et were used as follows: 10% of national income for regalian expenditure (army, police, justice, general administration, basic infrastructure: roads, etc.); 6% for education; 11% for pensions; 9% for health; 5% for social transfers (other than pensions); 6% for other social spending (housing, etc.). Before 1914, regalian expenditure absorbed almost all fiscal revenues. **Note.** The evolution depicted here is the average of Germany, France, Britain and Sweden (see figure 10.14). Sources and séries: see piketty.pse.ens.fr/ideology.

REGULATORY ROLE OF THE GOVERNMENT

Another critical role the government plays in all nations is that of *regulating economic and social activities*. Examples:

1) **UK National Living Wage** (for 23+ yo) is £9.50 as of April 2022
$\Rightarrow$ Potential impact on inequality

2) The **Food Standards Agency** regulates the labelling and safety food products

3) The **Health and Safety Executive (HSE)** is Britain's national regulator for workplace health and safety

4) The **Environment Agency (EA)** regulates major industry and waste, water quality, risk of flooding, etc.

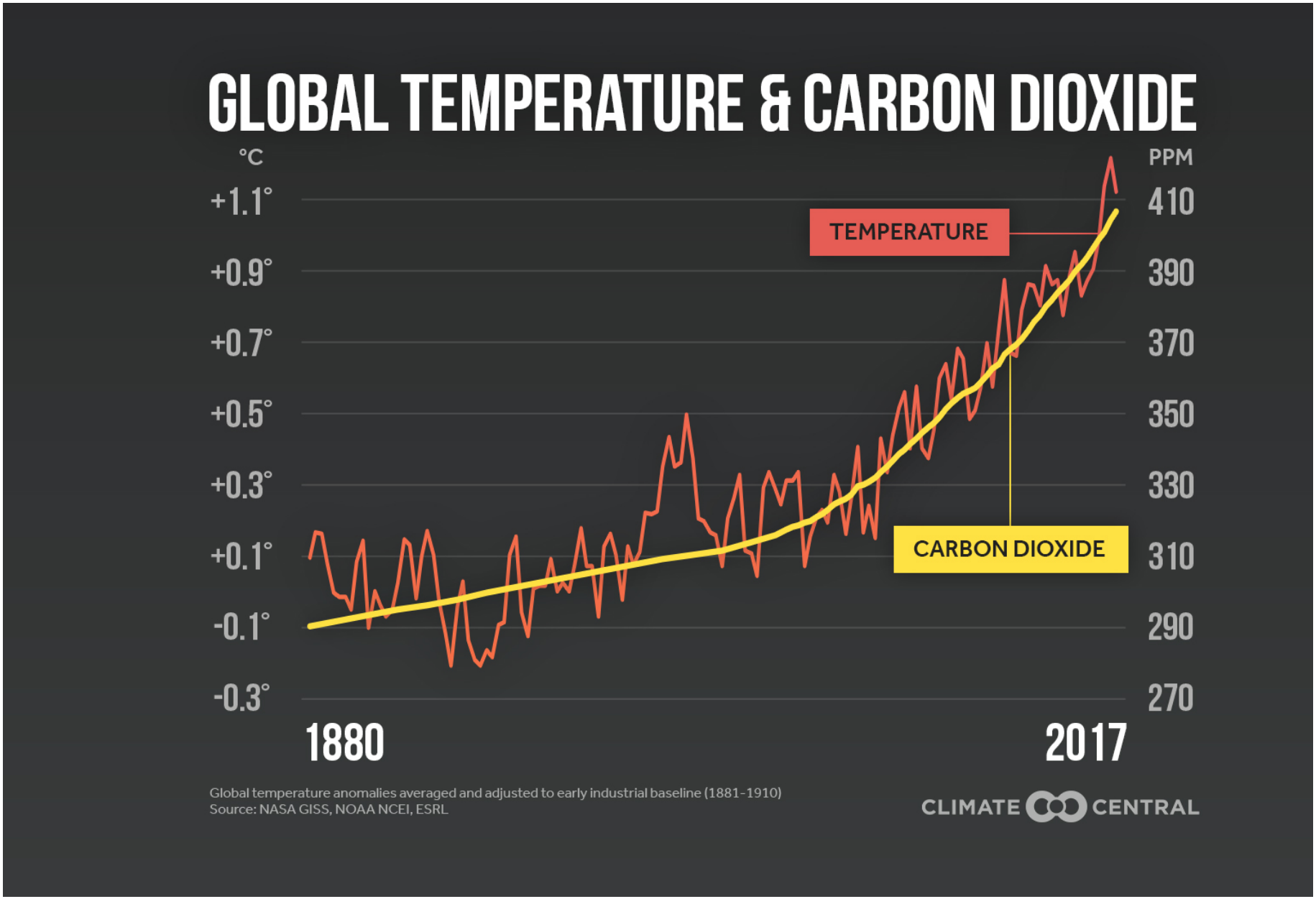
PUBLIC DEBATES OVER TAXES, HEALTH CARE, AND CLIMATE CHANGE

Taxes, health care, and climate change are each the subject of debate, with both the "liberal" and "conservative" positions holding differing views in their approach to each problem.

Taxes: Trump decreased taxes on corporations and individuals in 2018. Biden wants to increase taxes on the rich

Health Care: Up to 2013, 17-18% of the non-elderly U.S. population not insured. With Obamacare down to 10%. Biden wants to strengthen Obamacare further.

Climate change: Carbon emissions are generating global warming with potentially devastating future consequences (sea rise, extreme weather, agricultural output risk). What should government do? Biden wants to increase govt funding


GLOBAL TEMPERATURE & CARBON DIOXIDE
°C
+1.1°
+0.9°
+0.7°
+0.5°
+0.3°
+0.1°
-0.1°
-0.3°
PPM
410
390
370
350
330
310
290
270
TEMPERATURE
CARBON DIOXIDE
1880
2017
Global temperature anomalies averaged and adjusted to early industrial baseline (1881-1910)
Source: NASA GISS, NOAA NCEI, ESRL
CLIMATE CENTRAL

Plan for Lectures

1. Review of Theoretical and Empirical Tools
2. Inequality, Poverty, Taxes and Transfers
3. Overview of the UK tax-benefit system
4. Optimal labour income taxation
5. Optimal design of transfers
6. Empirical evidence on responses to taxation: Labour supply
7. Empirical evidence on responses to taxation: Taxable income
8. Tax enforcement
9. Role of the government: Public Goods
10. Role of the government: Education
11. Tax incidence and the efficiency cost of taxation
12. Doing tax research using big data
13. Review of topics and preparation for the assessment

Why should we care about these topics? Some UK facts

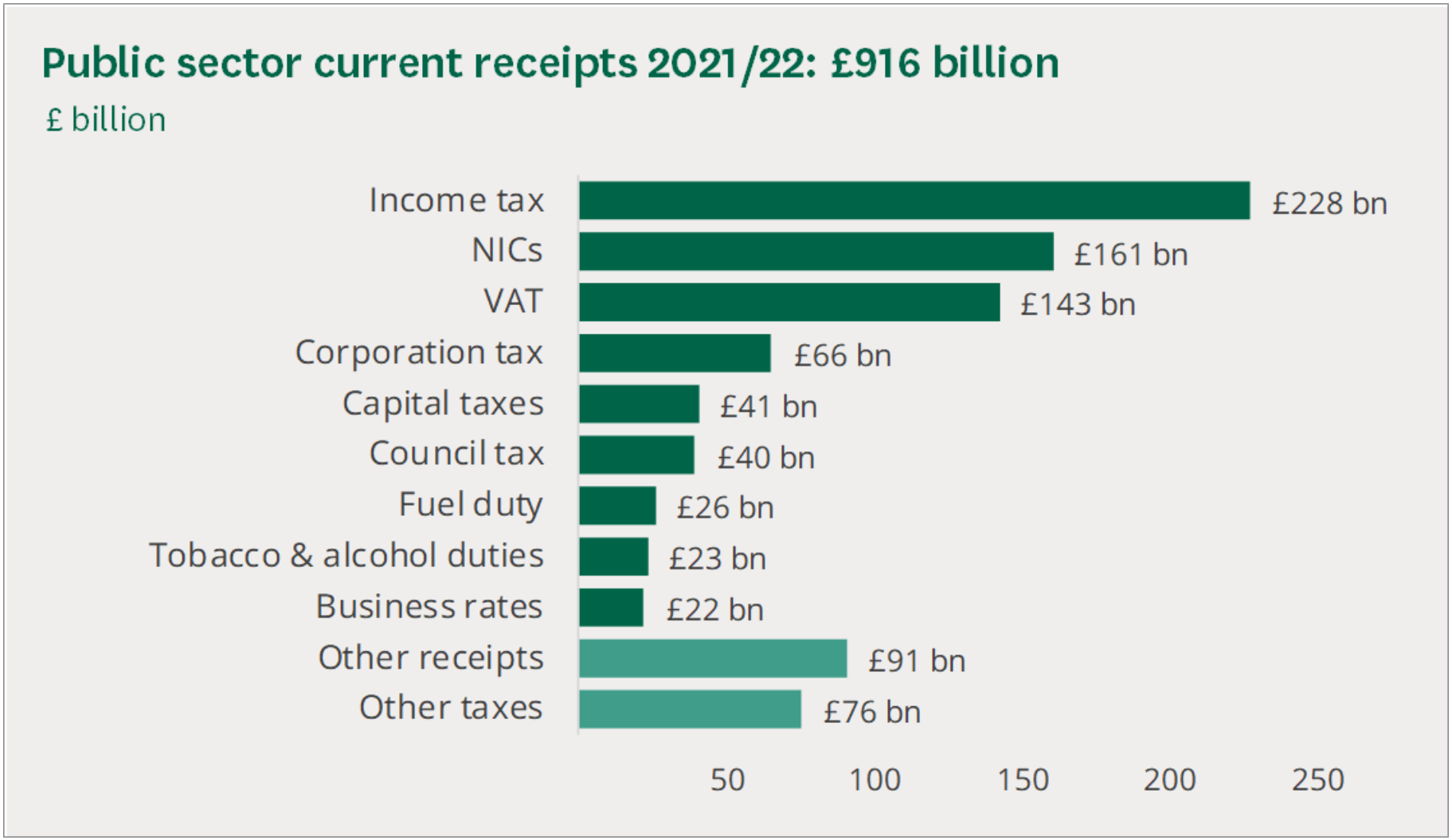
1. In 2021/22, govt raised £916 in receipts. About 39% of the size of the UK economy (GDP)—the highest level since the 1980s

2. Three main sources: income tax, National Insurance contributions (NICs) and value added tax (VAT)

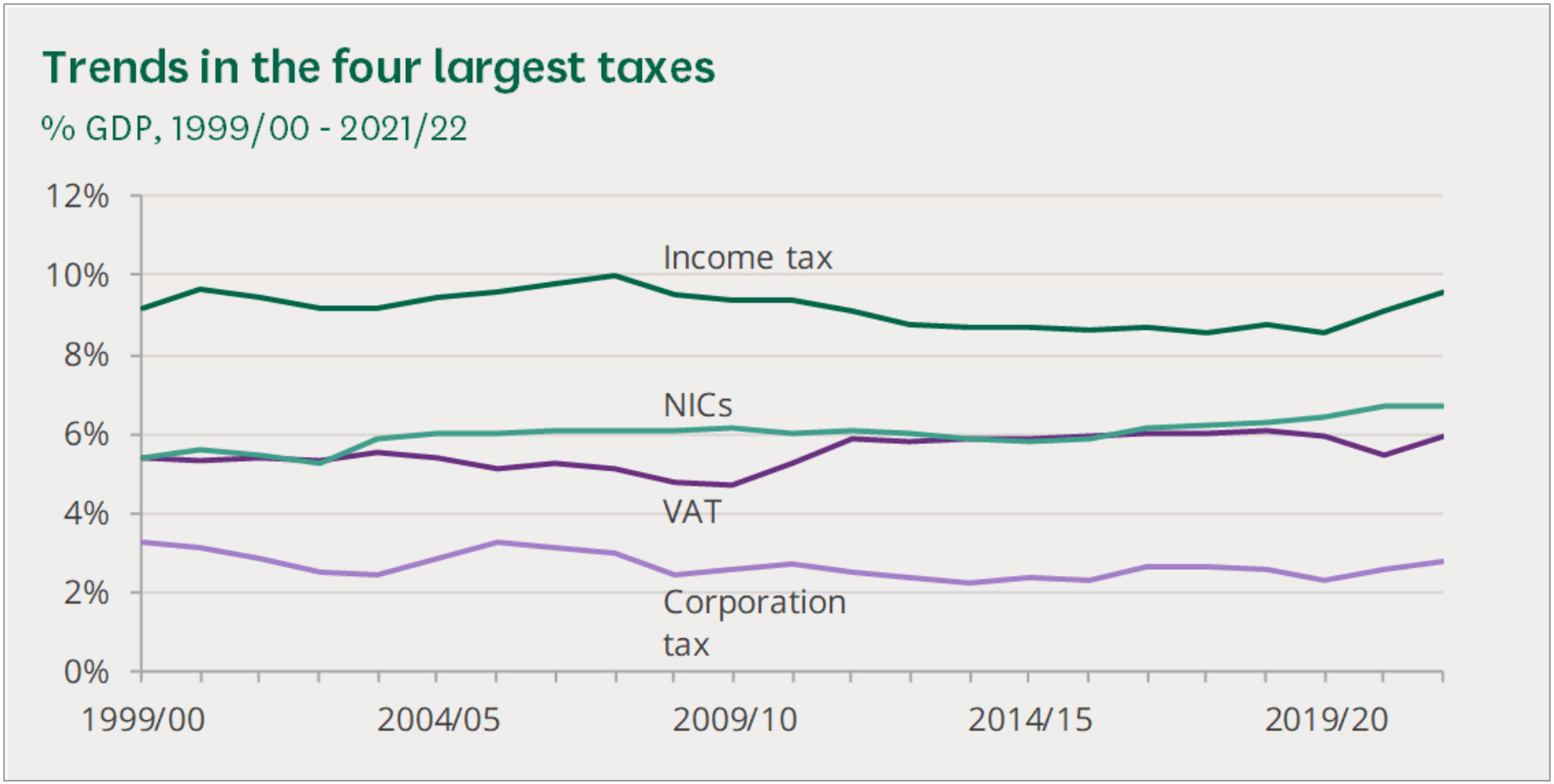
3. Income tax payments are concentrated amongst the richest

4. Direct taxes (income tax and NICs) help lower income inequality $\rightarrow$ Richer people pay a greater share of their gross household income

5. Low-income people pay more in indirect taxes (VAT, duties, etc)



Source: House of Commons Library (2022). 'Tax statistics: an overview'



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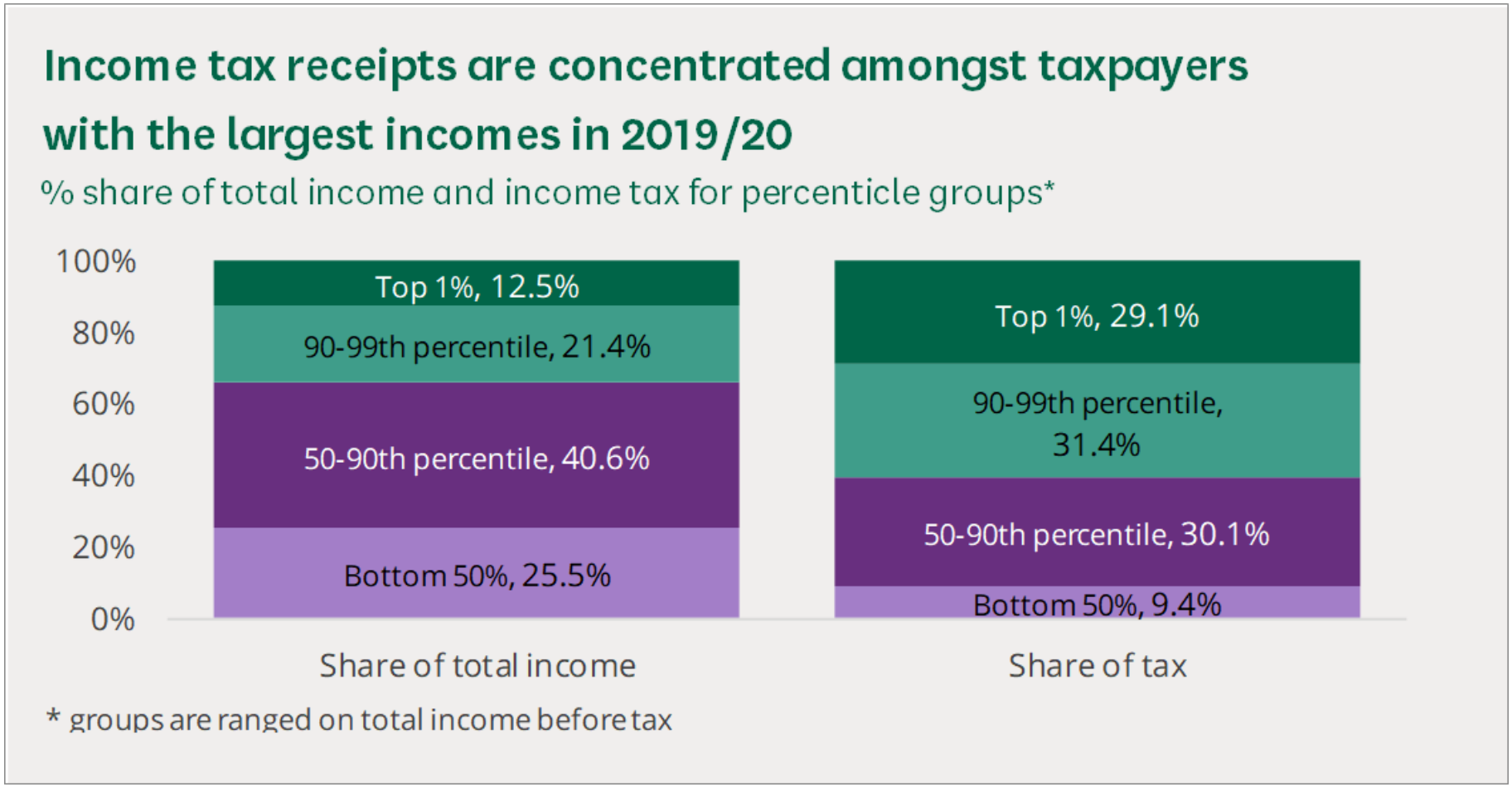

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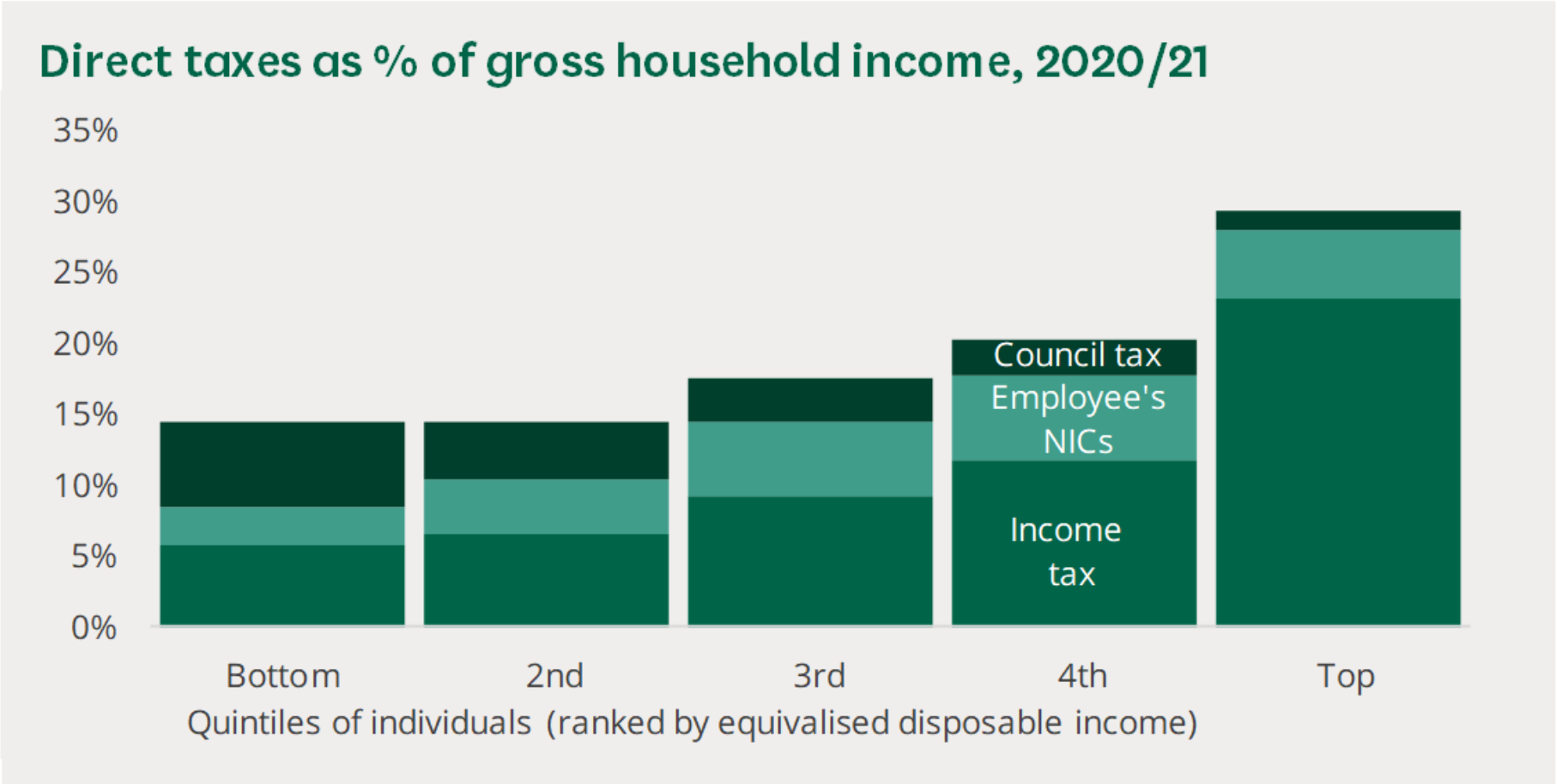

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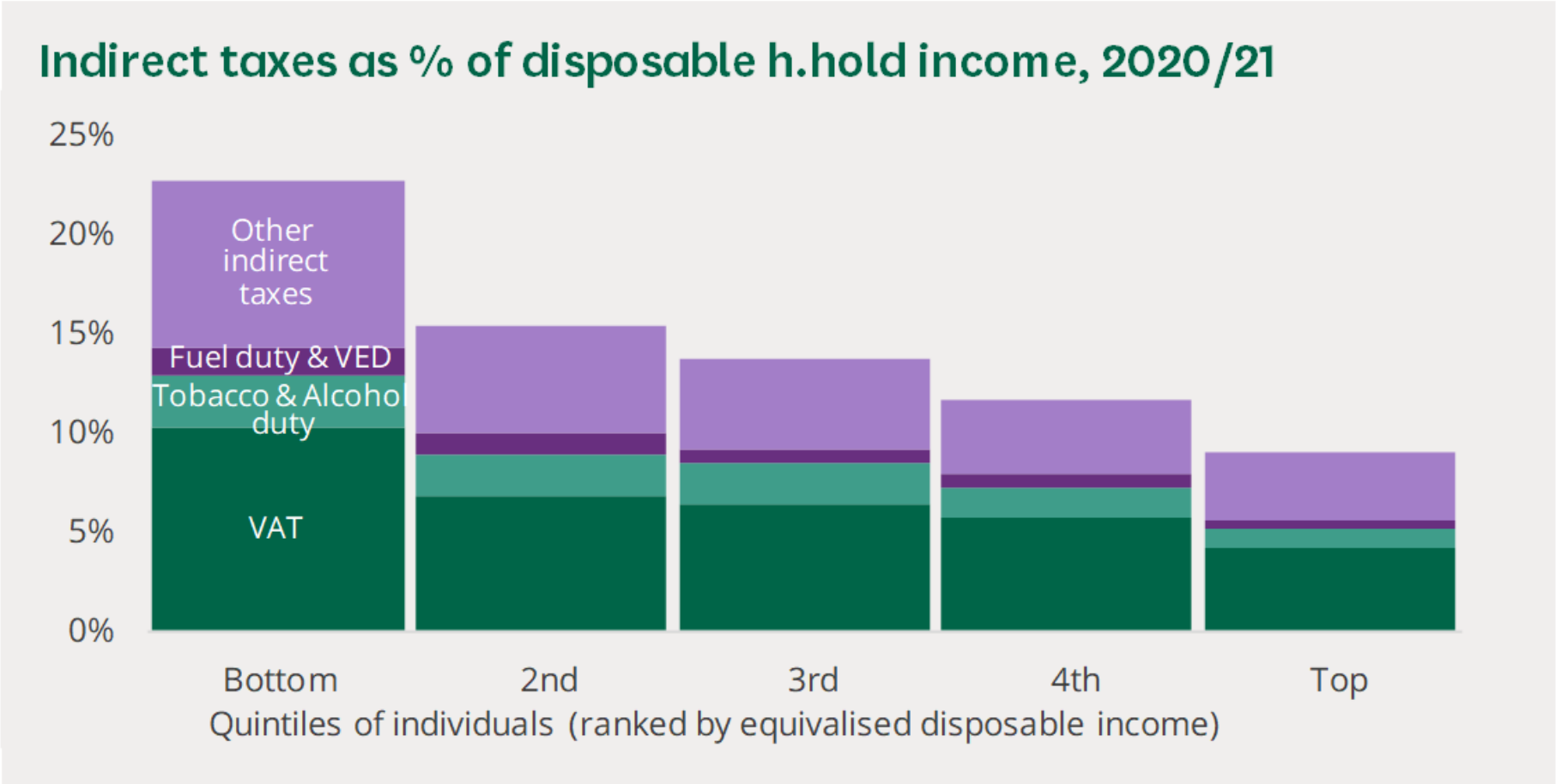

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