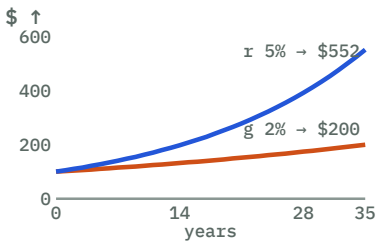
Who is right today?

Which old ideas run today's arguments? Three still open, each with an old idea inside: the rich and the rest (Ricardo, Marx → Piketty), the climate (Pigou → Nordhaus, Stern), whether growth must go on (Malthus → today). **This lesson shows the arguments; it does not pick a side.**

1 Piketty: r > g

the rich and the rest

- UBS (Swiss bank), Global Wealth Report **2024**: richest **1.5%** of adults hold **47.5%** of world wealth (≈ **$213 trillion**) · **wealth** = homes, savings, shares – debts
- **Thomas Piketty** · French economist, Paris School of Economics · born `1971` · Capital in the Twenty-First Century (French **2013**, English 2014)
- **r** = return on capital (profits, interest, rents) · **g** = growth of the economy (wages, output) · **r > g** → wealth grows faster than income → it concentrates
- **Rule of 70** → doubles in `70 ÷ r` years · Coralia: $100 at 5% → every 14 yrs → **$552** in 35 yrs (×5.5) · wage $100 at 2% → every 35 yrs → **$200** (×2)
- Practice: $1,000 at 7% → 4 doublings in 40 yrs → **≈ $16,000** (exact ≈ $15,000) · at 3.5% → 2 → **≈ $4,000** → ×4

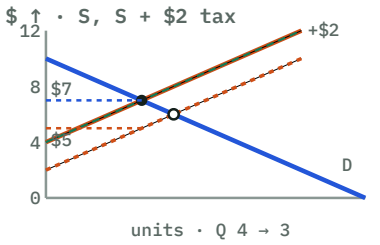


- `FOR` over centuries r usually > g → inherited wealth outgrows pay → taxes on wealth (Piketty) · `AGAINST` **Rognlie** (US): house prices drove much of the rise · **Acemoglu**, **Robinson** (Nobel 2024): rules and institutions matter more · **Auten**, **Splinter** (US government economists): top 1%'s US after-tax income share ≈ flat ↔ Piketty, **Saez**, **Zucman** (Berkeley): clearly up → **argued**: size, cause, remedy

2 Pigou, Nordhaus

price the smoke

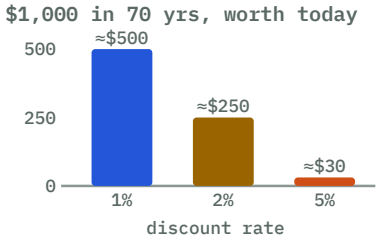
- **Externality** = a cost (or gain) on people outside the deal (Micro 10) · **Arthur Pigou** · English · `1877–1959` · Marshall's student → **Pigouvian tax** = tax = damage → price shows the full cost
- **William Nordhaus** · American, Yale · born `1941` · **DICE** model (economy + climate) · Nobel **2018** (with Paul Romer)
- Coralia electricity: `D: P = 10 − Q` · `S: P = 2 + Q` · damage $2 → tax **$2** → Q 4 → 3 · buyers $6 → **$7**, sellers $6 → **$5** (equal slopes → half each)
- Practice, cement: `D: P = 14 − 2Q` (steeper) · damage $3 → tax $3 → Q 4 → 3 · buyers $6 → **$8** (+2), makers → **$5** (–1) → **the steeper side pays more**, whoever hands it over · traffic charge: same idea



3 Discount rate

what is 2100 worth?

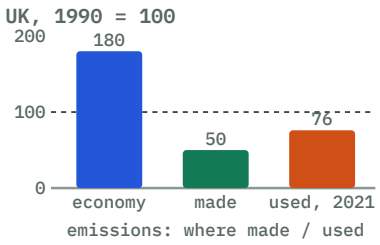
- **Discount rate** = yearly rate at which future money or harm is counted down · halves every `70 ÷ r` yrs · **social cost of carbon** = harm of one more ton of CO_2 (carbon dioxide) in today's $ → lower rate ⇒ higher
- $1,000 of damage in 70 yrs → 1%: **≈ $500** · 2%: **≈ $250** · 5%: 5 halvings → `1,000 ÷ 32` **≈ $30** · practice: $1,600 in 40 yrs → 7%: **$100** · 3.5%: **$400** (×4)
- **Stern Review** (**2006**, UK government, Nicholas Stern): **0.1%** a year for favoring the present → climate could cost "at least 5%" of world GDP (all output) every year ↔ **Nordhaus**: rates near market interest → lower price, slower start
- `LOW` 2100's people count as much as ours · `HIGHER` money grows; 2100 may be richer → values **and** facts



4 Growth, so what

decoupling, the timeline

- Malthus's limit → today: the planet · UK, 1990 = 100: economy **≈ 180** · emissions (warming gases) **where made ≈ 50** · **where used** (imports included): peak 2007, **≈ 76** in 2021 (UK stats office) · **decoupling** = output grows, emissions do not
- `GROWTH` output up with emissions down is possible; richer countries pay for clean technology · `DEGROWTH` much of the fall = smoke moved abroad; world total must fall fast → rich countries aim for less output
- Practice: "solved" and "never" → **both go beyond the numbers** · by idea: rents, 7% vs 3.5% → Ricardo, Piketty · CO_2 price, traffic charge → Pigou, Nordhaus · limits → Malthus · lobby against it → Olson (small group, big stake → organizes)



- **Timeline of ideas** · 1776 · Smith · prices coordinate strangers → 1798–1817 · Malthus, Ricardo · land is limited → 1867 · Marx · profit from unpaid work (he said) → 1871–90 · Jevons, Menger, Walras, Marshall · the last unit → 1936 · Keynes · spending decides output → 1945 · Hayek · prices carry knowledge → 1963–1968 · Friedman · more money, higher prices, in the long run → 1957–86 · Downs, Olson, Buchanan · governments are people too → 1979–2009 · Kahneman, Thaler, Ostrom · predictably not rational; groups govern themselves →

Today · Piketty, Nordhaus and the growth debate · the old ideas, still arguing

Watch out: who hands a tax over ≠ who pays it · rule of 70 = a shortcut · a lower discount rate → a **higher** carbon price · emissions where **made** ≠ where **used** · **This lesson shows the arguments; it does not pick a side.**