

Global Inequality & Growth: *Optimal labor income taxation*

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What we have learned until now

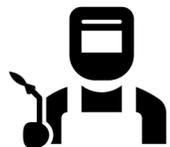
- Inequality has been increasing in most countries since 1980's...
- ... but at very different rates
- Tax systems seem to play a significant role at limiting inequality...
- ... but how do we construct the right tax system?

This lecture: optimal taxation

- How do we design a *fair* and *efficient* tax system?



Roadmap: optimal taxation



Optimal labor income taxation

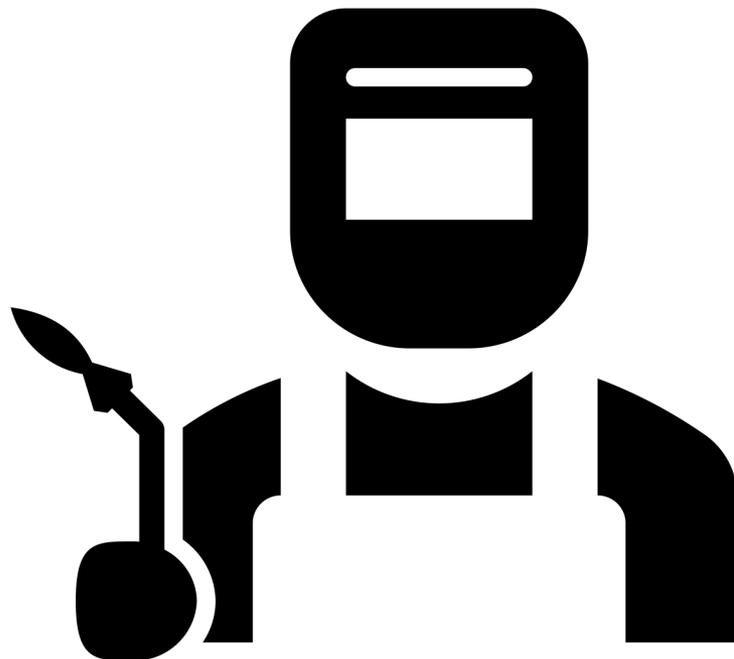


Optimal capital income taxation (next)

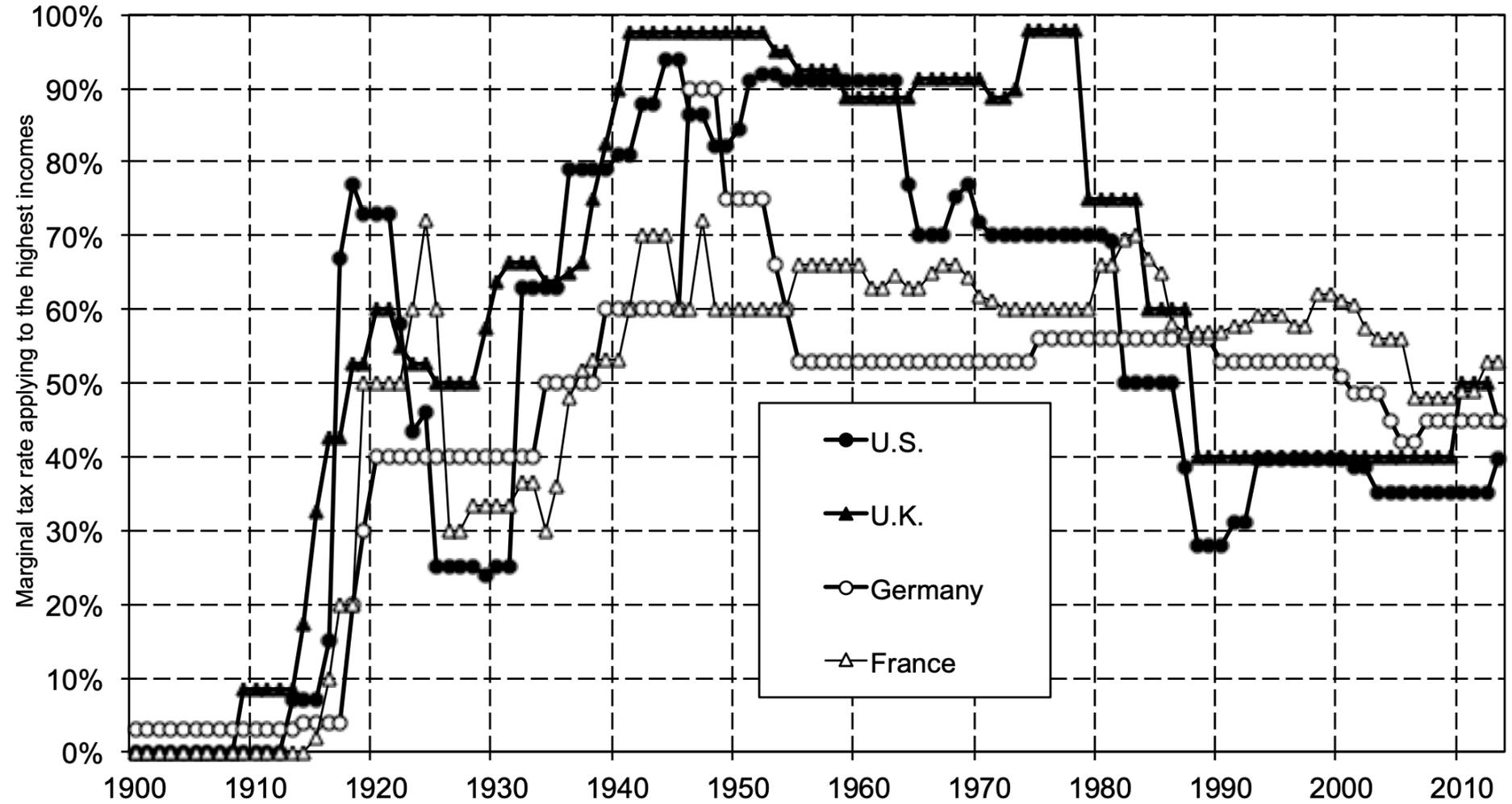


Beyond income taxation (next)

Optimal labor income taxation



Top income tax rates, 1900-2013



The top marginal tax rate of the income tax (applying to the highest incomes) in the U.S. dropped from 70% in 1980 to 28% in 1988. Sources and series: see piketty.pse.ens.fr/capital21c.

The equity-efficiency trade-off

When the government taxes labor income, this has two effects

- Generates tax revenue: mechanical (positive) revenue effect
- Workers respond by reducing labor supply: behavioral (negative) revenue effect

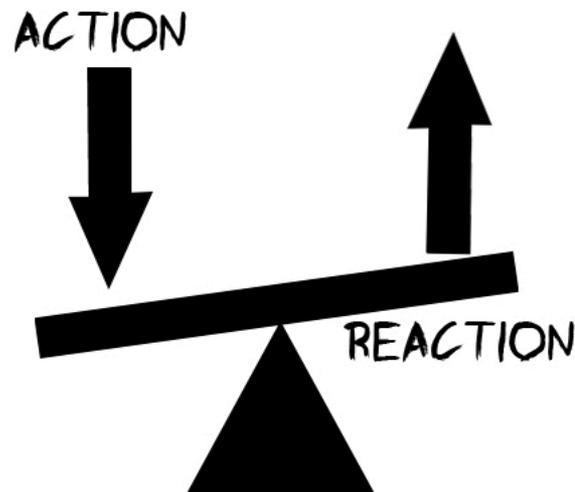
The equity-efficiency trade-off

- Okun (1975) dubbed this the “big trade-off” and explained it by the metaphor of the leaky bucket:
- "The money must be carried from the rich to the poor in a leaky bucket. Some of it will simply disappear in transit, so the poor will not receive all the money that is taken from the rich” (p. 91).



The negative impact of taxation = distortion
= deadweight loss = people respond to taxes

- The negative impact of taxation is that people respond \Rightarrow the less people respond the lower is the distortion



Social welfare weights: why we redistribute

- The reason governments redistribute: we believe \$1 means less to a millionaire compared to a person living in poverty
- If this was not the case, there would be no need to redistribute income at all

Diamond and Saez, JEL 2011

... if the social value of utility is logarithmic in consumption... the social marginal utility at the \$1,364,000 average income of the top 1 percent (... \$1,364,000 average ...) is only 3.9 percent of the social marginal utility of the median family (... with income \$52,700)

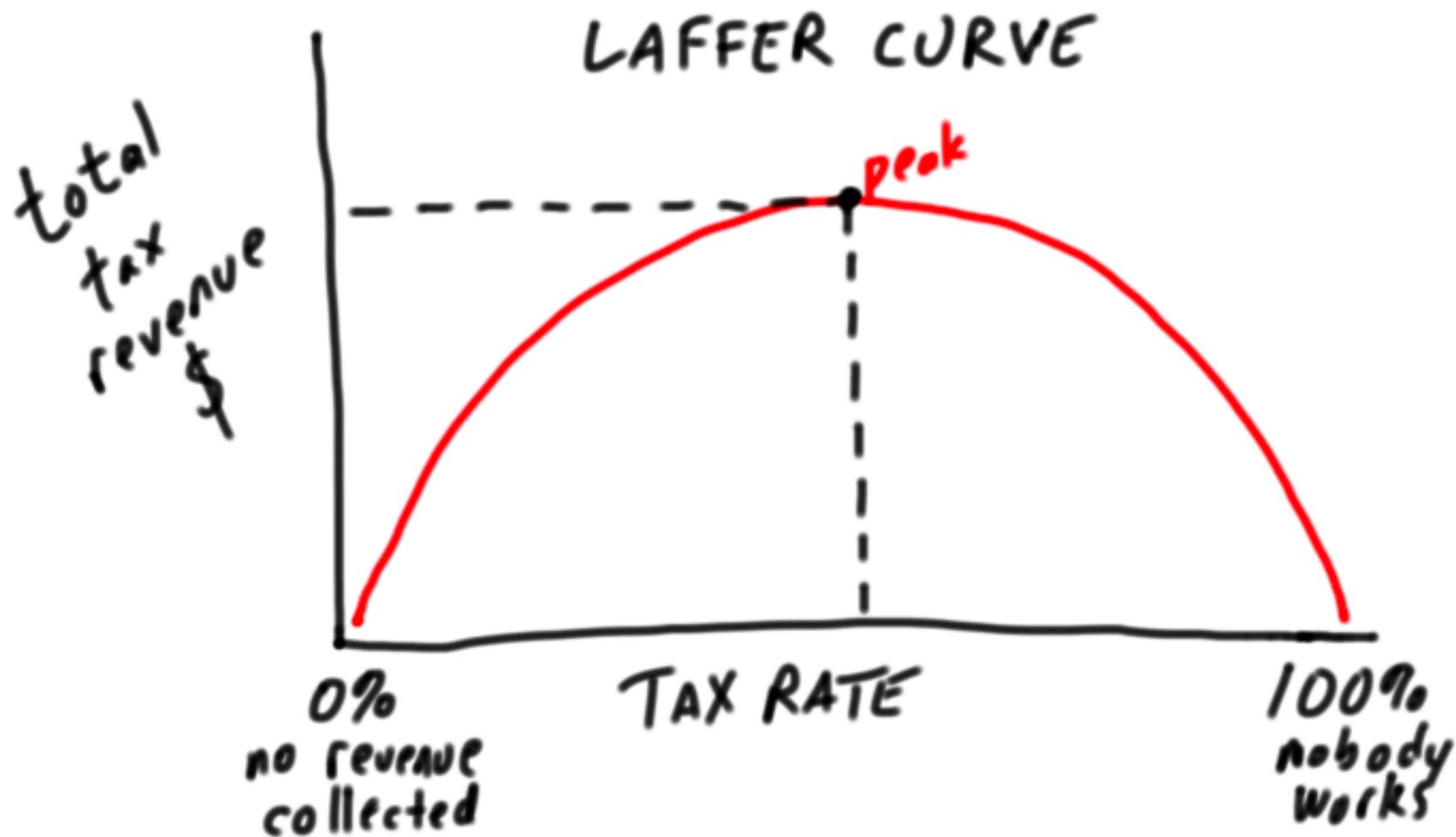
Simplification number one: linear income tax

- The simplest tax system is one with a constant marginal tax rate τ and a guaranteed minimum income $G > 0$:
 - $T(z) = \tau \cdot z - G$.
- Also known as a flat tax
- *Note that if transfers are faced out – this acts like a tax!*

Simplification number two: Rawlsian Social Welfare Function

- The social welfare function that uses as its measure of social welfare the utility of the worst-off member of society
- $\text{Min}(U_1, U_2, \dots, U_N)$
 - \Rightarrow Zero social weight on the better off
 - \Rightarrow Maximize tax revenue and give to the poorest in society

The Laffer Curve



Laffer rate under linear taxation

- The laffer rate is given by $\tau^* = \frac{1}{1+\varepsilon}$
 - where $\varepsilon \equiv \frac{dz/z}{d(1-\tau)/(1-\tau)}$ is the the elasticity of taxable income
- When ε increases people respond more to taxes (laffer maximizing rate falls)
- With $\varepsilon \approx 0.2$ then $\tau^* \approx 83\%$ (including consumption tax)

Kahoot! If taxable income is completely inelastic, then the optimal linear tax rate on labor income is:

A — 100%

B — 83%

C — 100% if the social welfare function is Rawlsian

D — Indeterminate

Progressive taxation

- Progressive taxation = increasing tax rate on higher incomes
- In itself inefficient, as we make the tax incentive to work 1 extra hour smaller
- A progressive tax system makes sense when we rather want the very rich to pay instead of the middle class

Utilitarian Welfare Function

- Maximize the sum of utility of individuals
 - $\text{Max } U_1 + U_2 + \dots + U_N$
- \Rightarrow Social weight = marginal utility of consumption

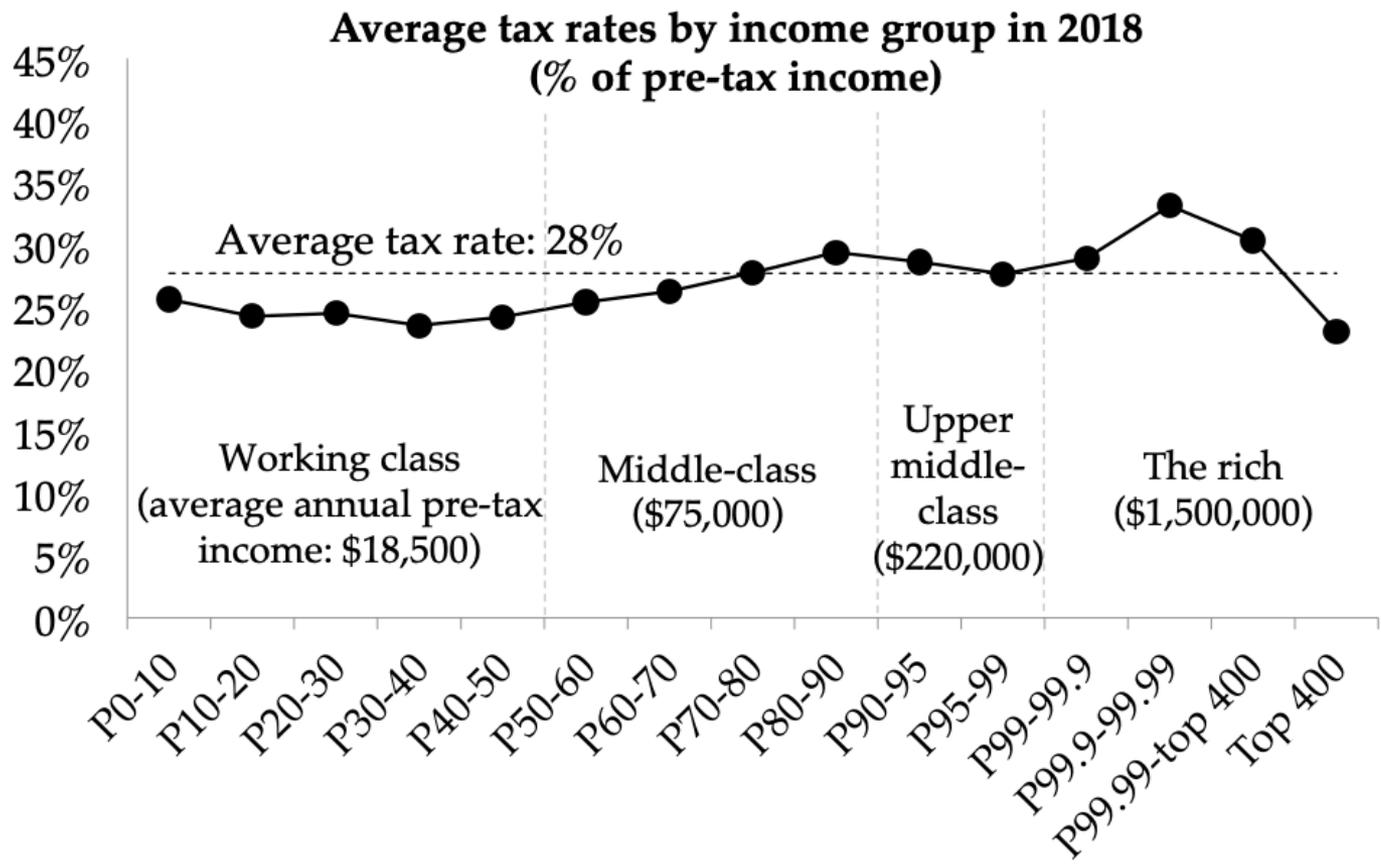
Optimal tax on higher incomes

- Let us introduce a top income tax rate on incomes $> \bar{z}$
- $T(z) = \tau \cdot z + \tau^H \cdot \max\{ (z - \bar{z}), 0 \} - G.$
- The laffer maximizing top income tax rate then becomes:
- $\tau + \tau^H = \frac{1}{1 + \alpha \varepsilon}$, where $\alpha = \frac{z}{z - \bar{z}}$

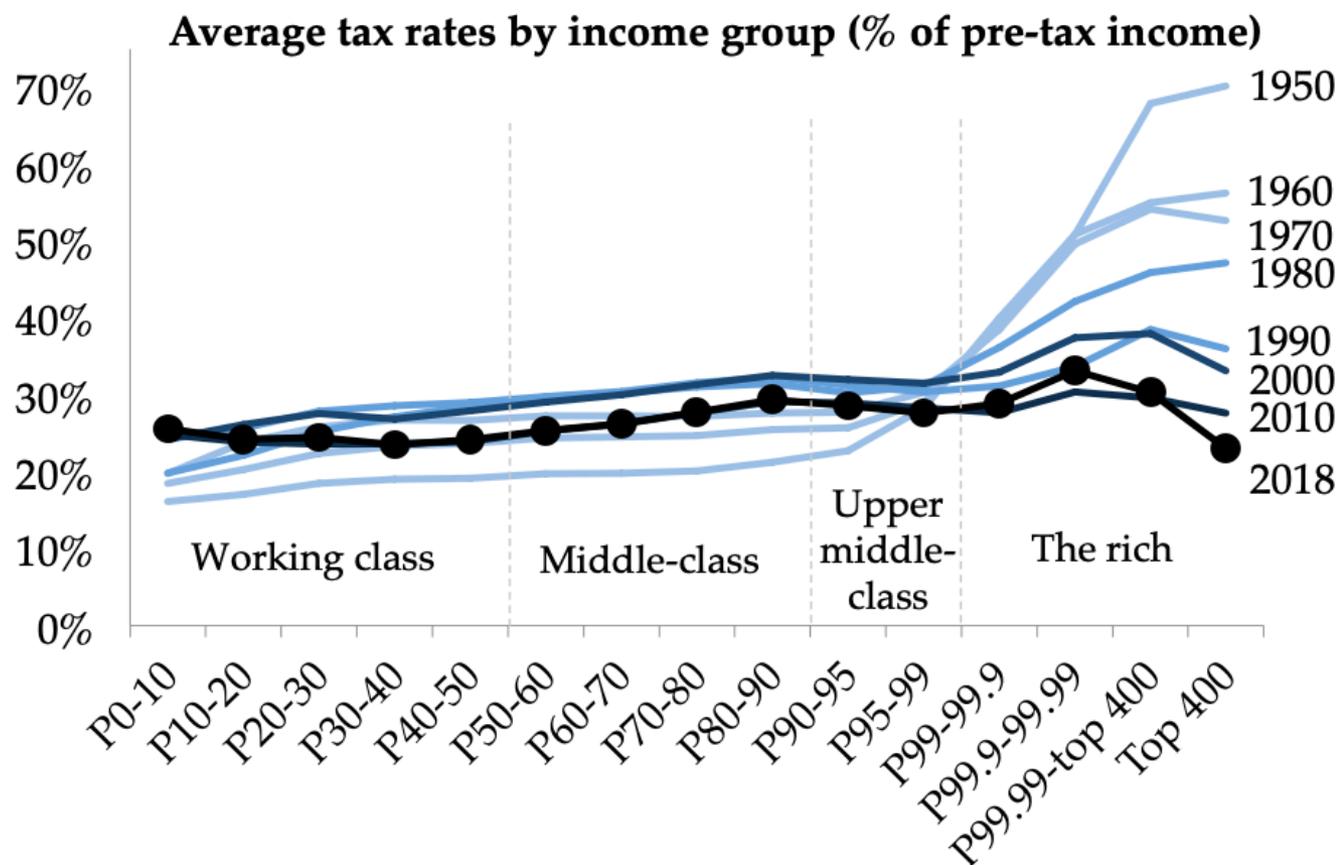
Optimal tax on higher incomes

- The more unequal the distribution of income (lower α), the higher the optimal top marginal income tax rate
- The higher the elasticity of taxable income (higher ε), the lower the optimal top marginal income tax rate
- If $\alpha \approx 2$ and $\varepsilon \approx 0.2$ then $\tau + \tau^H \approx 71\%$

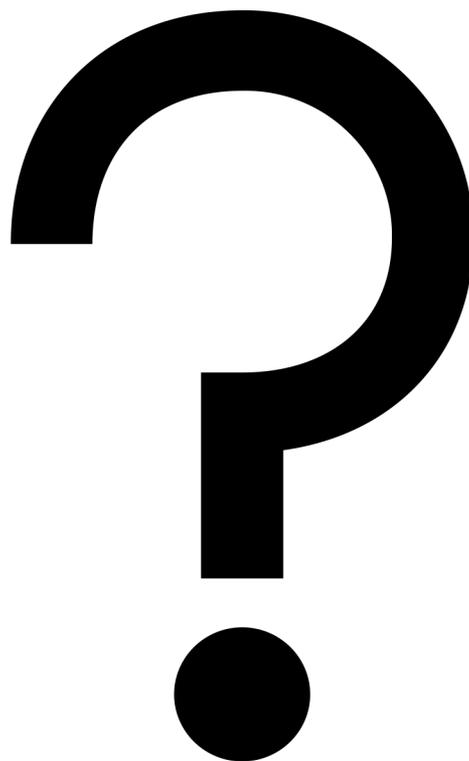
In practice...



The death of tax progressivity



Question: what if ε is not the result of labor responses?



Rich people respond to top income tax rates...

Figure 1. Changes in top 1% pre-tax income shares and top marginal tax rates since the 1970s



Note: The Figure depicts the change in top 1% pre-tax income shares against the change in top marginal income tax rates from 1975-9 to 2004-8 for 18 OECD countries (top tax rates include both central and local individual income tax rates, exact years vary slightly by countries depending on data availability in the World Top Income Database). *Source:* Piketty *et al* (2011), Figure 4A.

... but economies as a whole are not affected

Figure 2. GDP-per-capita growth rates and top marginal tax rates since the 1970s



Note: The Figure depicts the average real GDP-per-capita annual growth rate from 1975-9 to 2004-8 against the change in top marginal tax rates from 1975-9 to 2004-(exact years are the same as Figure 1 and vary slightly by countries). The correlation is virtually zero and insignificant suggesting that cuts in top tax rates do not lead to higher economic growth. *Source:* Piketty *et al* (2011), Figure 4B.

A tale of three elasticities!

1. Labor supply
2. Tax avoidance
3. Compensation bargaining

<https://www.aeaweb.org/articles?id=10.1257/pol.6.1.230>

Summary

- There has been dramatic changes in top labor income tax rates over time
- When determining tax policy, there is a trade-off between equity and efficiency
- Two key principles of optimal taxation: 1. Don't tax what is elastic 2. The more inequality, the higher the optimal tax rate at the top

References

- Piketty, Thomas and Emmanuel Saez “Optimal labor income taxation”, Handbook of Public Economics, 2013 (web)
- Diamond, Peter and Emmanuel Saez “The case for a progressive tax: from basic research to policy recommendations”, Journal of Economic Perspectives 2011 (web)