Econ 133 – Global Inequality and Growth

Optimal labor income taxation

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What we've learned so far:

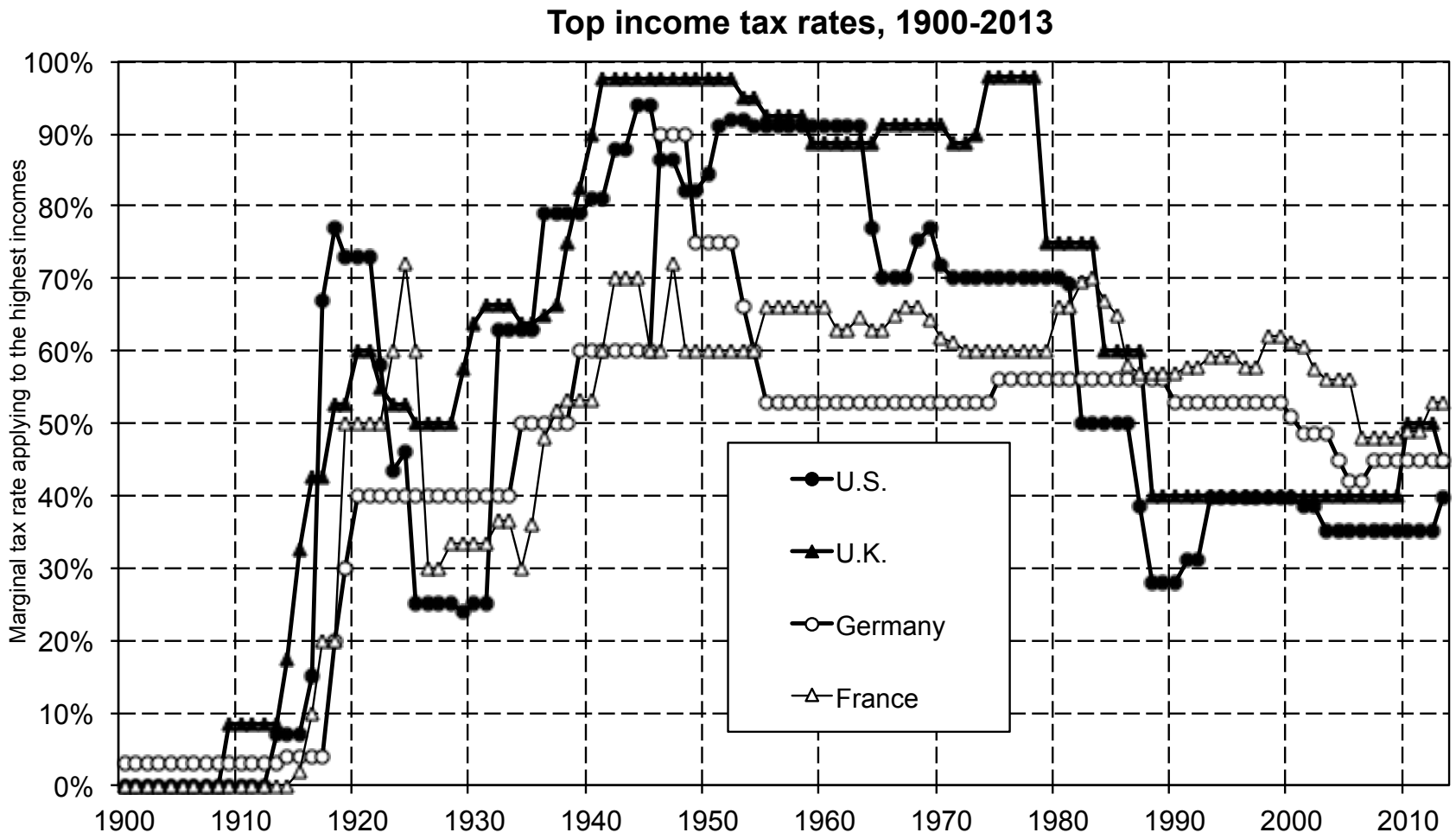
- Labor income inequality has increased a lot in Anglo-saxon countries since the 1980s

- A big fraction of this increase owes to the sharp rise of income at the top (top 1% and above)

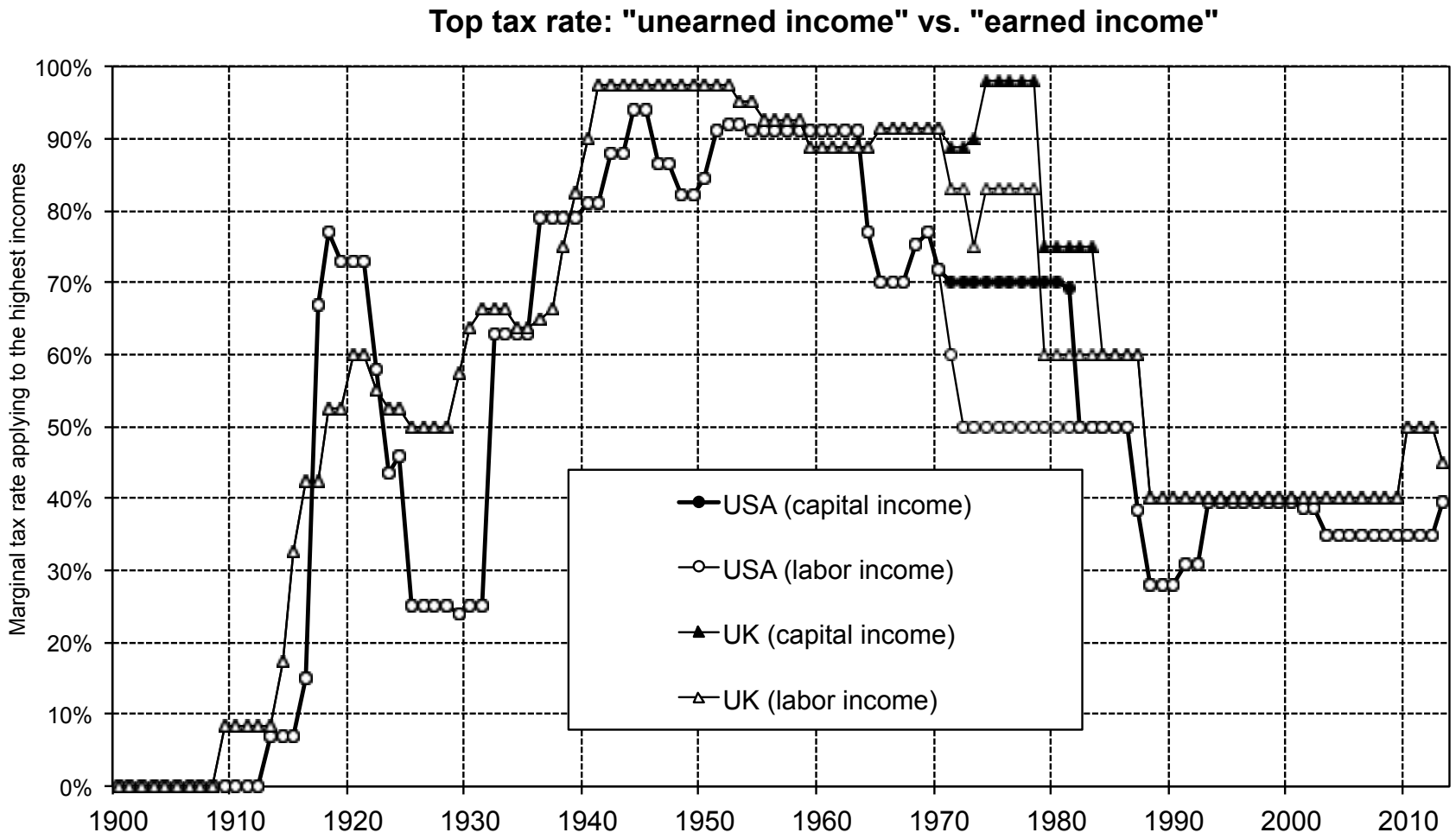
- A model where top executives put more effort into bargaining their wage when taxes are low can explain this increase

What we're going to learn in this lecture:

- How labor income taxes have changed over time
- The equity-efficiency trade-off that government face when taxing labor income
- The determinants of optimal labor income tax rates



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.



In the 1970s-18980s, the top marginal tax rate on capital income (applying to the highest incomes) in the U.S. and the UK was higher than the top tax rate on labor income. Sources and series: see piketty.pse.ens.fr/capital21c.

1 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

1.1 The optimal labor income tax problem

Goal of gov. is to balance the equity gains with the efficiency losses

- Objective: A social welfare function (SWF), $W = W(U_1, ..., U_n)$, where U_i is the utility of individual i.

- Instrument: A tax function $T(z)$ that gives the amount of taxes owed by individual with earnings z

- Contraints: A government budget constraint and individual

optimizing behavior

- The problem: Design $T(.)$ to maximize SWF subject to the government budget constraint and individual optimization

- This problem was first solved by Mirrlees (1971). In its general form, it is difficult to solve.

- We will simplify the problem by:
  1. Simplifying the tax system: piecewise linear taxes
  2. Considering a special social welfare function

1.2 Simplification number one: linear income tax

- The simplest tax system is one with a constant marginal tax rate τ and a guaranteed minimum income $G > 0$:

$$T(z) = \tau \cdot z - G. \tag{1}$$

- Also known as a **flat tax** or a negative income tax

- The average tax rate is given by $\frac{T(z)}{z} = \tau - \frac{G}{z}$.

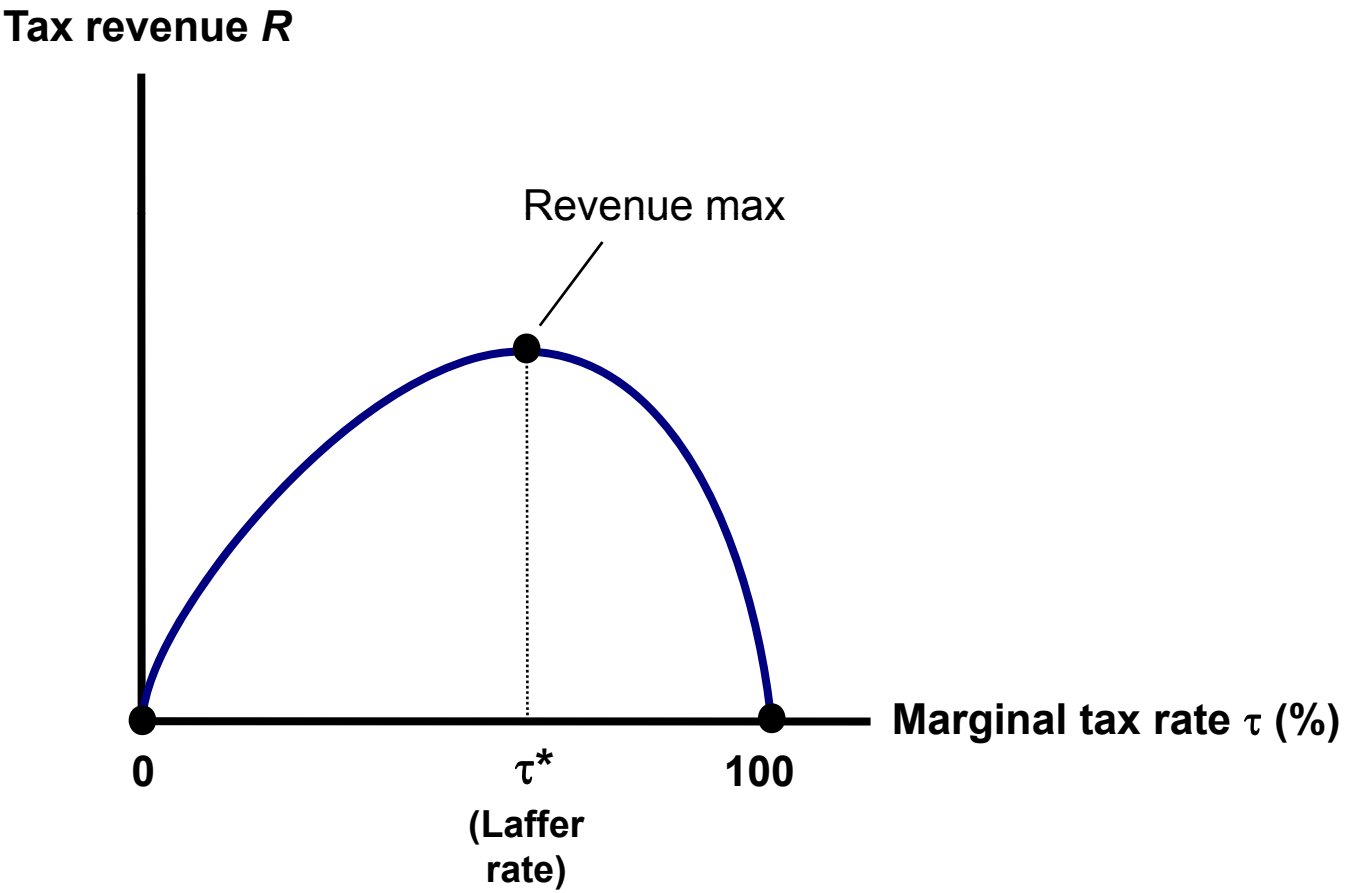
1.3 Simplification number two: Rawlsian SWF

- The Rawlsian SWF is $W = \min(U_1, ..., U_n)$: gov. only cares about the worst-off individual in the population

- Let's assume that the worst-off individual in the population is not able to work hence live off the transfer G

- A Rawlsian government then wants to maximize $G \Rightarrow$ the optimal income tax τ maximizes revenue $\Rightarrow$ rech top of the **Laffer curve**.

THE LAFFER CURVE



2 The optimal income tax rate

2.1 Laffer rate under linear taxation

- Theorem: 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
- With $\varepsilon \approx 0.2$ then $\tau^* \approx 83\%$

2.2 Piecewise linear tax systems

- Most tax systems are not linear, but piecewise linear: impose different marginal tax rates over different income intervals

- Within each bracket, the marginal tax rate is constant. Across brackets, marginal tax rates differ and typically increase with Y_L

- Let's focus on the Laffer rate in the highest-income tax bracket, assuming that income is Pareto-distributed at the top

- Variables pertaining to top-rate taxpayers are denoted by "hat"

- Theorem: the high-income Laffer rate is given by

$$\hat{\tau}^* = \frac{1}{1 + \hat{\varepsilon} \cdot a}$$

- where $\hat{\varepsilon}$ is the elasticity of taxable income at the top

- And $a =$ Pareto coefficient

- The more unequal the distribution of income, the higher the optimal top marginal income tax rate

- The higher the elasticity of taxable income, the lower the optimal top marginal income tax rate

- Plugging real number in the formula:

- If $a \approx 2$ and $\hat{\epsilon} \approx 0.2$ then $\hat{\tau}^* \approx 71\%$

3 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 taxe 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)

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