Econ 133 – Global Inequality and Growth

Optimal labor income taxation

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What we've learned so far:

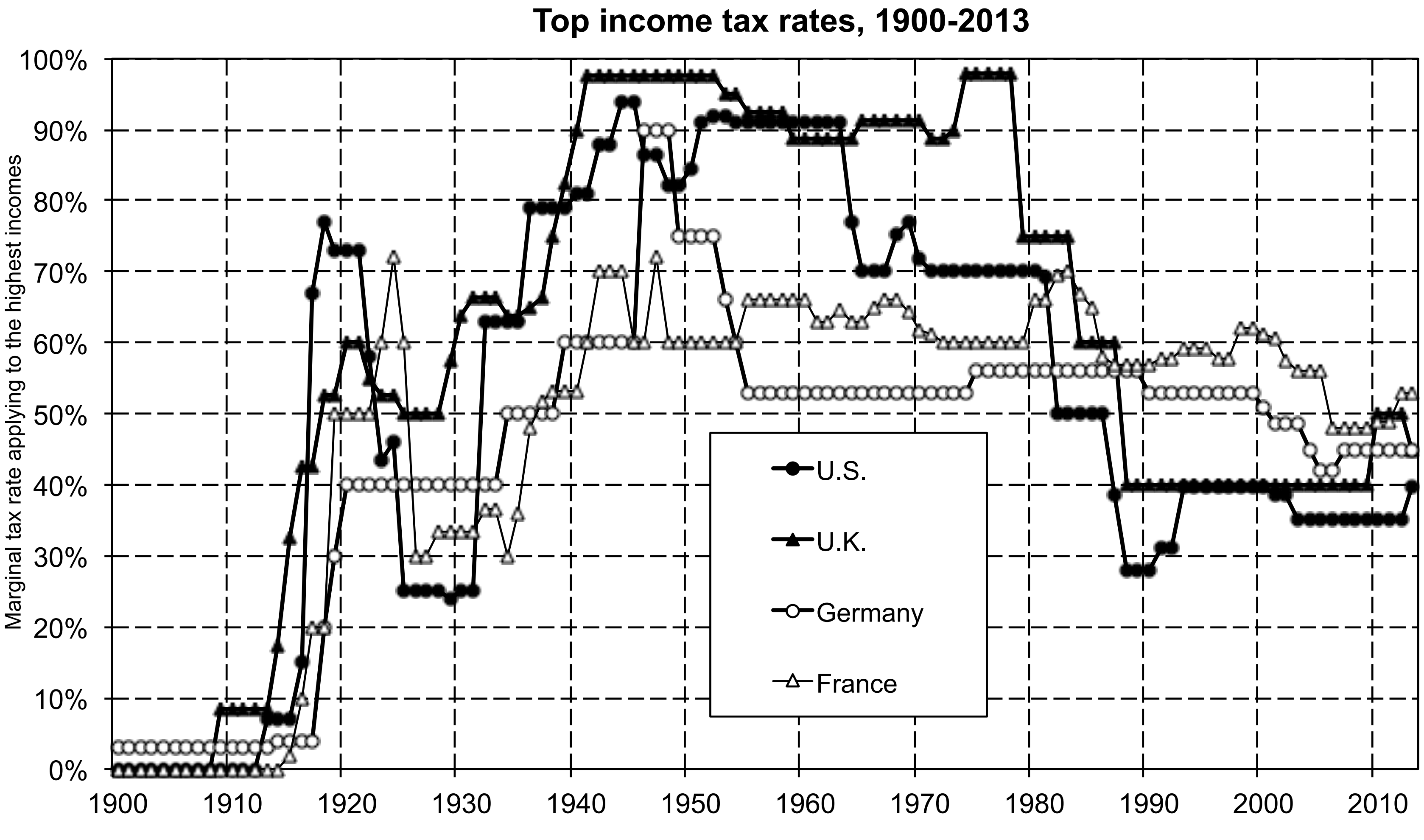
- Labor income inequality has increased a lot in Anglo-saxon countries since the 1980s

- 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.

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

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: gov. budget constraint and indiv.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

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**

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

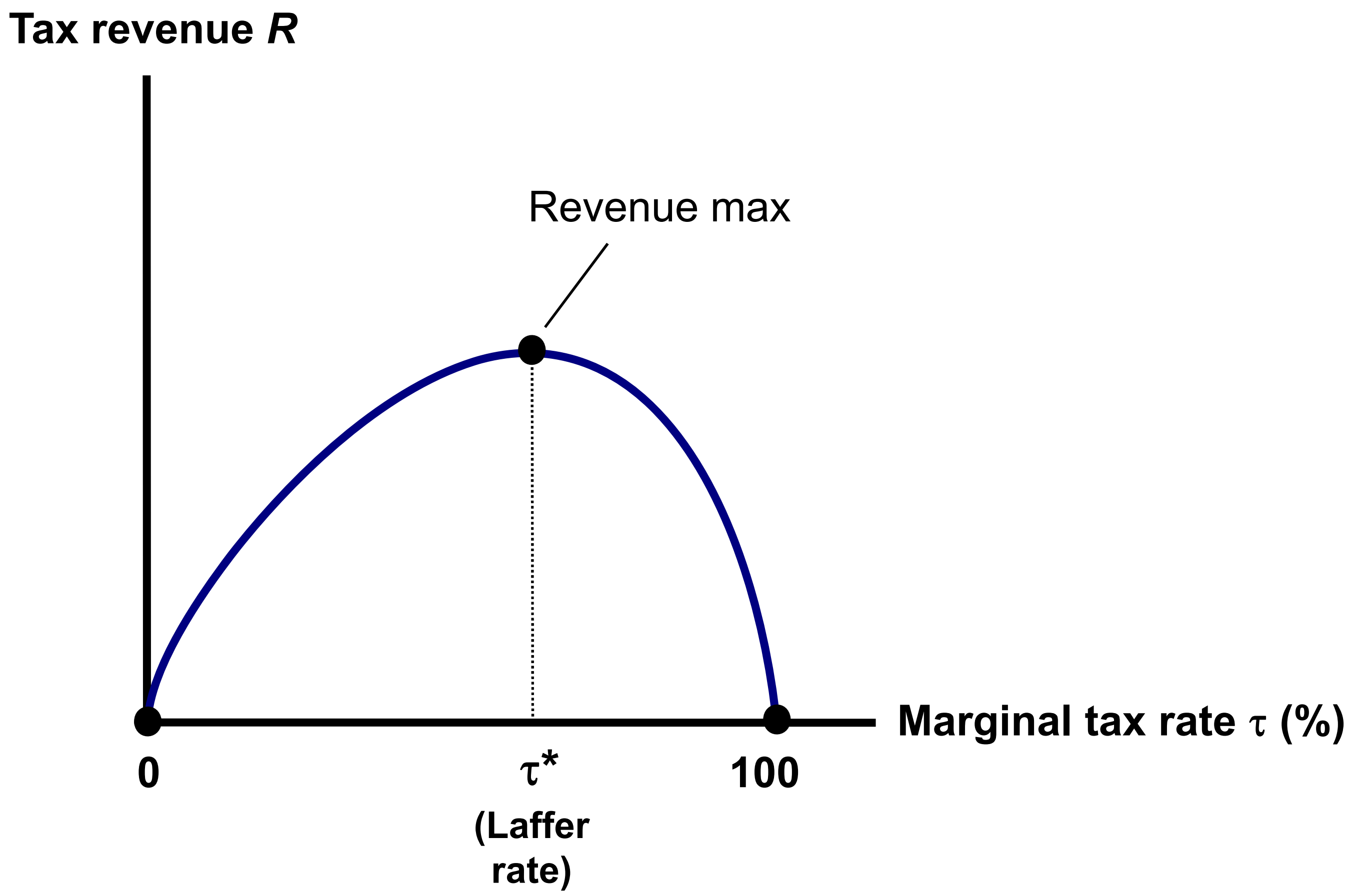
Simplification number two: Rawlsian SWF

- 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



Laffer curve is important in two ways:

- Laffer rate is the optimum under Rawlsian social preferences
- Laffer rate represents upper bound on optimal tax rates:
  - Any tax system above the Laffer bound is Pareto inefficient
  - Any tax system below Laffer may be optimal under some SWF
- Laffer bound is only value-free statement on optimal tax policy

2 The optimal income tax rate

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 $\tau^* \approx 83\%$

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

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)

Diamond, Peter and Emmanuel Saez "The case for a progressive tax: from basic research to policy recommendations", *Journal of Economic Perspectives* 2011 (web)