

# Graduate Public Economics

## Introduction and Road Map

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## PUBLIC ECONOMICS DEFINITION

Public Economics = Study of the Role of the Government in the Economy

Government is instrumental in most aspects of economic life:

- 1) Govt in charge of huge regulatory structure
- 2) Taxes: modern governments collect 30-45% of GDP in taxes
- 3) Expenditures: tax revenue funds traditional public goods (infrastructure, public order and safety, defense), Public education, Retirement benefits, Health care, Income Support
- 4) Macro-economic stabilization through central bank (interest rate, inflation control), fiscal stimulus, bailout policies

## **Two General Rules for Government Intervention**

- 1) Failure of 1st Welfare Theorem: Govt intervention can help if there are market or individual failures
- 2) Fallacy of the 2nd Welfare Theorem: Distortionary Govt intervention is required to reduce economic inequality

## Role 1: 1st Welfare Theorem Failure

**1st Welfare Theorem:** If (1) no externalities, (2) perfect competition, (3) perfect information, (4) agents are rational, then Private market equilibrium is Pareto efficient

Government intervention may be desirable if:

- 1) Externalities require govt interventions (Pigouvian taxes/subsidies, public good provision)
- 2) Imperfect competition requires regulation (typically studied in Industrial Organization)
- 3) Imperfect or Asymmetric Information (e.g., adverse selection may call for mandatory insurance)
- 4) Agents are not rational (= **individual failures** analyzed in behavioral economics, field in huge expansion): e.g., myopic or hyperbolic agents may not save enough for retirement

## Role 2: 2nd Welfare Theorem Fallacy

Even with no market failures, free market outcome might generate substantial inequality. Inequality is seen as the biggest issue with capitalism

**2nd Welfare Theorem:** Any Pareto Efficient outcome can be reached by (1) Suitable redistribution of initial endowments [individualized **lump-sum** taxes based on indiv. characteristics and not behavior], (2) Then letting markets work freely

⇒ No conflict between efficiency and equity

In reality, redistribution of initial endowments is not feasible (information pb) and govt needs to use **distortionary** taxes and transfers to redistribute ⇒ Conflict between efficiency and equity

This class will focus primarily but not exclusively on role 2

## 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

Positive Public Economics overlaps with Labor Economics

**Political Economy** is a positive analysis of govt outcomes [public choice is political economy from a libertarian view]

## Paternalism vs. Individual Failures

In many situations, individuals may not or do not seem to act in their best interests [e.g., many individuals are not able to save for retirement]

Two Polar Views on such situations:

1) **Paternalism [Libertarian Chicago View]** Individual failures do not exist and govt wants to impose on individuals its own preferences against individuals' will

2) **Individual Failures [Behavioral Economics View]** Individual Failures exist: Self-control problems, Cognitive Limitations

Key way to distinguish those 2 views: Under Paternalism, individuals should be opposed to govt programs such as Social Security. If individuals understand they have failures, they will tend to support govt programs such as Social Security.

## Plan for 230B Lectures

- 1) **Labor Income Taxation and Redistribution:** (a) Normative Aspects: Optimal Income Taxes and Transfers, (b) Empirical Aspects: Labor Supply and Taxes and Transfers, (c) Tax Enforcement Issues
- 2) **Social Insurance:** (a) Social Security and Retirement and Savings Decisions, (b) Unemployment and Disability Insurance
- 3) **Capital Income Taxation and Redistribution** (a) Empirical Aspects: Wealth Accumulation, Savings, and Taxation, (b) Normative Aspects: Optimal Capital Income Taxation



## Income Inequality: Labor vs. Capital Income

Individuals derive market income (before tax) from **labor** and **capital**:  $z = wl + rk$  where  $w$  is wage,  $l$  is labor supply,  $k$  is capital,  $r$  is rate of return on capital

1) **Labor income inequality** is due to differences in working abilities (education, talent, physical ability, etc.), work effort (hours of work, effort on the job, etc.), and luck (labor effort might succeed or not)

2) **Capital income inequality** is due to differences in wealth  $k$  (due to past saving behavior and inheritances received), and in rates of return  $r$  (varies dramatically overtime and across assets)

## **Income Inequality: Labor vs. Capital Income**

1) Capital Income (or wealth) is more concentrated than Labor Income: Top 1% wealth holders have 1/3 of total wealth. Top 1% labor income earners have about 15% of total labor income. [Top 1% incomes have 20% of total income]

2) Labor income is around 80% of aggregate market income from National Accounts (capital income is 20%). Fairly constant overtime and across industrialized countries.

[In GDP, gross capital share is higher (30%) because it includes depreciation of capital]

[In taxable income, capital income share is lower (15%) because it excludes imputed rents of homeowners, returns on pension funds, etc.]

## Income Inequality Measurement

Inequality can be measured by indexes such as Gini, log-variance, quantile income shares which are functions of the income distribution  $F(z)$

Gini = 2 \* area between 45 degree line and Lorenz curve

Lorenz curve  $L(p)$  at percentile  $p$  is fraction of total income earned by individuals below percentile  $p$

$$0 \leq L(p) \leq p$$

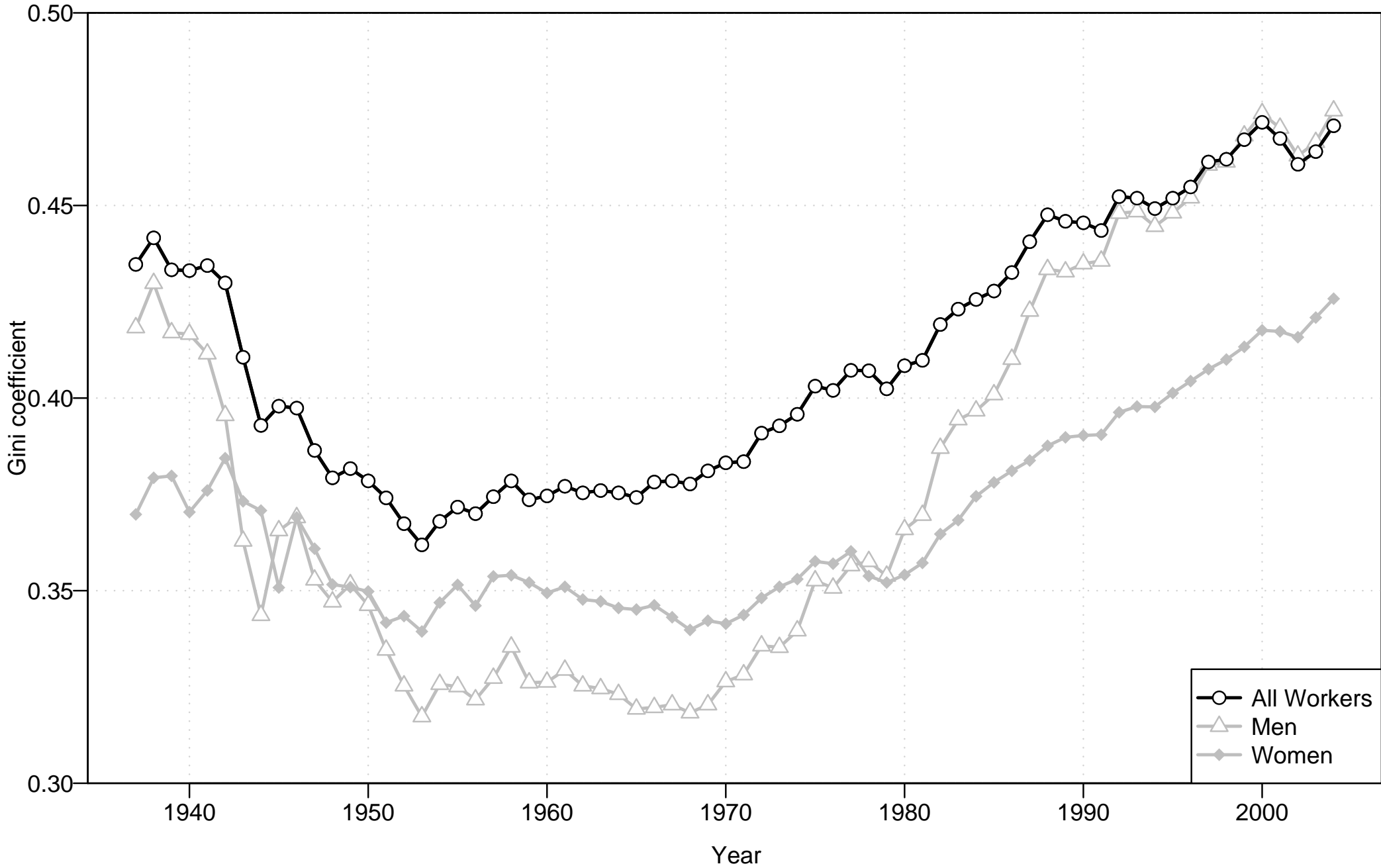
Gini=0 means perfect equality

Gini=1 means complete inequality (top person has all the income)

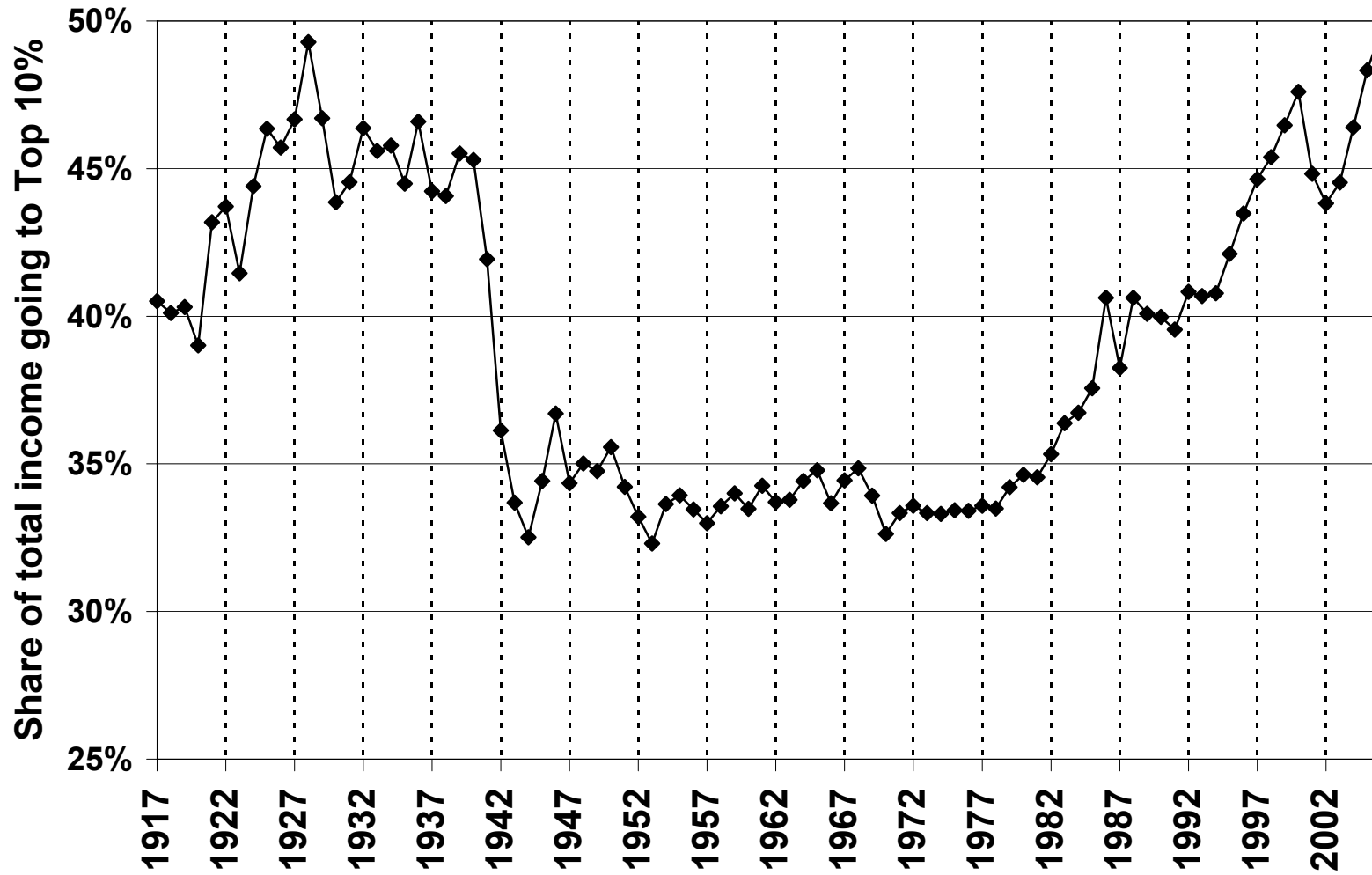
## Key Empirical Facts on Income Inequality

- 1) In the US, labor income inequality has increased substantially since 1970: debate between skilled biased technological progress view vs. institution view (min wage and Unions)
- 2) In the US, top income shares dropped dramatically from 1929 to 1950 and increased dramatically from 1980 to 2007 [Piketty and Saez]
- 3) Top incomes used to be primarily capital income. Now, top incomes are divided 50/50 between labor and capital income (due to explosion of top labor incomes with stock-options, bonuses, etc.)
- 4) Fall in top income shares from 1900-1950 happened in most OECD countries. Surge in top income shares has happened primarily in English speaking countries, not as much in Continental Europe and Japan

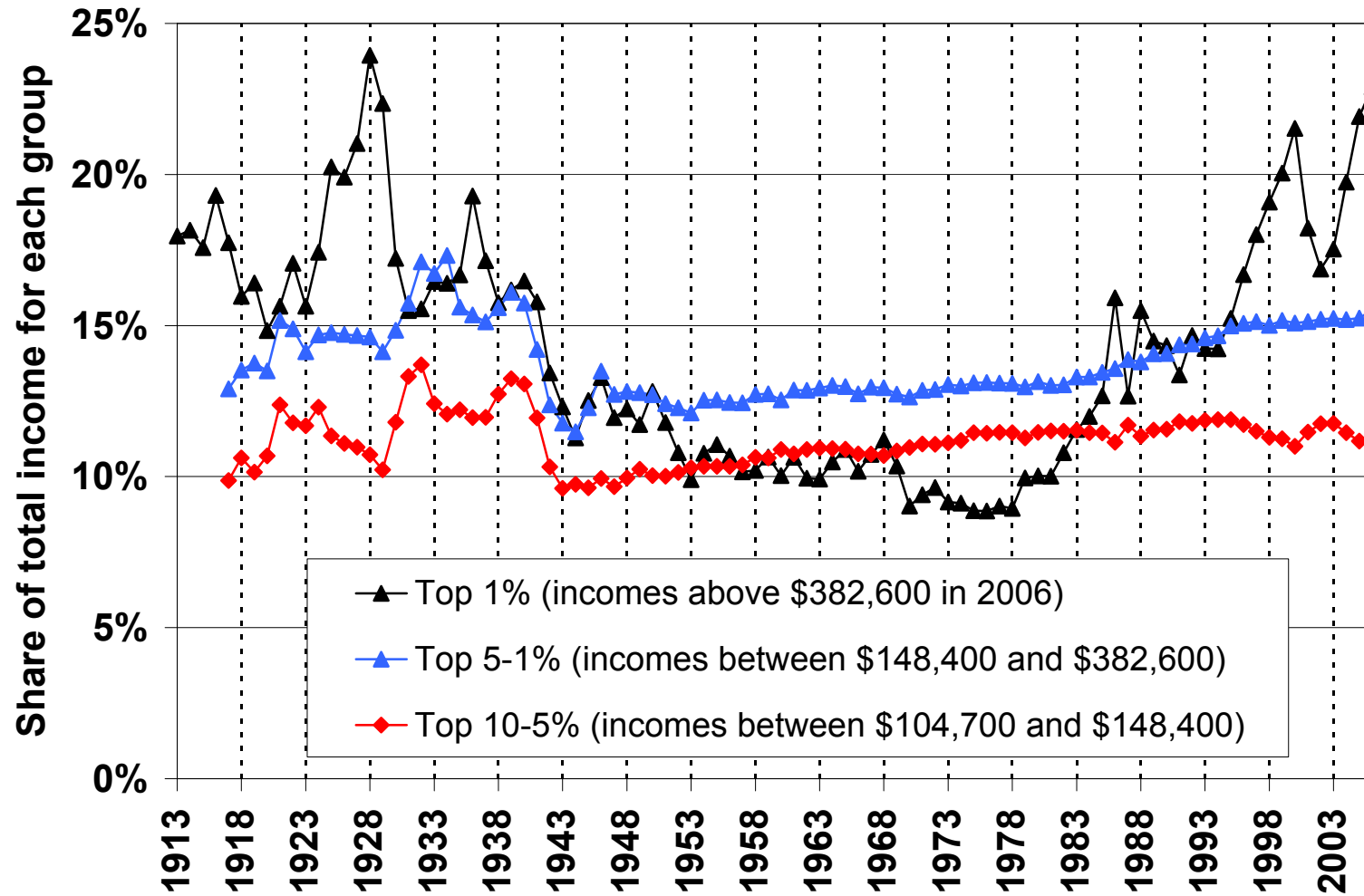
Figure 1: Gini coefficient



## Top 10% US Income Share, 1917-2006



## Decomposing top 10% into 3 groups, 1913-2006



## Govt Redistribution with Taxes and Transfers

Govt taxes individuals based on income and 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 (or progressive)

2) If inequality in  $y$  is more than inequality in  $z \Leftrightarrow$  tax and transfer system is regressive

a) If  $y = z \cdot (1 - t)$  with constant  $t$ , tax/transfer system is neutral

b) If  $y = z \cdot (1 - t) + G$  where  $G$  is a universal (lumpsum) allowance, then tax/transfer system is progressive

c) If  $y = z - T$  where  $T$  is a uniform tax (poll tax), then tax/transfer system is regressive



## Federal US Tax System: Overview

- 1) Individual income tax (on both labor+capital income) [progressive](40% of fed tax revenue)
- 2) Payroll taxes (on labor income) financing social security programs [about neutral] (40% of revenue)
- 3) Corporate income tax (on capital income) [progressive if incidence on capital income] (15% of revenue)
- 4) Estate taxes (on capital income) [very progressive] (2% of revenue)
- 5) Minor excise taxes (mostly labor income) [regressive] (3% of revenue)

## State+Local Tax System: Overview

- 1) Individual+Corporate income taxes [progressive] (30% of state+local tax revenue)
- 2) Sales + Excise taxes (tax on consumption = income - savings) [about neutral] (30% of revenue)
- 3) Real estate property taxes (on capital income) [slightly progressive] (30% of revenue)

<http://www.census.gov/govs/www/qtax.html>

## **US Tax System: Progressivity and Evolution**

**1) Medium Term Changes:** Federal Tax Progressivity has declined since 1970 but govt redistribution remains substantial especially when including transfers (Medicaid, Social Security, UI, DI, various income support programs)

**2) Long Term Changes:** Before 1913, US taxes were primarily tariffs, excises, and real estate property taxes [slightly regressive], no transfer programs (and hence small govt)

<http://www.treasury.gov/education/fact-sheets/taxes/ustax.shtml>

## 2. Federal Average Tax Rates by Income Groups (individual+corporate+payroll+estate taxes)

