

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

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

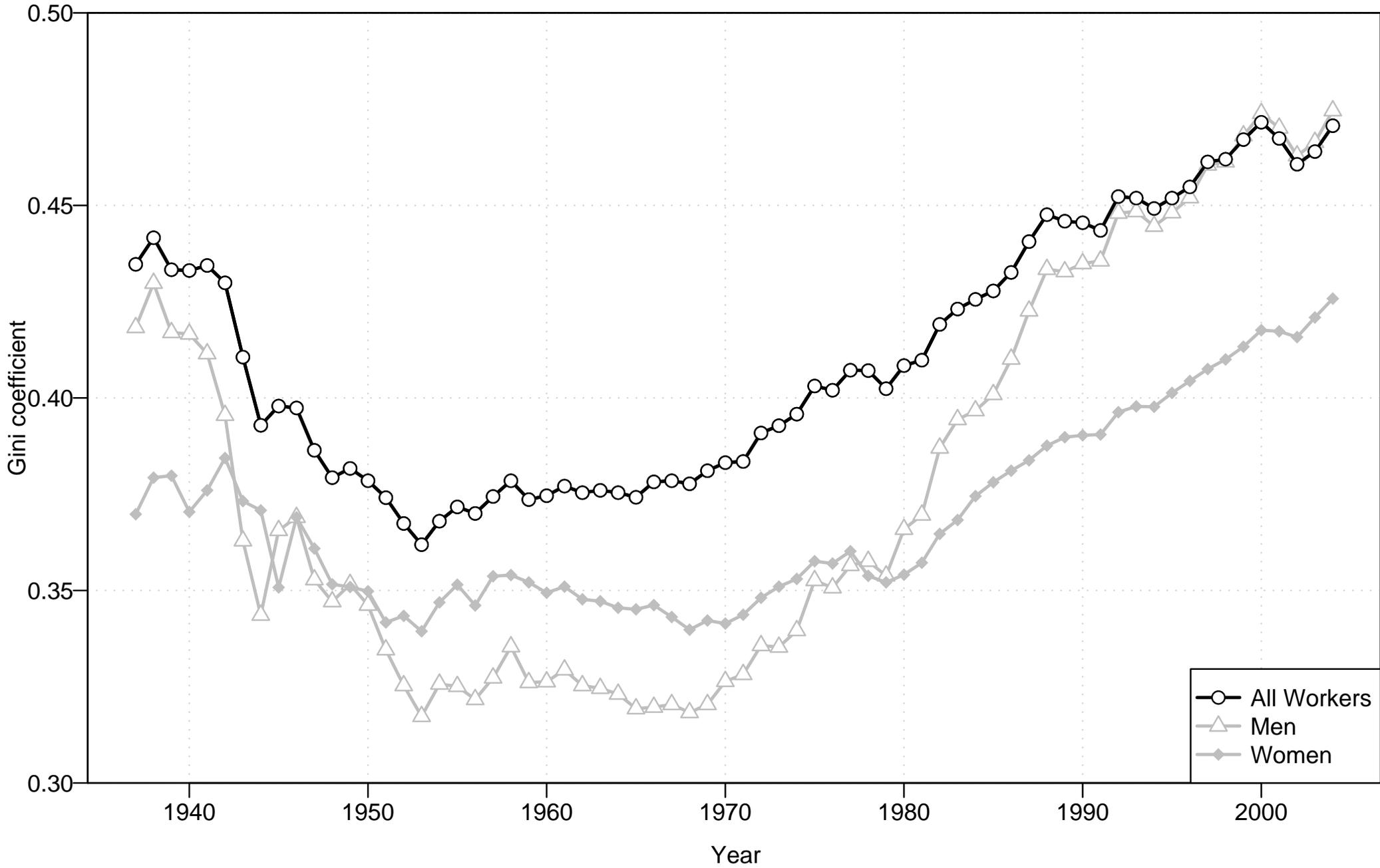
Gini=0 means perfect equality

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

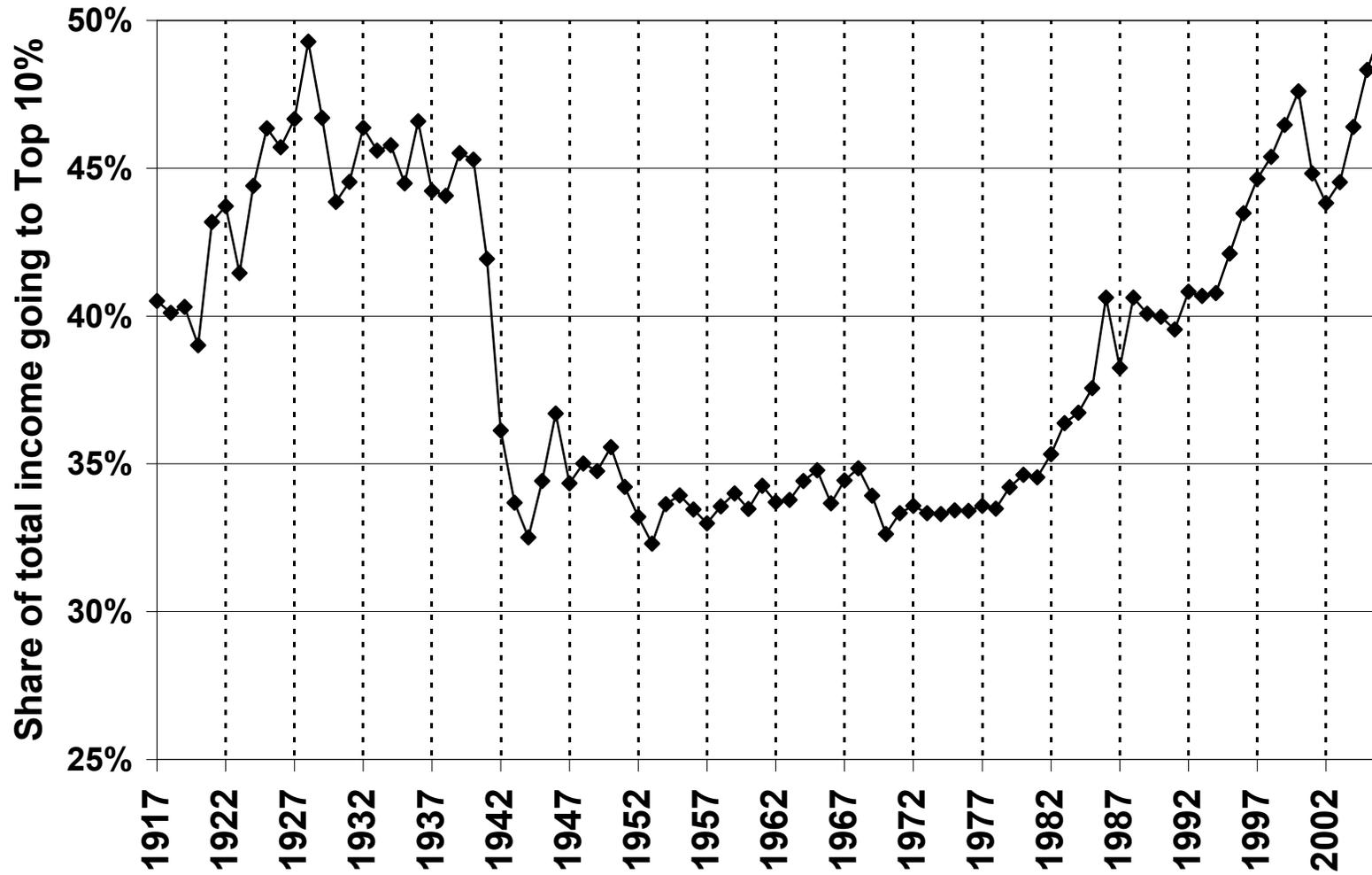
Key Empirical Facts on Income Inequality

- 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

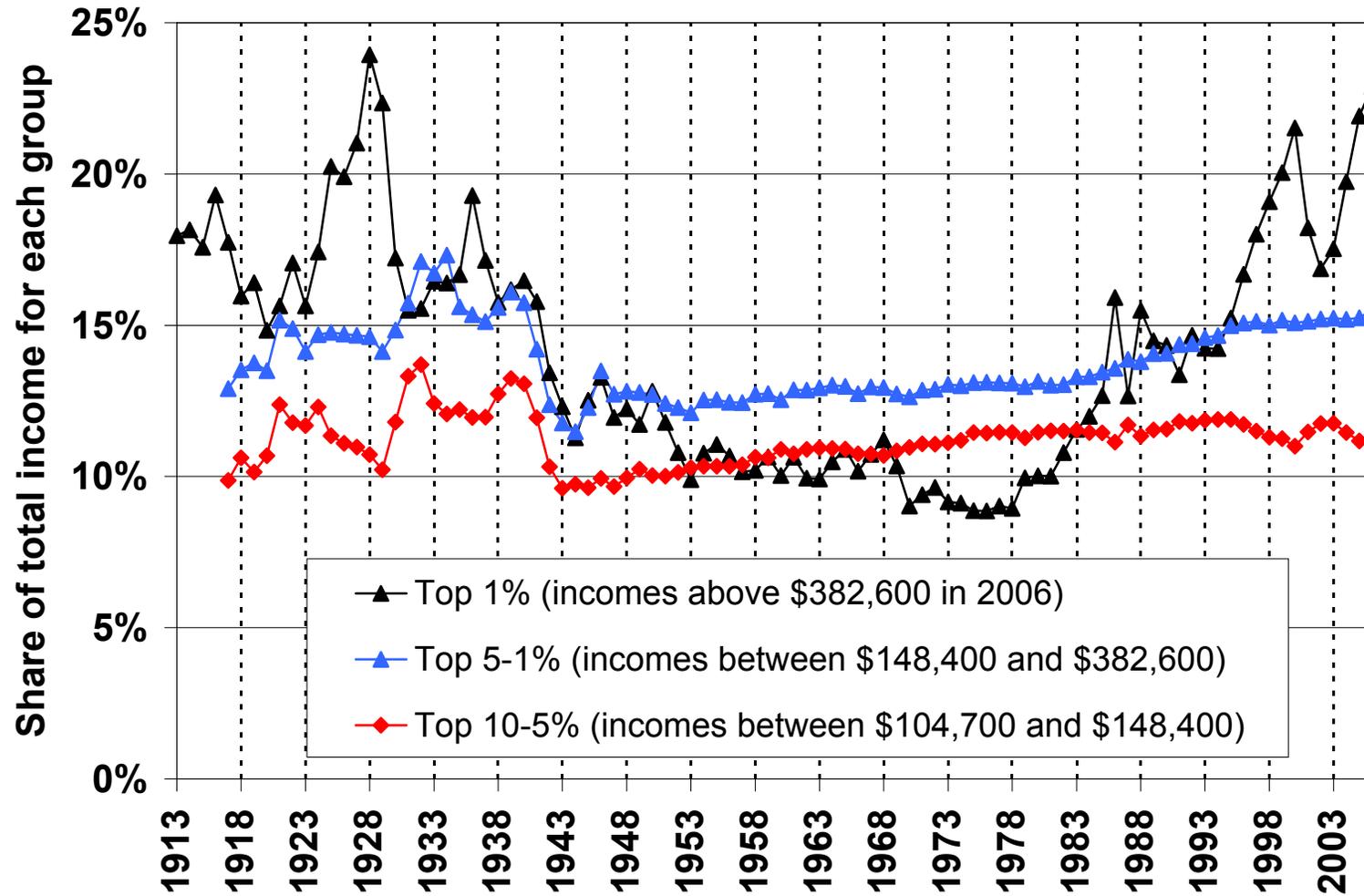
Figure 1: Gini coefficient



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)

