Graduate Public Economics
Introduction and Road Map

Emmanuel Saez
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) Government in charge of huge regulatory structure

2) Taxes: governments in advanced economies collect 30-50% of National Income in taxes

3) Expenditures: tax revenue funds traditional public goods (infrastructure, public order and safety, defense), and social state (education, retirement benefits, health care, income support)

4) Macro-economic stabilization through central bank (interest rate, inflation control), fiscal stimulus, bailout policies
Figure 10.14. The rise of the fiscal State in rich countries 1870-2015

Interpretation. Total fiscal revenues (all taxes and social contributions included) made less than 10% of national income in rich countries during the 19th century and until World War 1, before rising strongly from the 1910s-1920s until the 1970s-1980s and then stabilizing at different levels across countries: around 30% in the U.S., 40% in Britain and 45%-55% in Germany, France and Sweden.

Sources and series: see piketty.pse.ens.fr/ideology.
Figure 10.15. The rise of the social State in Europe, 1870-2015

Interpretation. In 2015, fiscal revenues represented 47% of national income on average in Western Europe and were used as follows: 10% of national income for regalian expenditure (army, police, justice, general administration, basic infrastructure: roads, etc.); 6% for education; 11% for pensions; 9% for health; 5% for social transfers (other than pensions); 6% for other social spending (housing, etc.). Before 1914, regalian expenditure absorbed almost all fiscal revenues. Note. The evolution depicted here is the average of Germany, France, Britain and Sweden (see figure 10.14). Sources and séries: see piketty.pse.ens.fr/ideology.
Bigger view on government (Saez 2021)

Economists have a narrow minded view of individual behavior: selfish and rational individuals interacting through markets.

But social cooperation is pervasive at many levels: families, workplaces, communities, nation states.

Cooperation then requires distribution explaining why humans are so attuned to inequality.

Governments are a formal way to organize cooperation.

Archaic human societies depended on social cooperation for protection and taking care of the young, sick, and old.

⇒ Explains best why our modern nation states provide defense and education, health care, and retirement benefits.

Replacing social institutions by markets does not always work.
For Economists:
Two General Rules for Government Intervention

1) Failure of 1st Welfare Theorem: Government intervention can help if there are market or individual failures

2) Fallacy of the 2nd Welfare Theorem: Distortionary Government 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 government 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 might generate substantial inequality. Inequality is an issue because humans are social beings: people care about their relative situation.

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 [1st best taxation]

Redistribution of initial endowments is not feasible (information pb) ⇒ govt needs to use distortionary taxes and transfers ⇒ Trade-off between efficiency and equity [2nd best taxation]

This class will focus primarily but not exclusively on role 2
Illustration of 2nd Welfare Theorem Fallacy

Suppose economy is populated 50% with disabled people unable to work (hence they earn $0) and 50% with able people who can work and earn $100

**Free market outcome:** disabled have $0, able have $100

**2nd welfare theorem:** govt is able to tell apart the disabled from the able [even if the able do not work]

⇒ can tax the able by $50 [regardless of whether they work or not] to give $50 to each disabled person ⇒ the able keep working [otherwise they’d have zero income and still have to pay $50]

**Real world:** govt can’t tell apart disabled from non working able

⇒ $50 tax on workers + $50 transfer on non workers destroys all incentives to work ⇒ govt can no longer do full redistribution ⇒ Trade-off between equity and size of the pie
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]
Individual Failures vs. Paternalism

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:


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

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


2) Wealth inequality and taxing capital income: (a) Wealth inequality, (b) Taxation of capital income, (c) International tax and tax enforcement issues
Macro-aggregates: Labor vs. Capital Income

National Income $Y =$ income earned by residents of nation
$= GDP -$ depreciation of $K +$ net income from abroad

Labor income $Y_L \approx 70-75\%$ of national income $Y$

Capital income $Y_K \approx 25-30\%$ of national income $Y$ (has increased in recent decades)

In GDP, gross capital share is higher (35-40%) because it includes depreciation of capital ($\approx 10\%$ of GDP)

Capital income is income from wealth: housing rents, profits of businesses and corporations, interest on fixed claim assets minus interest paid on debt
Figure 12: Capital shares in factor-price national income
1975-2010

Source: Piketty and Zucman (2014)
Figure A6: The composition of capital income in the U.S.,
(details)

- Housing rents (net of mortgages)
- Noncorporate business profits
- Net interest
- Corporate profits
- Profits & interest paid to pensions
Macro-aggregates: Wealth and Capital Income

Wealth arises from expected future income and value of assets

Private wealth includes real estate (land+buildings), corporate and business equity, fixed claimed assets (bonds+deposits), net of debts (mortgage, student loans, consumer credit)

Aggregate US Private Wealth $\approx 6 \times$ Annual National Income (big increase in recent years)

Private wealth reflects both capital stock accumulated through savings and pure price effects

Example 1: house can increase in value because it is improved (capital) or because local prices go up (pure price effect)

Example 2: greater monopoly power makes a business more valuable to owners (but at the expense of consumers)

Recent increase in US private wealth mostly from price effects
This figure depicts the share of total household wealth relative to national income. Source: Piketty, Saez, and Zucman (2018).
The rise of private versus the decline of public wealth in rich countries, 1970-2020

Interpretation: Public wealth is the sum of all financial and non-financial assets, net of debts, held by governments. Public wealth dropped from 60% of national income in 1970 to -106% in 2020 in the UK. Sources and series: wir2022.wid.world/methodology, Bauluz et al. (2021) and updates.
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 wealth, $r$ is rate of return on wealth

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.), labor regulations (min wage, unions)

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

Entrepreneurs start with labor which then transmutes into wealth (e.g., Zuckerberg with Facebook)
Income Inequality: Labor vs. Capital Income

Capital Income (or wealth) is always more concentrated than Labor Income. In the United States:

Top 1% wealth holders have almost 40% of total private wealth (Saez-Zucman 2016). Bottom 50% wealth holders hold almost no wealth.

Top 1% incomes earn about 20% of total national income on a pre-tax basis (Piketty-Saez-Zucman, 2018)

Top 1% labor income earners have about 15% of total labor income

World Inequality Lab wid.world provides standardized statistics for many countries and worldwide
**Figure 1.1**  Global income and wealth inequality, 2021

![Bar chart showing global income and wealth inequality in 2021](chart)

**Interpretation:** The global 50% captures 8% of total income measured at Purchasing Power Parity (PPP). The global bottom 50% owns 2% of wealth (at Purchasing Power Parity). The global top 10% owns 76% of total Household wealth and captures 52% of total income in 2021. Note that top wealth holders are not necessarily top income holders. Income is measured after the operation of pension and unemployment systems and before taxes and transfers. **Sources and series:** wir2022.wid.world/methodology
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 income)

Gini captures inequality everywhere but less intuitive than income shares
Gini Coefficient California pre-tax income, 2000, Gini=62.1%

Source: Annual Report 2001 California Franchise Tax Board
Key Empirical Facts on Income/Wealth Inequality

1) In the US, labor income inequality has increased substantially since 1970 (less so in Europe)

2) US top income shares dropped dramatically from 1929 to 1950 and increased dramatically since 1980. Bottom 50% incomes have stagnated in real terms since 1980

3) 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, and not as much in Continental Europe and Japan

4) Global inequality falling due to catch up of India/China but is now mostly within countries
Figure 1: Gini coefficient

Source: Kopczuk, Saez, Song QJE'10: Wage earnings inequality
Men still make 85% of the top 1% of the labor income distribution.

Share of women in the employed population, by fractile of labor income.

Source: Appendix Table II-F1.
**Figure 12**  Female share in global labor incomes, 1990-2020

*Gender parity*  

Women make only 35% of global labor incomes, men make the remaining 65%.

**Interpretation:** The share of female incomes in global labour incomes was 31% in 1990 and nears 35% in 2015-2020. Today, males make up 65% of total labor incomes. *Sources and series:* wir2022.wid.world/methodology and Neef and Robilliard (2021).
Top 10% Pre-tax Income Share in the US, 1913-2018

Top income shares of pretax national income among adults aged 20+ (income within couples equally split). Source is World Inequality Database wid.world (from Piketty, Saez, Zucman 2018).
Source: Saez and Zucman (2019), Figure 1.1
**Interpretation:** Global inequality, as measured by the ratio T10/B50 between the average income of the top 10% and the average income of the bottom 50%, more than doubled between 1820 and 1910, from less than 20 to about 40, and stabilized around 40 between 1910 and 2020. It is too early to say whether the decline in global inequality observed since 2008 will continue. Income is measured per capita after pension and unemployment insurance transfers and before income and wealth taxes. **Sources and series:** wir2022.wid.world/lmethodology and Chancel and Piketty (2021).
Measuring Intergenerational Income Mobility

Strong consensus that children’s success should not depend too much on parental income [Equality of Opportunity]

Studies linking adult children to their parents can measure link between children and parents income

Simple measure: average income rank of children by income rank of parents [Chetty et al. 2014]

1) US has less mobility than European countries (especially Scandinavian countries such as Denmark)

2) Substantial heterogeneity in mobility across cities in the US

3) Places with low race/income segregation, low income inequality, good K-12 schools, high social capital, high family stability tend to have high mobility [these are correlations and do not imply causality]
Figure II: Association between Children's Percentile Rank and Parents' Percentile Rank

A. Mean Child Income Rank vs. Parent Income Rank in the U.S.

Rank-Rank Slope (U.S) = 0.341
(0.0003)

B. United States vs. Denmark

Rank-Rank Slope (Denmark) = 0.180
(0.0063)

Notes: These figures present non-parametric binned scatter plots of the relationship between child and parent income ranks. Both figures are based on the core sample (1980-82 birth cohorts) and baseline family income definitions for parents and children. Child income is the mean of 2011-2012 family income (when the child was around 30), while parent income is mean family income from 1996-2000. We define a child's rank as her family income percentile rank relative to other children in her birth cohort and his parents' rank as their family income percentile rank relative to other parents of children in the core sample. Panel A plots the mean child percentile rank within each parental percentile rank bin. The series in triangles in Panel B plots the analogous series for Denmark, computed by Boserup, Kopczuk, and Kreiner (2013) using a similar sample and income definitions (see text for details). The series in circles reproduces the rank-rank relationship in the U.S. from Panel A as a reference. The slopes and best-fit lines are estimated using an OLS regression on the micro data for the U.S. and on the binned series (as we do not have access to the micro data) for Denmark. Standard errors are reported in parentheses.

Source: Chetty, Hendren, Kline, Saez (2014)
B. United States vs. Denmark

Rank-Rank Slope (Denmark) = 0.180 (0.0063)

Source: Chetty, Hendren, Kline, Saez (2014)
The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:

<table>
<thead>
<tr>
<th>Country</th>
<th>Probability</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>7.5%</td>
<td>Chetty, Hendren, Kline, Saez 2014</td>
</tr>
<tr>
<td>UK</td>
<td>9.0%</td>
<td>Blanden and Machin 2008</td>
</tr>
<tr>
<td>Denmark</td>
<td>11.7%</td>
<td>Boserup, Kopczuk, and Kreiner 2013</td>
</tr>
<tr>
<td>Canada</td>
<td>13.5%</td>
<td>Corak and Heisz 1999</td>
</tr>
</tbody>
</table>

Chances of achieving the “American Dream” are almost two times higher in Canada than in the U.S.
The Geography of Upward Mobility in the United States
Probability of Reaching the Top Fifth Starting from the Bottom Fifth

US average 7.5% [kids born 1980-2]

Source: Chetty et al. (2014)

Note: Lighter Color = More Upward Mobility
Download Statistics for Your Area at www.equality-of-opportunity.org

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The Geography of Upward Mobility in the United States
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US average 7.5% [kids born 1980-2]

Note: Lighter Color = More Upward Mobility
Download Statistics for Your Area at www.equality-of-opportunity.org
Much of the variation in upward mobility across areas may be driven by factors that affect children before they enter the labor market. What drives the variation in social mobility across areas? One mechanism for such a community-level effect of race is that upward income mobility is significantly lower in areas with larger African-American populations. However, white low-income individuals adversely. Indeed, areas with higher local tax rates, which are predominantly used to finance public schools, have higher rates of upward mobility. Moreover, we also find that upward mobility is higher in cities with less sprawl, as measured by commute times to work. In addition, smaller class sizes have higher rates of upward mobility. In contrast, top 1 percent income shares are not highly correlated with mobility. Areas with higher test scores (controlling for income levels), lower dropout rates, and smaller class sizes have higher rates of upward mobility. In particular, social capital indices—which are proxies for the strength of social networks and community involvement in an area—are very strongly correlated with mobility.

TABLE 1. Upward Mobility in the 50 Largest Metro Areas: The Top 10 and Bottom 10

<table>
<thead>
<tr>
<th>Rank</th>
<th>Commuting Zone</th>
<th>Odds of Reaching Top Fifth from Bottom Fifth</th>
<th>Rank</th>
<th>Commuting Zone</th>
<th>Odds of Reaching Top Fifth from Bottom Fifth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>San Jose, CA</td>
<td>12.9%</td>
<td>41</td>
<td>Cleveland, OH</td>
<td>5.1%</td>
</tr>
<tr>
<td>2</td>
<td>San Francisco, CA</td>
<td>12.2%</td>
<td>42</td>
<td>St. Louis, MO</td>
<td>5.1%</td>
</tr>
<tr>
<td>3</td>
<td>Washington, D.C.</td>
<td>11.0%</td>
<td>43</td>
<td>Raleigh, NC</td>
<td>5.0%</td>
</tr>
<tr>
<td>4</td>
<td>Seattle, WA</td>
<td>10.9%</td>
<td>44</td>
<td>Jacksonville, FL</td>
<td>4.9%</td>
</tr>
<tr>
<td>5</td>
<td>Salt Lake City, UT</td>
<td>10.8%</td>
<td>45</td>
<td>Columbus, OH</td>
<td>4.9%</td>
</tr>
<tr>
<td>6</td>
<td>New York, NY</td>
<td>10.5%</td>
<td>46</td>
<td>Indianapolis, IN</td>
<td>4.9%</td>
</tr>
<tr>
<td>7</td>
<td>Boston, MA</td>
<td>10.5%</td>
<td>47</td>
<td>Dayton, OH</td>
<td>4.9%</td>
</tr>
<tr>
<td>8</td>
<td>San Diego, CA</td>
<td>10.4%</td>
<td>48</td>
<td>Atlanta, GA</td>
<td>4.5%</td>
</tr>
<tr>
<td>9</td>
<td>Newark, NJ</td>
<td>10.2%</td>
<td>49</td>
<td>Milwaukee, WI</td>
<td>4.5%</td>
</tr>
<tr>
<td>10</td>
<td>Manchester, NH</td>
<td>10.0%</td>
<td>50</td>
<td>Charlotte, NC</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

Note: This table reports selected statistics from a sample of the 50 largest commuting zones (CZs) according to their populations in the 2000 Census. The columns report the percentage of children whose family income is in the top quintile of the national distribution of child family income conditional on having parent family income in the bottom quintile of the parental national income distribution—these probabilities are taken from Online Data Table VI of Chetty et al., 2014a.

Source: Chetty et al., 2014a.
Govt Redistribution with Taxes and Transfers

Government 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 \( z \) \( \iff \) tax and transfer system is redistributive (or progressive)

2) If inequality in \( y \) is more than inequality in \( z \) \( \iff \) 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 (approx what rich countries do)

c) If \( y = z - T \) where \( T \) is a uniform tax (poll tax), then tax/transfer system is regressive
US Distributional National Accounts


Pre-tax income is income before taxes and transfers.

Post-tax income is income net of all taxes and adding all transfers and public good spending.

Both concepts add up to national income, consistent with national accounts aggregates, and provide a comprehensive view of the mechanical impact of government redistribution.
US Top 10% Income Shares pre-tax vs. post-tax, 1913-2018

this cost should be considered as a tax on workers that the government imposes to achieve wider health insurance coverage (Saez and Zucman 2019b). Like other taxes, this cost should be subtracted from income for the computation of post-tax income.

In short, there is no perfect measure of post-tax income. To measure the inequality of income after taxes and transfers, disposable cash income is perhaps the most meaningful concept. Disposable cash income captures income available for saving and consumption, excluding the collective consumption of services like education and health mandated by the government. But disposable cash income does not add up to national income. Post-tax national income captures all of national income by deducting all taxes and adding back all forms of government spending and the government deficit. But computing post-tax national income requires assigning collective consumption expenditures as well as the current government deficit to individuals. There is no obvious, universally “correct” way to do such an imputation, and there will never be.

Does this mean that we cannot know what is happening to inequality? Of course not. There are no raw facts in the social sciences. Rather, there are attempts at

Figure 6
The Evolution of Bottom 50 Percent Incomes


Note: The figure depicts the evolution of the real incomes per adult (in 2018 dollars) for the bottom half of the income distribution for three income concepts: (1) pre-tax income before deducting taxes or adding government transfers (concept sums up to national income), (2) post-tax income that deducts all taxes and adds all transfers (cash and in-kind) and collective public expenditures minus the government deficit (also sums up to national income), (3) disposable cash income which is pre-tax income minus all taxes plus cash (or quasi-cash) transfers, i.e., (3) does not include in-kind transfers (primarily Medicaid and Medicare) and collective public expenditures that are included in (2).
Inequality During COVID

Inequality data tends to lag almost real time growth data

Blanchet-Saez-Zucman ’22 realtimeinequality.org provides US inequality statistics in real time by projecting inequality based on monthly aggregates and employment

1) COVID had a large negative impact on factor income (labor+capital income), especially among low earners (job loss)

But all income groups recovered fast (in contrast to Great Recession of 2008)

2) But disposable income increased a lot during COVID, especially so for bottom 50% due to government transfers:

(a) direct checks to families, (b) extra unemployment benefits for job losers, (c) paycheck protection program for businesses, (d) expanded child tax credit
Factor Income During the Pandemic

Factor income (defined as labor income from work and capital income from ownership) fell a lot during COVID and the fall was much more dramatic for people in the Bottom 50%. But factor income recovered fast for all groups. All income figures adjust for price inflation.

<table>
<thead>
<tr>
<th>Group</th>
<th>Growth (%)</th>
<th>Gain ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 0.01%</td>
<td>5.7%</td>
<td>$1.8M</td>
</tr>
<tr>
<td>Top 0.1%</td>
<td>6.9%</td>
<td>$470k</td>
</tr>
<tr>
<td>Top 1%</td>
<td>8.2%</td>
<td>$120k</td>
</tr>
<tr>
<td>Top 10%</td>
<td>6.6%</td>
<td>$24k</td>
</tr>
<tr>
<td>Middle 40%</td>
<td>3.4%</td>
<td>$2.9k</td>
</tr>
<tr>
<td>Bottom 50%</td>
<td>4.7%</td>
<td>$870</td>
</tr>
<tr>
<td>Total</td>
<td>5%</td>
<td>$4.0k</td>
</tr>
</tbody>
</table>
Disposable Income During the Pandemic

Thanks to government transfers to help with covid losses (such as checks to families, extra unemployment benefits, the paycheck protection program, etc.), disposable income (defined as income after taxes and cash transfers) increased a lot, especially so for the Bottom 50%.

Disposable income growth per unit
From 01/2019 to 12/2021

<table>
<thead>
<tr>
<th>Group</th>
<th>Growth (%)</th>
<th>Gain ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 0.01%</td>
<td>4.6%</td>
<td>$910k</td>
</tr>
<tr>
<td>Top 0.1%</td>
<td>5.8%</td>
<td>$260k</td>
</tr>
<tr>
<td>Top 1%</td>
<td>6.4%</td>
<td>$67k</td>
</tr>
<tr>
<td>Top 10%</td>
<td>4.2%</td>
<td>$11k</td>
</tr>
<tr>
<td>Middle 40%</td>
<td>2.7%</td>
<td>$1.9k</td>
</tr>
<tr>
<td>Bottom 50%</td>
<td>11.1%</td>
<td>$2.6k</td>
</tr>
<tr>
<td>Total</td>
<td>4.8%</td>
<td>$3.2k</td>
</tr>
</tbody>
</table>
Income of the bottom 50% since COVID (working age population, 20–64) (equal-split within couples, ranking by factor national income)
US tax/transfer System: Progressivity and Evolution

0) US Tax/Transfer system is progressive overall: pre-tax national income is less equally distributed than post-tax/post-transfer national income

1) Medium Term Changes: Federal Tax Progressivity has declined since 1950 (Saez and Zucman 2019) but govt redistribution through transfers has increased (Medicaid, Social Security retirement, DI, UI various income support programs)

2) Long Term Changes: Before 1913, US taxes were primarily tariffs, excises, and real estate property taxes [slightly regressive], minimal social state (and hence small govt)

http://www.treasury.gov/education/fact-sheets/taxes/ustax.shtml
Federal US Tax System (2/3 of total taxes)

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 [regressive at top] (40% of revenue)

3) Corporate income tax (on capital income) [progressive] (15% of revenue)

4) Estate taxes (on capital income) [very progressive] (1% of revenue)

5) Minor excise taxes (on consumption) [regressive] (3% of revenue)

Fed agencies (CBO, Treasury, Joint Committee on Taxation) and think-tanks (Tax Policy Center) provide distributional Fed tax tables
State+Local Tax System (1/3 of total taxes)

Decentralized governments can experiment, be tailored to local views, create tax competition and make redistribution harder (famous Tiebout 1956 model) hence favored by conservatives

1) Individual + Corporate income taxes [progressive] (1/3 of state+local tax revenue)

2) Sales taxes + Excise taxes (tax on consumption) [progressive] (1/3 of revenue)

3) Real estate property taxes (on capital income) [slightly progressive] (1/3 of revenue)


US Census provides Census of Government data
Average tax rates by income group in 2018 (% of pre-tax income)

<table>
<thead>
<tr>
<th>Income Group</th>
<th>Average Annual Pre-Tax Income</th>
<th>Average Tax Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working class</td>
<td>$18,500</td>
<td>28%</td>
</tr>
<tr>
<td>Middle-class</td>
<td>$75,000</td>
<td></td>
</tr>
<tr>
<td>Upper middle-class</td>
<td>$220,000</td>
<td></td>
</tr>
<tr>
<td>The rich</td>
<td>$1,500,000</td>
<td></td>
</tr>
</tbody>
</table>
Average tax rates by income group in 2018 (% of pre-tax income)

- Corporate & property taxes
- Consumption taxes
- Payroll taxes
- Individual income taxes
- Estate tax
Government Redistribution in Practice

1) Tax system: Taxes can be more or less progressive (right vs. left debate). Most OECD countries today have fairly flat tax systems. Taxes used to be very progressive in US and UK.

2) Social state: (size of social state also right vs. left debate)

   a) Publicly funded education: everybody gets access to quality education ⇒ Progrowth, redistributive and gives opportunity

   b) Universal health care (outside US): everybody gets access to quality health care ⇒ Redistributive by income and health

   c) Retirement benefits: old get support ⇒ redistributive in cross-section but not necessarily on life-time basis

   d) Income support: direct redistribution but tends to be targeted to specific groups (children, unemployed, disabled, elderly) or in-kind (housing, nutrition, training)
Interpretation. In 2015, fiscal revenues represented 47% of national income on average in Western Europe and were used as follows: 10% of national income for regalian expenditure (army, police, justice, general administration, basic infrastructure: roads, etc.); 6% for education; 11% for pensions; 9% for health; 5% for social transfers (other than pensions); 6% for other social spending (housing, etc.). Before 1914, regalian expenditure absorbed almost all fiscal revenues. Note. The evolution depicted here is the average of Germany, France, Britain and Sweden (see figure 10.14). Sources and séries: see piketty.pse.ens.fr/ideology.
REFERENCES CITED


Alvaredo, F., Atkinson, A., T. Piketty, E. Saez, and G. Zucman *World Inequality Database*, (web)


GENERAL BOOK REFERENCES

Graduate Level


Under-Graduate Level


REFERENCES ON EMPIRICAL METHODS:


