

Tax Policy and Inequality

Tax Policy Overview

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Outline

Tax Policy Overview

Personal Income Tax

Corporate Taxation

Consumption Taxes

Hidden Spending

Burden of Taxation

View from 30,000 ft.

- ▶ Definition: tax is a compulsory transfer from private entities to the government
 - ▶ There is still choice: tax avoidance
 - ▶ Additional "choice": tax evasion
 - ▶ Incidence may be different from who "remits" the tax
- ▶ Taxes can be used for beneficial purposes
- ▶ Also have costs/distortions:
 - ▶ raises price of cigarettes; lowers reward to work or saving; raises cost of property; etc.

Questions

1. What are the major Tax Revenue categories in the US?
2. What are the major Expenditure categories in the US?

Tax Revenue Totals 2017 (Billions)

Individual Income Tax	\$1,587
Payroll Tax	\$1,162
Corporate Income Tax	\$297
Other	\$270
Total	\$3,316

Source: CBO, April 2018

Questions

1. What are the major Tax Revenue categories in the US?
2. What are the major Expenditure categories in the US?

Expenditure Totals 2017 (Billions)

Mandatory Spending	
Social Security	\$939
Medicare	\$702
Medicaid	\$375
Income Security	\$293
Other	\$210
Mandatory Subtotal	\$2,519
Discretionary Spending	
Defense	\$590
Other	\$610
Discretionary Subtotal	\$1,200
Net Interest	\$263
Total	\$3,982

Source: CBO, April 2018

Tax Policy: Part 1

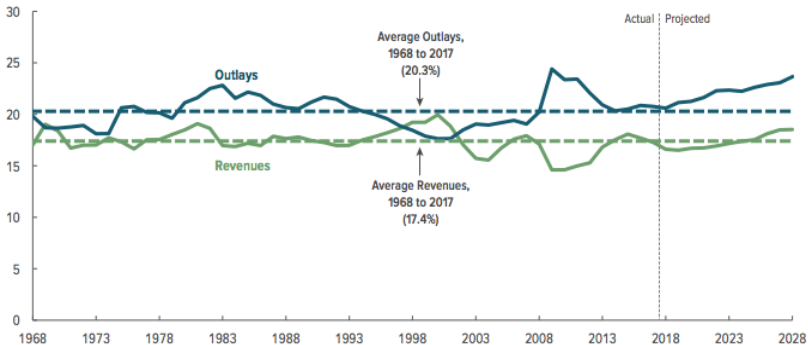
Tax Revenue and Expenditure (2017)

- ▶ Tax Revenue was \$3,316B or 17.3% of GDP
- ▶ Expenditures were \$3,982B or 20.8% of GDP
- ▶ The deficit was \$665B or 3.5% of GDP

Long Term Budget Projections

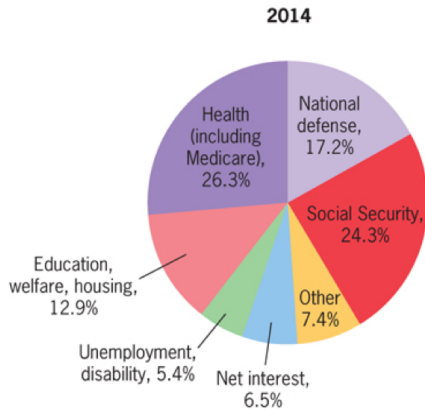
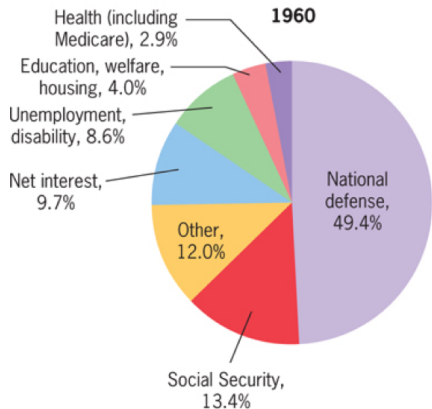
Total Revenues and Outlays

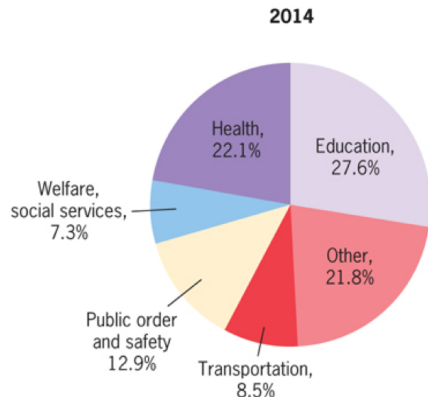
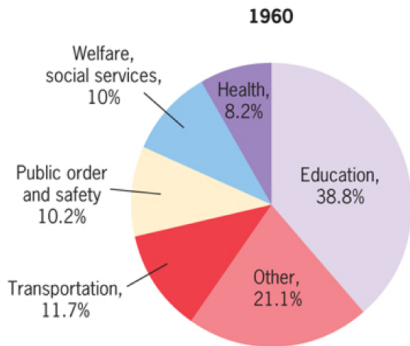
Percentage of Gross Domestic Product



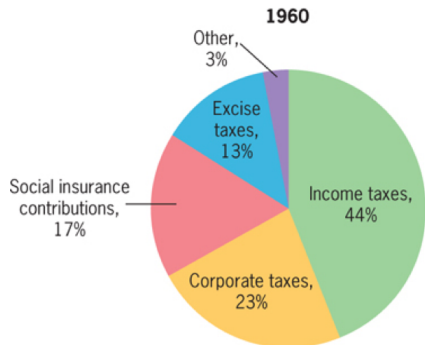
Source: Congressional Budget Office.

(a) Federal government expenditure by function

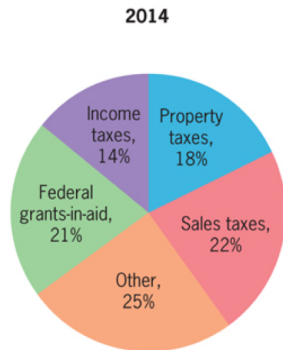
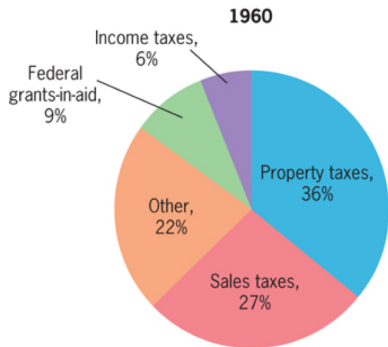


(b) State/local government expenditure by function

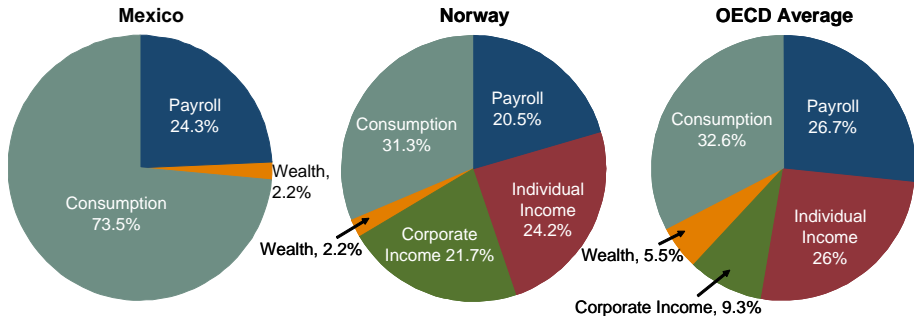
(a) Sources of federal receipts



(b) Sources of state/local receipts



International Tax Revenue by Type of Tax (2001, % of Total)



Source: OECD 2002

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Overview of Personal Income Tax

- ▶ Most widely known tax
 - ▶ Distinction b/w income tax & payroll tax
- ▶ Incidence varies w/ type of tax
 - ▶ corporate tax -> capital?
 - ▶ payroll tax -> workers
 - ▶ income tax -> depends (ex. hybrid car subsidy)

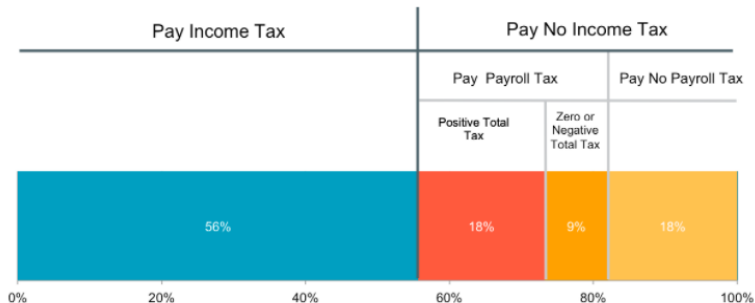
Different Types of Reductions in Tax Liability

- ▶ Types
 - ▶ Exclusions
 - ▶ Deductions
 - ▶ Exemptions
 - ▶ Credits
- ▶ Different impact on bottom line
- ▶ Are itemized deductions unfair?

Who Owes Taxes? (a.k.a. the 44%)

FIGURE 1

Tax Units That Pay No Income Tax
2016



Who Owes Taxes? (a.k.a. the 44%)

- ▶ Study in 2016: 44% of families didn't owe federal income taxes, BUT
 - ▶ low income families often pay payroll taxes & state/local taxes
 - ▶ Only 18% of households paid neither income taxes nor payroll taxes (most are the elderly)
 - ▶ About 9% have refundable tax credits that more than cancel payroll taxes
 - ▶ Of these, more than half were the elderly, the rest were below the poverty line
 - ▶ Factor in the shift in government spending to the tax schedule (EITC & CTC)

Capital Income

- ▶ Generally only income tax
- ▶ Capital gains and dividend income -> taxed at lower rate
- ▶ IRAs, 401(k)s: relatively tax free accrual
- ▶ More later

"Economic" Income

- ▶ Generally savings + spending
 - ▶ More formally: any increase in the ability to consume
 - ▶ Unrealized capital gains
 - ▶ Fringe benefits
 - ▶ Imputed rent for homeowners
- ▶ Generally not practical to tax economic income (but would be more fair)

Capital Income (cont'd)

- ▶ Long term capital gains & Dividends -> 15%
 - ▶ LTCG since 1980s, Dividends since 2003
 - ▶ Dividends taxed at 20% for top bracket
- ▶ Motivation: avoid double taxation from corporate tax
 - ▶ Some corporations do not have high taxes
 - ▶ Some assets are not corporations

Capital Income (cont'd)

- ▶ Ideally, we'd integrate corporate and income tax
 - ▶ Allocate corp income to each shareholder
- ▶ Arguments against:
 - ▶ Inflation shouldn't be taxed, encourage risk taking & entrepreneurship, losses are capped, avoid lock-in effect
- ▶ Arguments in favor:
 - ▶ Gets rid of tax shelters
 - ▶ Most HHs with capital income are high-income

Hidden Tax Brackets

- ▶ Credit phase-outs are marginal tax rate increases
 - ▶ See EITC, AMT
- ▶ Marriage Penalty
 - ▶ Consider the following simple tax schedule: each tax unit pays 0% on first \$10K, then 25% on income above \$10K
 - ▶ Consider two individuals earning \$10K deciding whether to get married or not
 - ▶ Now suppose we raise the exemption to \$20K for married households
- ▶ Are there any marriage penalties?
- ▶ Are there any single penalties?

Payroll Taxes

- ▶ Social Security, Medicare, Unemployment and Disability Insurance
- ▶ Taxes spent -> Benefits received
- ▶ Simple formula, not levied on capital income (generally)
- ▶ payroll tax for SS is capped (regressive)
- ▶ Benefits for SS are also capped (progressive)

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Corporate Tax Overview

- ▶ Corporate taxes break down relationship b/w income & tax liability
 - ▶ E.g. high income investor in small business
 - ▶ E.g. non-taxable investor in large company
- ▶ Corporations face a nominal flat tax rate of 21%
 - ▶ Most corporations below \$75K
 - ▶ Most income from companies over \$10M
- ▶ Double taxation? Yes and No

Corporate Tax Overview

- ▶ Corporate income huge share of total income (GDP)
 - ▶ $\approx 75\%$ of the economy
- ▶ People favor taxing companies relative to rich HHs
- ▶ Disproportionate fraction of shareholders are rich HHs

Who Pay's Corporate Tax?

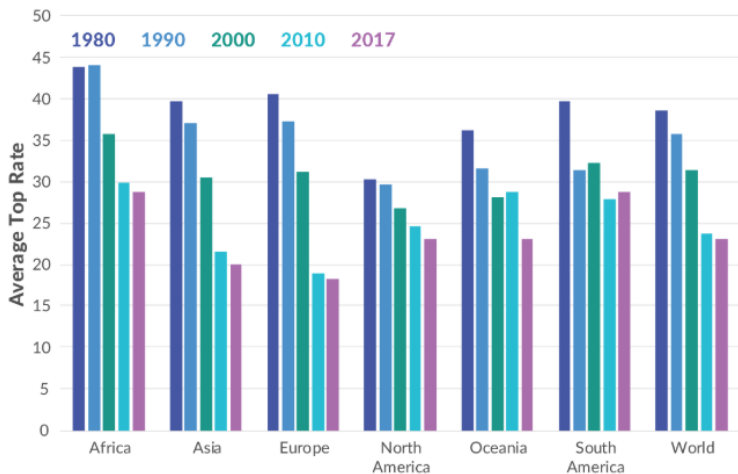
- ▶ Short-run: probably shareholders of the taxed firm
- ▶ Long-run: there is debate
 - ▶ Could fall mainly on labor, because lower capital = lower productivity and wages
 - ▶ Could fall on all capital owners, even in non-taxed firms (supply shifts)
- ▶ CBO, Treasury, and others use the latter assumption

Multinational Corporations

- ▶ Complicated interaction of taxes across international borders
 - ▶ Foreign Tax Credits
 - ▶ Worldwide vs. Territorial
 - ▶ Transfer Pricing
 - ▶ Tax Havens

Tax Rates Across Regions/Over Time

Average Top Corporate Income Tax Rate by Region and Decade



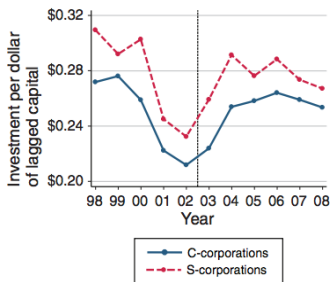
Source: Tax Foundation. Data compiled from numerous sources including: PwC, KPMG, Deloitte, and the U.S. Department of Agriculture.

Effect of Dividend Taxes on Investment: Yagan, 2015

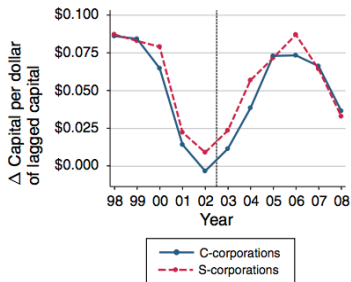
- ▶ Again, JGTRRA 2003
 - ▶ Top tax rate on dividends: 38.6% to 15%
 - ▶ Potential to reduce firms cost of capital
- ▶ Compare "C" corporations to "S" corporations
 - ▶ DD estimator, key assumption: parallel trends
 - ▶ Smaller "C" corporations
 - ▶ Tax return data
- ▶ No change in investment, negative point estimate on compensation
- ▶ Draws into question existing theories of corporate behaviors

Effect of Dividend Taxes on Investment: Yagan, 2015

Panel A. Investment

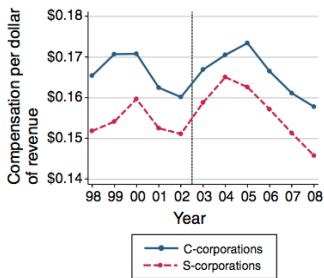


Panel B. Net investment



Effect of Dividend Taxes on Investment: Yagan, 2015

Panel C. Employee compensation



Panel D. Total payouts to shareholders

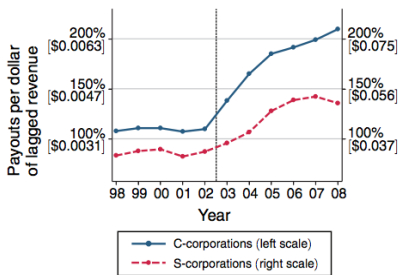


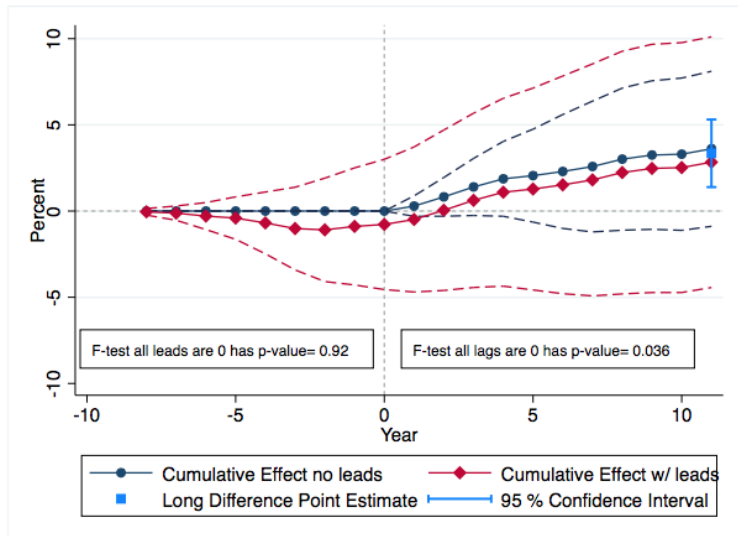
FIGURE 2. EFFECTS OF THE 2003 DIVIDEND TAX CUT

Incidence of Corporate Tax Cuts: Suárez Serrator & Zidar

- ▶ Who bears the burden of corporate tax?
 - ▶ Owners, workers, loss economic growth from relocations?
- ▶ Model the location of firms and workers across local markets, and local amenities
- ▶ Uses variation in state corporate taxes and movement of firms
- ▶ Results:
 - ▶ 40% of tax cuts go to owners
 - ▶ 60% goes to landowners and workers
- ▶ Different from classic results that neglect account relocation of capital

Incidence of Corporate Tax Cuts: Suárez Serrator & Zidar

B. Cumulative Annual Effects with leads



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Consumption Tax Overview

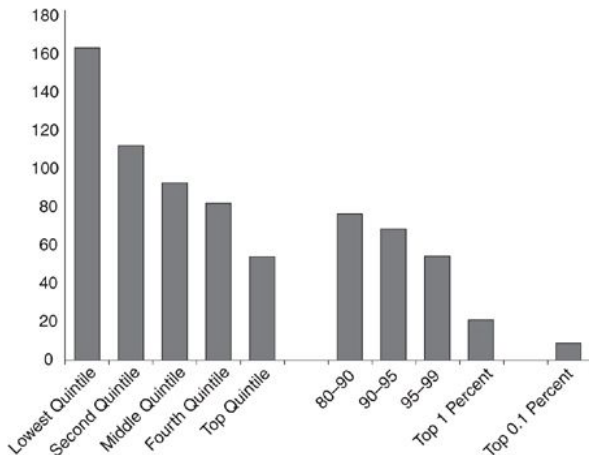
- ▶ US Consumption Taxes: Sales and Excise Taxes
 - ▶ Everywhere else: VAT
- ▶ Motivation for Consumption Taxation:
 - ▶ Encourages Saving, relative to income taxation
 - ▶ Simple to administer
- ▶ Drawbacks of Consumption Taxation:
 - ▶ Regressive
 - ▶ Not as bad over time (lifetime consumption \approx lifetime earnings)

Consumption Tax Example

- ▶ Suppose you have \$1,000
- ▶ You can invest as much money as you want at a return of 4%
 - ▶ Approximately how long does it take to double your investment?
 - ▶ Call this time X
- ▶ Consider an income tax of 50% (earnings & interest income)
 - ▶ How much can you consume after saving for X years?
- ▶ Consider a consumption tax of 100%
 - ▶ How much can you consume after saving for X years?

Consumption Tax Regressivity

Consumption as a Percentage of Income - 2010



Sales Tax

- ▶ Tax on final sales (all but 5 states)
- ▶ Some items are exempt
- ▶ Wide scope for evasion
- ▶ Variants:
 - ▶ Use Tax
 - ▶ Luxury Tax
 - ▶ Excise Tax
 - ▶ Pigouvian Tax
 - ▶ Sin Tax

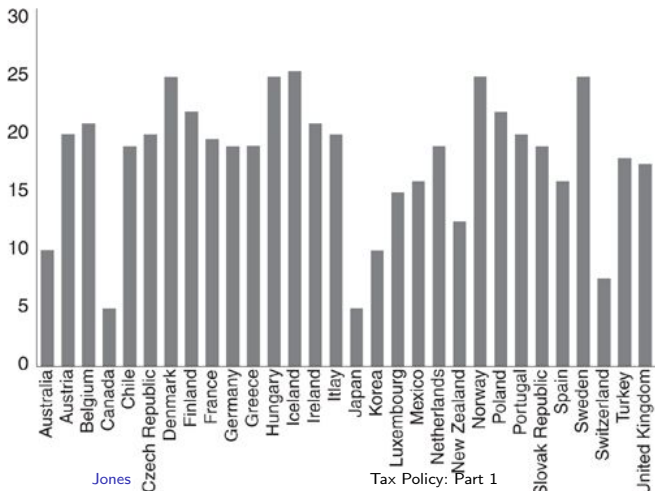
Value Added Tax (VAT)

- ▶ Tax applied at each stage of production
 - ▶ Widely used
- ▶ Two methods of implementation:
 - ▶ Subtraction Method
 - ▶ Credit Invoice Method
- ▶ Small business usually exempt
- ▶ Could interfere with State sales taxes

VAT Continued

▶ Not popular in the US:

"Liberals think it's regressive and conservatives think it's a money machine. If they ever reverse their positions, the VAT may happen." - Larry Summers, Sec. of Treasury (1988)



Tax Salience: Chetty, Looney, and Kroft (2009)

- ▶ A standard key assumption is that people respond to sales taxes in the same way they do to price increases

$$x(p, \tau) = x((1 + \tau)p)?$$

- ▶ In other words does:

$$\varepsilon_{x,p} = \varepsilon_{x,1+\tau}$$

- ▶ Test this theory using two empirical methods:
 - ▶ Manipulate visibility of sales tax using a field experiment
 - ▶ Compare how demand responds to variation in posted price versus variation in after-tax price

Tax Salience: Chetty, Looney, and Kroft (2009)



Tax Salience: Chetty, Looney, and Kroft (2009)

Effect of Posting Tax-Inclusive Prices: Mean Quantity Sold

Period	TREATMENT STORE		Difference
	Control Categories	Treated Categories	
Baseline	26.48 (0.22)	25.17 (0.37)	-1.31 (0.43)
Experiment	27.32 (0.87)	23.87 (1.02)	-3.45 (0.64)
Difference over time	0.84 (0.75)	-1.30 (0.92)	DD_{TS} = -2.14 (0.64)

Tax Salience: Chetty, Looney, and Kroft (2009)

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Period	<u>Control Categories</u>	<u>Treated Categories</u>	<u>Difference</u>
Baseline	30.57 (0.24)	27.94 (0.30)	-2.63 (0.32)
Experiment	30.76 (0.72)	28.19 (1.06)	-2.57 (1.09)
Difference over time	0.19 (0.64)	0.25 (0.92)	DD_{CS} = 0.06 (0.90)

Tax Salience: Chetty, Looney, and Kroft (2009)

Effect of Posting Tax-Inclusive Prices: Mean Quantity Sold

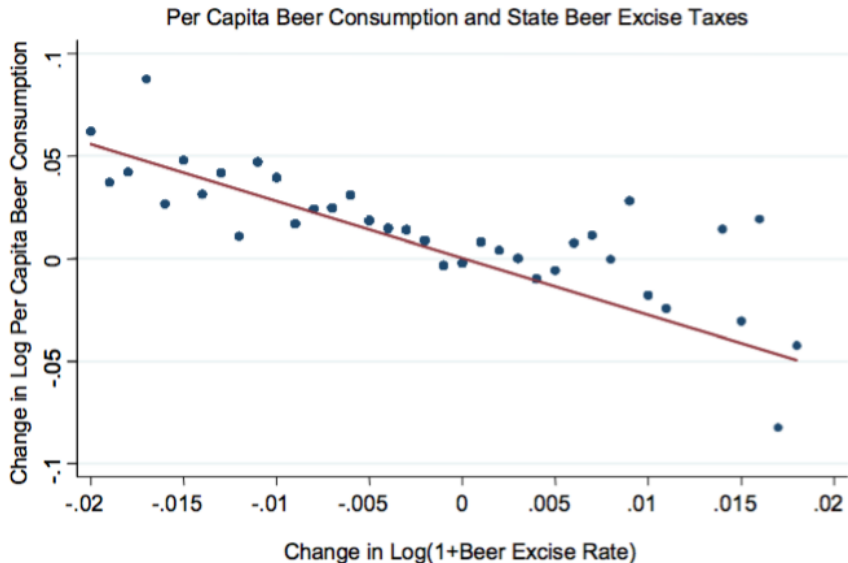
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DDD Estimate

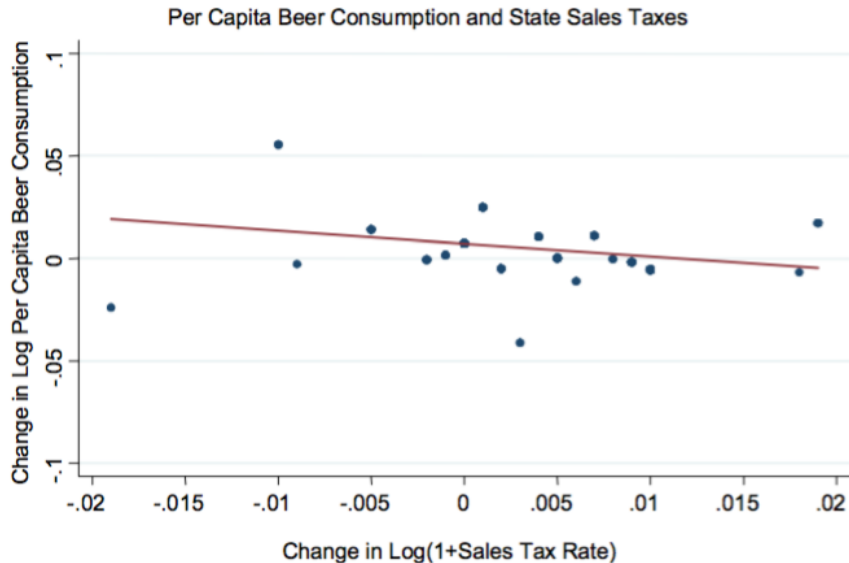
-2.20
(0.58)

Tax Salience: Chetty, Looney, and Kroft (2009)



Source: Chetty, Looney, and Kroft (2009)

Tax Salience: Chetty, Looney, and Kroft (2009)



Source: Chetty, Looney, and Kroft (2009)

Pigouvian Taxes, Sin Taxes, and Externalities

- ▶ **Externalities:** arise whenever the actions of one party make another party worse or better off, yet the first party neither bears the costs nor receives the benefits of doing so
- ▶ Examples Include:
 1. carbon emissions
 2. noise pollution
 3. flu vaccinations
 4. scientific research
- ▶ One potential solution is to use a Pigouvian Tax to cause actors to internalize the externality
 - ▶ Classic case: negative production externality

Pigouvian Taxes, Sin Taxes, and Internalities: Homonoff (2017)

- ▶ Does it matter if you use a subsidy or a tax to encourage behavior?
 - ▶ Standard model predicts equivalent outcomes
 - ▶ This no longer holds if individuals exhibit **loss aversion**
- ▶ Washington, DC & Montgomery County, MD: 5¢ tax for plastic bag use
 - ▶ Compare outcomes using a DD design
- ▶ Compare to a set of stores that offered a 5¢ bonus for reusable bag use (cross-sectional design)
- ▶ Data: exit surveys of shoppers before and after policy change

Pigouvian Taxes, Sin Taxes, and Internalities: Homonoff (2017)

Figure 3: Extensive Margin Bag Use by Location, Time Period, and Bag Type

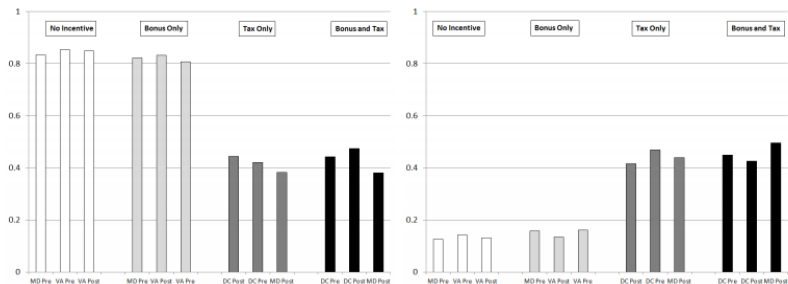
(a) Proportion of Customers Using a Disposable Bag (b) Proportion of Customers Using a Reusable Bag



Pigouvian Taxes, Sin Taxes, and Internalities: Homonoff (2017)

Figure 4: Extensive Margin Bag Use by Store Policy and Bag Type

(a) Proportion of Customers Using a Disposable Bag (b) Proportion of Customers Using a Reusable Bag



Pigouvian Taxes, Sin Taxes, and Externalities

- ▶ As a bi-product of pigouvian taxes, we also collect government revenue
 - ▶ This is usually touted as an added benefit of correcting externalities
- ▶ This does not follow from a standard externality framework
 - ▶ The revenue only represents a transfer from private actors (no net gain)
 - ▶ The key is to get the correct allocation of resources (efficiency)
- ▶ The story is more complicated when other taxes are already being used
 - ▶ Double-dividend hypothesis (weak and strong version)
- ▶ The story is also complicated when redistribution is taken into account

Pigouvian Taxes, Sin Taxes, and Externalities

- ▶ Case study: Chicago plastic bag tax
 - ▶ 7¢ per bag
 - ▶ Drop in bag usage exceeded projections: 42% drop
- ▶ City budget was passed based on expected revenue from plastic bag tax
 - ▶ Originally \$9.2M, but off by \$1.5M
- ▶ Initial approach was to ban thin plastic bags
 - ▶ Resulted in substitution to thick bags
- ▶ Framing and public perception matter:
 - ▶ "Huge Drop In Bag Use Due To Bag Tax Could Cost City Millions, Study Finds"

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Hidden Figures?

- ▶ **Tax Expenditures:** "... special preferences, incentives, subsidies ... [which represent] departures from normal tax code ... designed to favor a particular industry, activity, or class of persons ..." – Stanley Surrey & Paul R. McDaniel (Treasury)
- ▶ Depends on definition of "normal tax" (consumption or income tax?)

Hidden Figures?

- ▶ **Tax Expenditures:** Large amount of "spending" through tax code (\$1 Tr)
- ▶ Less salient to the public
- ▶ Increasing over time: 202 tax expenditures in 2009 (50% ↑ from 1996)
- ▶ Examples:
 - ▶ Army housing allowance (not counted as defense spending)
 - ▶ Charitable giving deduction (vs. UK charitable giving match)

Tax Expenditures

TABLE 1

Largest Tax Expenditures

Billions of dollars, FY 2018



Rank	Tax expenditure	Billions (\$)
1	Exclusion of employer contributions for medical insurance premiums and medical care	235.8
2	Exclusion of net imputed rental income	112.7
3	Deferral of income from controlled foreign corporations (normal tax method)	112.6
4	Capital gains (except agriculture, timber, iron ore, and coal)	108.6
5	Defined benefit employer plans	71.0
6	Defined contribution employer plans	69.4

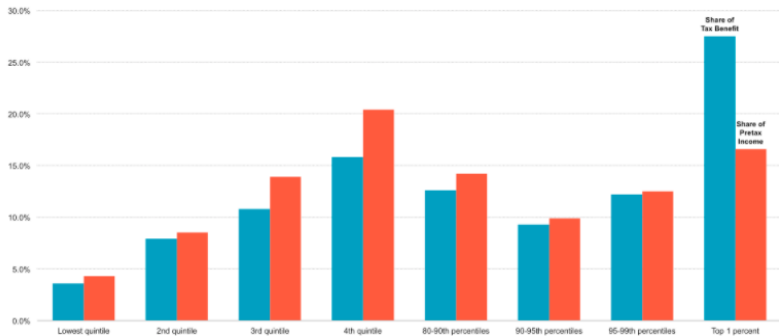
7	Mortgage interest expense on owner-occupied residences	68.1
8	Earned income tax credit ^a	63.6
9	Deductibility of nonbusiness state and local taxes other than on owner-occupied homes	63.3
10	Child credit ^b	54.3
11	Step-up basis of capital gains at death	54.1
12	Deductibility of charitable contributions, other than education and health	51.2
13	Accelerated depreciation of machinery and equipment (normal tax method)	50.3

Sources: US Department of the Treasury, Office of Tax Policy. 2016. Tax

Tax Expenditures: Who Benefits?

FIGURE 1

Share of Tax Benefit of Individual Tax Expenditures and Share of Pretax Income by expanded cash income percentile, 2015

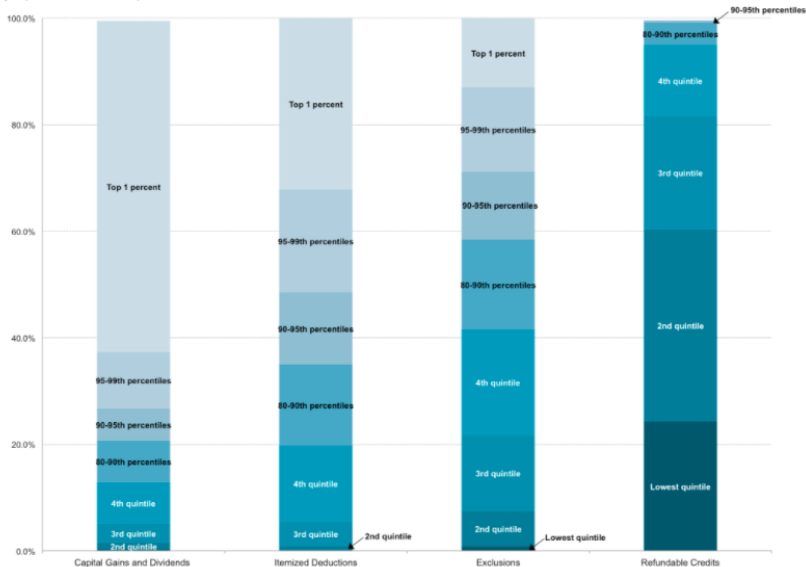


Source: Tax Policy Center Microsimulation Model

Tax Expenditures: Who Benefits?

FIGURE 2

Distribution of Benefits of Various Categories of Individual Income Tax Expenditures by expanded cash income percentile, 2015



Note: All expanded cash income percentiles are shown graphically, but the benefit share of some individual tax expenditures for certain percentiles are too small to be seen visually.

Source: Tax Policy Center's Simulation Model

Why Tax Expenditures?

- ▶ Political economy motive
- ▶ Efficient when eligibility is already determined while taxes return is filed
- ▶ Lower stigma of transfers to low income households? (e.g. EITC)
- ▶ However: mistiming of transfer/tax return and subsidized activity (e.g. EITC)
- ▶ Tradeoffs:
 - ▶ deductions, exclusions (benefits high MTR)
 - ▶ tax credits: voucher (w/ phaseout)

Adjusting Persistent Tax Expenditures

- ▶ Tax expenditures are difficult to cut, in part because they have concentrated beneficiaries and diffuse burdens
- ▶ One potential solution: capping total tax expenditures
 - ▶ Proposal by Martin Feldstein
 - ▶ e.g. 2% of AGI cap on expenditures
 - ▶ translates into 2% / t in economic activity
 - ▶ He excludes charitable giving
 - ▶ Predicted \$140B in revenue in 2013 (\$278B in 2011)
 - ▶ Benefit of not targeting any specific interest group
- ▶ Need to account for behavioral response (i.e. standard deduction)

Employer Sponsored Health Insurance Exclusion: Gruber (2011)

- ▶ Government covers 1/2 to 2/3 of total US health spending
 - ▶ Medicare, Medicaid, exclusion of employer-sponsored insurance (ESI)
- ▶ Rationale
 - ▶ efficient risk pooling
 - ▶ need to know counterfactual: how many firms will drop coverage w/o tax exclusion
- ▶ Costs
 - ▶ less tax revenue
 - ▶ increased insurance generosity
 - ▶ regressive

Employer Sponsored Health Insurance Exclusion: Gruber (2011)

- ▶ Full Repeal:
 - ▶ \$260B in revenue
 - ▶ 10% drop in coverage
 - ▶ 1/3 reduction in employer spending
 - ▶ 10% drop in employee spending
 - ▶ Concentrated among smaller employers

- ▶ Cap the exclusion (at median spending)
 - ▶ \$47B in revenue
 - ▶ 1/3% drop in coverage
 - ▶ 5% drop in employer spending
 - ▶ 4% drop in employee spending
 - ▶ More progressive (revenue gains come from upper half)

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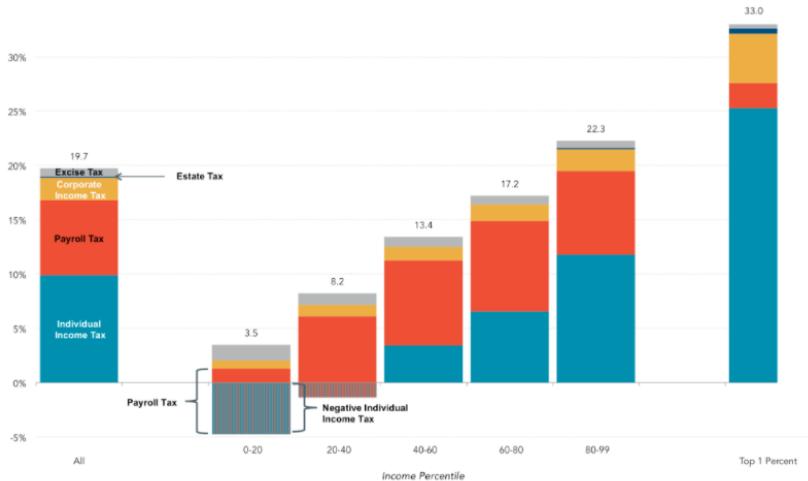
Burden of Taxation

Are Taxes Fair?

- ▶ Flat tax vs. progressive vs. regressive?
- ▶ Horizontal Equity: same tax liability for people w/ same standard of living/ability
 - ▶ Exceptions for Pigouvian taxes/subsidies
- ▶ Vertical Equity: those with higher means should pay more taxes
- ▶ Benefit principle: taxes paid in proportion to what you use
 - ▶ Regressive in practice
- ▶ Transitional issues: grandfathering tax treatment
- ▶ Outstanding question: how to assign future deficits?

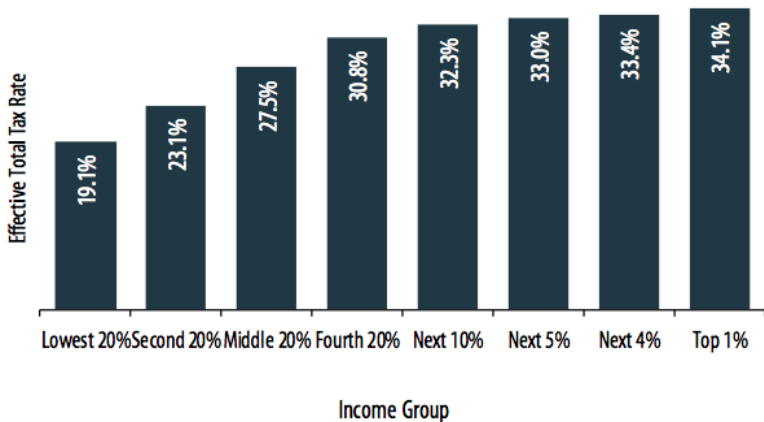
Are Taxes Fair?

FIGURE 1
Effective Federal Tax Rates
By Income Percentile, 2016



Are Taxes Fair?

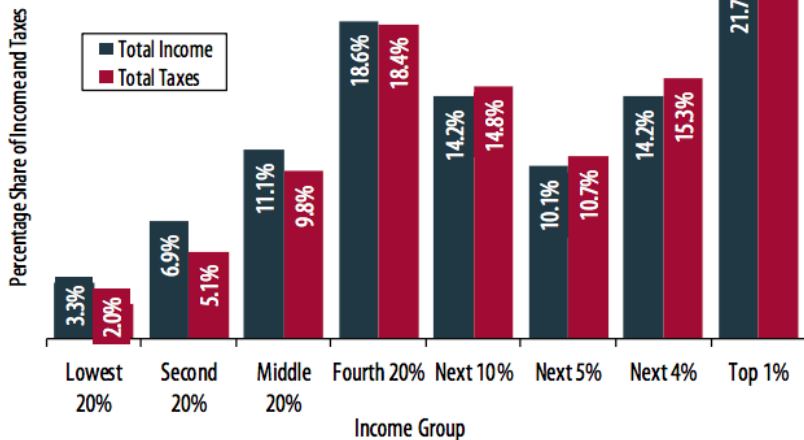
Total Federal, State & Local Effective Tax Rates in 2017



Source: Institute on Taxation and Economic Policy (ITEP) Tax Model, April 2017

Are Taxes Fair?

Shares of Total Taxes Paid by Each Income Group Compared to Shares of Total Income in 2017



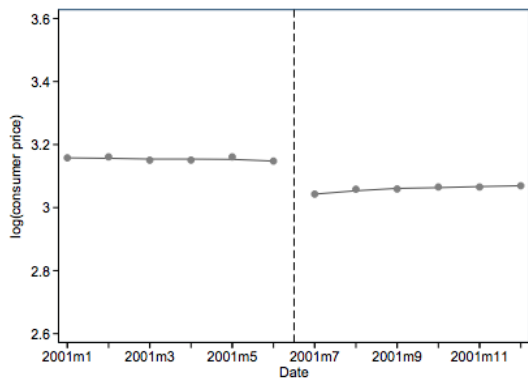
Source: Institute on Taxation and Economic Policy (ITEP) Tax Model, April 2017

Distributional Effects of VAT: Gaarder (2016)

- ▶ Typical assumption: consumer bears full burden of VAT
 - ▶ Need not hold if there is imperfect competition
 - ▶ Tax incidence could be less than, or even more than the tax
- ▶ Looks at VAT reform in Norway, where VAT on food items is lowered
 - ▶ VAT on food: 24% to 12%
 - ▶ Looks at effect on food prices, as well as effect on prices of other goods
- ▶ Data:
 - ▶ Prices of goods used in Norwegian CPI
 - ▶ Consumer expenditure surveys

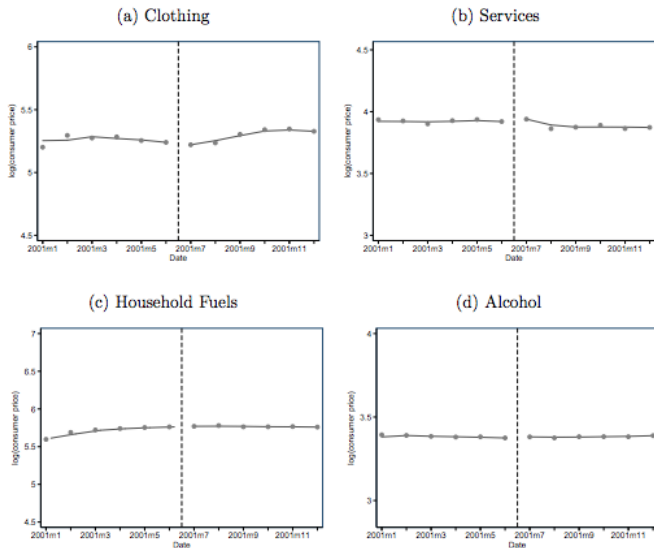
Distributional Effects of VAT: Gaarder (2016)

Figure 2: Evolution of Consumer Price on Food over Time



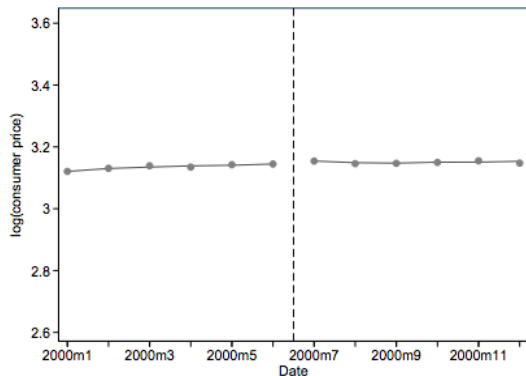
Distributional Effects of VAT: Gaarder (2016)

Figure 3: Evolution of Consumer Prices on Non-Food Items over Time



Distributional Effects of VAT: Gaarder (2016)

Figure 5: Food consumer prices as function of month, 2000



Distributional Effects of VAT: Gaarder (2016)

- ▶ Results: full pass through of VAT reduction to consumer prices
- ▶ No spillover effects on other goods
- ▶ No sign of month effects in placebo (previous year)
- ▶ One welfare measure: first order impact:

$$dW = dPG \times \text{BudgetShare}$$

- ▶ Alternative: allow for behavioral responses:
 - ▶ Get a more progressive impact of policy, b/c lower income households are more price sensitive

Incidence and Tax Salience: Chetty, Looney, & Kroft (2009)

- ▶ Standard incidence formula depends on relative elasticities:

$$\frac{dp}{dt} = \frac{\partial D / \partial t}{\partial S / \partial p - \partial D / \partial p} = \frac{\varepsilon_D}{\varepsilon_S - \varepsilon_D}$$

- ▶ Now let taxes be less than fully salient (i.e. θ attenuates tax effect on consumer demand)

$$\frac{dp}{dt} = \frac{\partial D / \partial t}{\partial S / \partial p - \partial D / \partial p} = \theta \frac{\varepsilon_D}{\varepsilon_S - \varepsilon_D}$$

- ▶ Now side of the market that gets taxed matters

SNAP (aka Food Stamps): Hastings and Washington (2010)

- ▶ Investigate the spike in SNAP spending during the beginning of the month when benefits are paid out
 - ▶ Could be due to impatience/high discount rate (Shapiro 2005)
 - ▶ Could be due to preference for variance in consumption
 - ▶ Could be due to lower prices in the beginning of the month
- ▶ Data: two years of scanner data from grocery chain in Nevada
- ▶ Findings:
 - ▶ Drop in food expenditures of 20% from week 1 to week 2
 - ▶ Drop is driven by quantities, not quality
 - ▶ Prices are actually higher in the first week relative to rest of week (i.e. incidence of SNAP benefits fall partially on stores)
 - ▶ With a 32% drop in expenditures, we see a 3% drop in prices
- ▶ Evidence remains consistent with impatience as a driver of the observed patterns