Responses of Reported Taxable Income to Taxes

131 Undergraduate Public Economics
Emmanuel Saez
UC Berkeley
TAXABLE INCOME ELASTICITIES

Modern public finance literature focuses on taxable income elasticities instead of hours/participation elasticities

Two main reasons:

1) What matters for policy is the total behavioral response to tax rates (not only hours of work but also occupational choices, avoidance, etc.)

2) Data availability: taxable income is precisely measured in tax return data

Recent overview of this literature: Saez-Slemrod-Giertz JEL’12
BIGGEST FEDERAL US INCOME TAX CHANGES

Biggest tax rate changes have happened at the top:

Reagan I: ERTA’81: top rate ↓ 70% to 50% (1981-1982)

Reagan II: TRA’86: top rate ↓ 50% to 28% (1986-1988)

Clinton: OBRA’93: top rate ↑ 31% to 39.6% (1992-1993)

Bush: EGTRRA ’01: top rate ↓ 39.6% to 35% (2001-2003)

Obama ’13: top rate ↑ 35% to 39.6%+3.8% (2012-2013)

Trump ’17: top rate cut down to 37%+3.8% (2017-2018)

Taxable Income = Ordinary Income + Realized Capital Gains  
- Deductions ⇒ Each component can respond to MTRs
Historically, a 70 percent marginal tax rate is not unusual

The top marginal income tax rates from 1913 to 2018

1981
Reagan took office

SOURCE: TAX POLICY CENTER
LONG-RUN EVIDENCE IN THE US

Goal: evaluate whether top pre-tax incomes respond to changes in one minus the marginal tax rate (= net-of-tax rate)

Focus is on pre-tax income before deductions and excluding realized capital gains (because they are taxed at lower separate rate)

Piketty-Saez QJE’03 estimate top income shares since 1913 [IRS tabulations for 1913-1959, IRS micro-files since 1960]

Piketty-Saez-Stantcheva AEJ-EP’14 estimate the effect of top MTR on top income shares in the US since 1913
INCOME SHARE BASED ELASTICITY ESTIMATION

1) **Tax Reform Episode:** Compare top **pre-tax** income shares at \( t_0 \) (before reform) and \( t_1 \) (after reform)

\[
e = \frac{\log sh_{t1} - \log sh_{t0}}{\log(1 - \tau_{t1}) - \log(1 - \tau_{t0})}
\]

where \( sh_t \) is pre-tax top income share and \( \tau_t \) is the average MTR for top group in year \( t \)

Identification assumption: absent tax change, \( sh_{t0} = sh_{t1} \)

2) **Full Time Series:** Run regression:

\[
\log sh_t = \alpha + e \cdot \log(1 - \tau_t) + \varepsilon_t
\]

and adding time controls to capture non-tax related top income share trends

Identification assumption: non-tax related changes in \( sh_t \perp \tau_t \)
LONG-RUN EVIDENCE IN THE US

1) Clear correlation between top incomes and top income rates both in several short-run tax reform episodes and in the long-run: estimated elasticities are large: around 0.7 for long-run, and sometimes over 1 for short-run episodes (such as ’86-’88).

2) Correlation between tax rates and income shares largely absent below the top 1% (such as the next 9%)

3) Top income shares sometimes do not respond to large tax rate cuts [e.g., Kennedy Tax Cuts of early 1960s]

2) and 3) suggest that context matters (such as opportunities to respond / avoid taxes matter), response unlikely to be due to a universal labor supply elasticity
TAX AVOIDANCE

Behavioral response to income tax comes not only from reduced work effort and economic activity but also from tax avoidance. Two main forms of tax avoidance:

1) **Intertemporal substitution:** Shift income over time to take advantage of tax changes. Example: If tax rates increase next year, shift income from next year into this year.

2) **Income shifting:** Shift income to another tax base that is taxed less. Example: Shift business profits from corporate tax base to the individual tax base if this is tax advantageous.

Such tax avoidance affect tax revenue through these other tax bases and such revenue effects need to be accounted for in optimal tax analysis.
Intertemporal Substitution: Realized Capital Gains

Realized capital gains occur when individual sells asset at a higher price than buying price

Individuals have flexibility in the timing of asset sales and capital gains realizations

TRA’86 lowered the top tax rate on ordinary income from 50% to 28% but increased the top tax rate on realized capital gains from 20% to 28%

2013: tax rate on capital gains increased from 15% to 20%+3.8% (see Saez 2017)

⇒ Surge in capital gains realizations in 1986 and 2012 [and depressed capital gains in 1987 and 2013]

⇒ Short-term elasticity is very large but long-term elasticity is certainly much smaller
Source: Top 1% income share: Piketty and Saez, 2003 updated to 2015, series including realized capital gains. Top MTR include Federal individual tax + uncapped FICA payroll tax.
Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income including realized capital gains, and always excluding government transfers.
Income Shifting: Corporate vs. Individual Tax Base

Businesses can be organized as corporations or unincorporated businesses [also called pass-through entities]

Corporate profits first taxed by corporate tax [rate $\tau_c = 21\%$]

Net-of-tax profits are taxed again at rate $\tau_{distrib}$ when finally distributed to shareholders. Two distribution options:

a) dividends [tax rate $\tau_d = 20\%$ today]

b) retained profits increase stock price: shareholders realize capital gains when finally selling the stock [tax rate $\tau_{cg} = 20\%$]

But distributions can be deferred so that $\tau_{distrib} << \tau_d, \tau_{cg}$

For unincorporated businesses (sole proprietorships, partnerships, S-corporations) profits are taxed directly and solely as individual income (tax rate $\tau_i = 37\%$ top MTR or even 30% with 20% business profit deduction since 2018)
CORPORATE AND INDIVIDUAL TAX BASE

Corporate form best if $(1 - \tau_c) \cdot (1 - \tau_{distrib}) > 1 - \tau_i$

US fed taxes in 2018+: $\tau_c = 21\%$, $\tau_{cg} = \tau_d = 20\%$, (but $\tau_{distrib} \ll 20\%$ if distribution deferred), $\tau_i = 37\%$ or 30\%

After 2018 Trump tax cut: corporate form is best, especially if wealthy business owner can defer distribution

Pre 2018, $\tau_c = 35\%$ and $\tau_i = 39.6\% \Rightarrow$ individual form better

$\Rightarrow$ wealthy people likely to incorporate their businesses in ’18+

Before TRA’86 (and especially before ERTA’81), top individual rate $\tau_i$ was much higher so corporate form was best

Shifts from corporate to individual base increases business profits at the expense of dividends and realized capital gains

Large part of TRA’86 response is due to such shifting
US Top 0.1% Income Share and Composition (excl. K gains)

- Dividends
- Other capital income
- Business income
- Salaries

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income excluding realized capital gains, and always excluding government transfers.
Bottom Line on Behavioral Responses to Taxes

1) Clear evidence of strong responses to tax changes due to re-timing or income shifting

2) Heterogeneity in tax responses due to heterogeneity in shifting opportunities [e.g., Kennedy tax cuts of ’61 vs. TRA’86]

3) Top income shares can change drastically without changes in tax rates [e.g., 1993-2000]

4) Difficult to know from single country time series the role played by top tax rate cuts in the surge of top incomes ⇒ International evidence can cast further useful evidence
TOP RATES AND TOP INCOMES
INTERNATIONAL EVIDENCE

1) Use pre-tax top 1% income share data from 18 OECD countries since 1960 using the World Top Incomes Database

2) Compute top (statutory) individual income tax rates using OECD data [including both central and local income taxes].

Plot top 1% pre-tax income share against top MTR in 1960-4, in 2005-9, and 1960-4 vs. 2005-9
A. Top 1% Share and Top Marginal Tax Rate in 1960–4

\[
\text{Elasticity} = 0.07 \ (0.15)
\]

Source: Piketty, Saez & Stantcheva (2011)
B. Top 1% Share and Top Marginal Tax Rate in 2005–9

Elasticity = 1.90 (0.43)

Source: Piketty, Saez & Stantcheva (2011)
Change in Top Tax Rate and Top 1% Share, 1960-4 to 2005-9

Source: Piketty, Saez & Stantcheva (2011)
TOP RATES AND TOP INCOMES EVIDENCE

1) Pre-tax Top income shares have increased significantly in some but not all countries [Atkinson-Piketty-Saez JEL’11]

2) Top tax rates have come down significantly in a number of countries since 1960s

3) Correlation between 1) and 2) is strong but not perfect: lower top tax rates are a necessary but not sufficient condition for surge in top incomes
ECONOMIC EFFECTS OF TAXING THE TOP 1%

Strong empirical evidence that *pre-tax* top incomes are affected by top tax rates

3 potential scenarios with very different policy consequences

1) **Supply-Side:** Top earners work less and earn less when top tax rate increases ⇒ Top tax rates should not be too high

2) **Tax Avoidance/Evasion:** Top earners avoid/evade more when top tax rate increases

⇒ a) Eliminate loopholes, b) Then increase top tax rates

3) **Rent-seeking:** Top earners extract more pay (at the expense of the 99%) when top tax rates are low ⇒ High top tax rates are desirable
Tax Avoidance: Top 1% Income Shares and Top MTR

Top 1% Income Shares (%) over the years from 1913 to 2013, along with Marginal Tax Rates (%). The graph shows the trends in top income shares including and excluding capital gains, and the corresponding marginal tax rates.
Top 1% Pre-Tax Income Share, 1913-2018

Piketty-Saez-Zucman (comprehensive income)

Piketty-Saez (reported income with capital gains)
Real changes vs. tax Avoidance? Charitable giving

Test using charitable giving behavior of top income earners (Saez TPE '17)

Because charitable is tax deductible, incentives to give are stronger when tax rates are higher

Under the tax avoidance scenario, reported incomes and reported charitable giving should move in opposite directions

Empirically, charitable giving of top income earners has grown in close tandem with top incomes

⇒ Incomes at the top have grown for real
Charitable Giving of Top 1% Income Earners

- Mean charitable giving of top 1% divided by mean income [left y-axis]

Source: The figure depicts average charitable giving of top 1% incomes (normalized by average income per family) on the left y-axis.

Source: Saez TPE 2017
Charitable Giving of Top 1% Income Earners

Source: The figure depicts average charitable giving of top 1% incomes (normalized by average income per family) on the left y-axis. For comparison, the figure reports the top 1% income share (on the right y-axis).

Source: Saez TPE 2017
Supply-Side or Rent-Seeking?  
(Piketty-Saez-Stantcheva AEJ’13)

Correlation between pre-tax top incomes and top tax rates

If rent-seeking: growth in top 1% incomes should come at the expense of bottom 99% (and conversely)

Two macro-preliminary tests:

1) In the US, top 1% incomes grow slowly from 1933 to 1975 and fast afterwards. Bottom 99% incomes grow fast from 1933 to 1975 and slowly afterwards ⇒ Consistent with rent-seeking effects

2) Look at cross-country correlation between economic growth and top tax rate cuts ⇒ No correlation supports rent-seeking

One micro-test using CEO pay data
INTERNATIONAL CEO PAY EVIDENCE

Recent micro-data for 2006 gathered by Fernandes, Ferreira, Matos, Murphy RFS’12.

1) CEO pay across countries strongly negatively correlated with top tax rates

2) Correlation remains as strong even when controlling for firms’ characteristics and performance

⇒ Consistent with rent-seeking effects
A. Average CEO compensation

Link between top tax rate and CEO pay in 2006 across countries
B. Average CEO compensation with controls

Controlling for firm profitability, governance, size, and industry
INTERNATIONAL MIGRATION

Public debate concern that top skilled individuals move to low tax countries (e.g., in EU context) or low tax states (within US Federation)

Migration concern bigger in public debate than supply-side concern within a country

Interesting variation due to proliferation of special low tax schemes for highly paid foreigners in Europe

Kleven-Landais-Saez AER’13 look at football players in Europe (highly mobile group, many tax reforms) ⇒ Find significant migration responses to taxes after European football market was de-regulated in ’95

Akcigit-Baslandze-Stantcheva AER’16 look at innovators (using patent data) mobility and find significant tax effects for top innovators

Various US states studies: Moretti-Wilson AER17 , 2019, Rauh-Shyu ’19 (huge effects), Young et al. ’16 (modest effects)
Exploit the 1991 tax scheme in Denmark: immigrants with high earnings (≥ 103,000 Euros/year) taxed at flat 25% rate (instead of regular tax with top 59% rate) for 3 years

Use population wide Danish tax data and DD strategy: compare immigrants above eligibility earnings threshold (treatment) to immigrants slightly below threshold (control)

**Key Finding:** Scheme doubles the number of highly paid foreigners in Denmark relative to controls

⇒ Elasticity of migration with respect to the net-of-tax rate above one (much larger than the within country elasticity of earnings)

⇒ Tax coordination will be key to preserve progressive taxation in the European Union
Figure 3: Total number of foreigners in different income groups

Control 1 = annualized income between .8 and .9 of threshold
Control 2 = annualized income between .9 and .995 of threshold.

REFERENCES


Department of the Treasury(2012) “Capital Gains and Taxes Paid on Capital Gains” (web)


