230B: Public Economics

Taxable Income Elasticities

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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

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

Tax rates change frequently over time

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 likely to decrease a lot

Taxable Income = Ordinary Income + Realized Capital Gains - Deductions ⇒ Each component can respond to $MTR$s
US Top Marginal Tax Rate (Federal Individual Income Tax)

Source: IRS, Statistics of Income Division, Historical Table 23
Table A1.  
Top Federal Marginal Tax Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>Ordinary Income</th>
<th>Earned Income</th>
<th>Capital Gains</th>
<th>Corporate Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952-1963</td>
<td>91.0</td>
<td>91.0</td>
<td>25.0</td>
<td>52</td>
</tr>
<tr>
<td>1964</td>
<td>77.0</td>
<td>77.0</td>
<td>25.0</td>
<td>50</td>
</tr>
<tr>
<td>1965-1967</td>
<td>70.0</td>
<td>70.0</td>
<td>25.0</td>
<td>48</td>
</tr>
<tr>
<td>1968</td>
<td>75.3</td>
<td>75.3</td>
<td>26.9</td>
<td>53</td>
</tr>
<tr>
<td>1969</td>
<td>77.0</td>
<td>77.0</td>
<td>27.9</td>
<td>53</td>
</tr>
<tr>
<td>1970</td>
<td>71.8</td>
<td>71.8</td>
<td>32.3</td>
<td>49</td>
</tr>
<tr>
<td>1971</td>
<td>70.0</td>
<td>60.0</td>
<td>34.3</td>
<td>48</td>
</tr>
<tr>
<td>1972-1975</td>
<td>70.0</td>
<td>50.0</td>
<td>36.5</td>
<td>48</td>
</tr>
<tr>
<td>1976-1978</td>
<td>70.0</td>
<td>50.0</td>
<td>39.9</td>
<td>48</td>
</tr>
<tr>
<td>1979-1980</td>
<td>70.0</td>
<td>50.0</td>
<td>28.0</td>
<td>46</td>
</tr>
<tr>
<td>1981</td>
<td>68.8</td>
<td>50.0</td>
<td>23.7</td>
<td>46</td>
</tr>
<tr>
<td>1982-1986</td>
<td>50.0</td>
<td>50.0</td>
<td>20.0</td>
<td>46</td>
</tr>
<tr>
<td>1987</td>
<td>38.5</td>
<td>38.5</td>
<td>28.0</td>
<td>40</td>
</tr>
<tr>
<td>1988-1990</td>
<td>28.0</td>
<td>28.0</td>
<td>28.0</td>
<td>34</td>
</tr>
<tr>
<td>1991-1992</td>
<td>31.0</td>
<td>31.0</td>
<td>28.0</td>
<td>34</td>
</tr>
<tr>
<td>1993</td>
<td>39.6</td>
<td>39.6</td>
<td>28.0</td>
<td>35</td>
</tr>
<tr>
<td>1994-2000</td>
<td>39.6</td>
<td>42.5</td>
<td>28.0</td>
<td>35</td>
</tr>
<tr>
<td>2001</td>
<td>39.1</td>
<td>42.0</td>
<td>20.0</td>
<td>35</td>
</tr>
<tr>
<td>2002</td>
<td>38.6</td>
<td>41.5</td>
<td>20.0</td>
<td>35</td>
</tr>
<tr>
<td>2003-2009</td>
<td>35.0</td>
<td>37.9</td>
<td>15.0</td>
<td>35</td>
</tr>
</tbody>
</table>

Notes: MTRs apply to top incomes. In some instances, lower income taxpayers may face higher MTRs because of income caps on payroll taxes or the so-called 33 percent "bubble" bracket following TRA 86. From 1952 to 1962, a 87% maximum average tax rate provision made the top marginal tax rate 87% instead of 91% for many very top income earners. From 1968 to 1970, rates include surtaxes. For earned income, MTRs include the Health Insurance portion of the payroll tax beginning with year 1994. Rates exclude the effect of phaseouts, which effectively raise top MTRs for many high-income filers. MTRs on realized capital gains are adjusted to reflect that, for some years, a fraction of realized gains were excluded from taxation. Since 2003, dividends are also tax favored with a maximum tax rate of 15%.

Source: Saez et al. (2010)
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

Pioneered by Feenberg-Poterba TPE’93 for period 1951-1990

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

Saez TPE’04 proposes detailed analysis for 1960-2000 period using TAXSIM calculator at NBER linked to IRS micro-files

Piketty-Saez-Stantcheva AEJ’14 look at 1913-2010 period for the US
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 top income share and $\tau_t$ is the average MTR for top group

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

ID assumption: non-tax related changes in $sh_t \perp \tau_t$
Table 1. 
Elasticity estimates using top income share time series

<table>
<thead>
<tr>
<th></th>
<th>Top 1%</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Tax Reform Episodes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981 vs. 1984 (ERTA 1981)</td>
<td>0.60</td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>1986 vs. 1988 (TRA 1986)</td>
<td>1.36</td>
<td>-0.20</td>
<td></td>
</tr>
<tr>
<td>1992 vs. 1993 (OBRA 1993)</td>
<td>0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991 vs. 1994 (OBRA 1993)</td>
<td>-0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Full Time Series 1960-2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No time trends</td>
<td>1.71</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Linear time trend</td>
<td>0.82</td>
<td>-0.02</td>
<td></td>
</tr>
<tr>
<td>Linear and square time trends</td>
<td>0.74</td>
<td>-0.05</td>
<td></td>
</tr>
<tr>
<td>Linear, square, and cube trends</td>
<td>0.58</td>
<td>-0.02</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Estimates in panel A are obtained using series from Figure 1 and using the formula $e = \frac{\log(\text{income share after reform}) - \log(\text{income share before reform})}{\log(1 - \text{MTR after reform}) - \log(1 - \text{MTR before reform})}$.

Estimates in Panel B are obtained by time-series regression of log(top 1% income share) on a constant, log (1 - average marginal tax rate), and polynomials time controls from 1960 to 2006 (44 observations). OLS regression. Standard Errors from Newey-West with 8 lags.

Source: Saez et al. (2010)
1) Clear correlation between top incomes and top income rates both in several short-run tax reform episodes and in the long-run [but hard to assess long-run tax causality]

2) Correlation 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 not due to a universal labor supply elasticity
SPECIFIC TAX REFORM STUDIES

Literature initially developed by analyzing specific tax reforms (instead of full time series)

Lindsey JpubE’87 analyzes ERTA’81 using repeated cross-section tax data and finds large elasticities

Feldstein JPE’95 uses panel tax data to study TRA’86

Goolsbee JPE’00 uses executive compensation data to study OBRA’93

Gruber-Saez JpubE’02 uses 1979-1990 panel tax data

Saez TPE’17 uses income share to study 2003 top tax rate increase

Many other studies in the US and abroad (survey by Saez-Slemrod-Giertz JEL’12)
Use panel data from 1979-1990 on all tax changes available rather than a single reform

Model: $z_{it} = z_{it}^0 \cdot (1 - \tau_{it})^e$ where $z_{it}^0$ is potential income (if MTR=0), $e$ is elasticity

$$\log \left( \frac{z_{it}+3}{z_{it}} \right) = \alpha + e \cdot \log \left( \frac{1 - \tau_{it}+3}{1 - \tau_{it}} \right) + \varepsilon_{it}$$

$\tau_{it+3}$ and $\varepsilon_{it}$ are correlated [because $\tau_{it+3} = T'_{t+3}(z_{it}+3)$]

Instrument: predicted change in MTR assuming income stays constant: $\log[(1 - \tau_{it+3}^p)/(1 - \tau_{it})]$ where $\tau_{it+3}^p = T'_{t+3}(z_{it})$

Isolates changes in tax law ($T_t(.)$) as the only source of variation in tax rates
<table>
<thead>
<tr>
<th>Income controls</th>
<th>None</th>
<th>Taxable income</th>
<th>Log income</th>
<th>Log income 10-piece spline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broad income (1)</td>
<td>(2)</td>
<td>Broad income (3)</td>
<td>(4)</td>
</tr>
<tr>
<td></td>
<td>(5)</td>
<td>(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elasticity</td>
<td>-0.300 (-0.120)</td>
<td>-0.462 (-0.194)</td>
<td>0.170 (0.106)</td>
<td>0.611 (0.144)</td>
</tr>
<tr>
<td>Dummy for marrieds</td>
<td>-0.008 (-0.010)</td>
<td>-0.062 (-0.018)</td>
<td>0.045 (0.014)</td>
<td>0.049 (0.023)</td>
</tr>
<tr>
<td>Dummy for singles</td>
<td>-0.037 (-0.012)</td>
<td>-0.053 (-0.019)</td>
<td>-0.034 (0.013)</td>
<td>-0.032 (0.022)</td>
</tr>
<tr>
<td>Log(income) control</td>
<td>-0.083 (0.015)</td>
<td>-0.167 (0.021)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Gruber and Saez 2002
Find an elasticity of roughly 0.3-0.4 BUT results are very fragile [Saez-Slemrod-Giertz JEL’12]

1) Sensitive to exclusion of low incomes

2) Sensitive to controls for mean reversion

3) Subsequent studies find smaller elasticities using data from other countries [Kleven-Schultz AEJ-EP’14 for Denmark]

4) Bundles together small tax changes and large tax changes: if individuals respond only to large changes in short-medium run, then estimated elasticity is too low [Chetty et al. QJE’11]
Key Advantages:

a) Use full population of tax returns in Denmark since 1980 (large sample size, panel structure, many demographic variables, stable inequality)

b) A number of reforms changing tax rates differentially across three income brackets and across tax bases (capital income taxed separately from labor income)

c) Show compelling visual DD-evidence of tax responses around the 1986 large reform:

Define treatment and control group in year 1986 (pre-reform), follow the same group in years before and years after the reform (panel analysis)
Figure 2. Two Decades of Danish Tax Reform

Panel A. Marginal Tax Rate on Labor Income

Panel B. Marginal Tax Rate on Negative Capital Income

Panel C. Marginal Tax Rate on Positive Capital Income

Panel D. Share of Taxpayers in the Three Tax Brackets

Source: Kleven and Schultz '12
Figure 6. Graphical Evidence on the Effects of the 1987-reform on Taxable Income

Panel A. Labor Income

DD₁ Elasticity = 0.214 (0.011)
DD₂ Elasticity = 0.257 (0.013)

Panel B. Positive Capital Income

DD Elasticity = 0.278 (0.063)

Notes: Panel A considers the effect on labor income under two treatment group definitions using the grouping in Figure 3. Treatment 1 includes all groups in Figure 3 who experience an increase in the marginal net of tax rate on labor income as a result of the reform (1986–1989 difference), while treatment 2 includes the same groups except those in the middle bracket (“stay middle” group in Figure 3) who experience a relatively small net of tax rate increase. The control group includes those groups in Figure 3 who experience a decrease in the marginal net of tax rate as a result of the reform. Panel B considers the effect on positive capital income based on the grouping in Figure 5, with the treatment (control) group defined as those who experience an increase (decrease) in the marginal net of tax rate on positive capital income resulting from the reform. In both panels, only taxpayers who are in the sample in every year of the period under consideration (1984–1993) are included, and income levels in 1986 are normalized to 100 in both treatment and control groups (without loss of generality as identification come from percentage changes over time, not from a sole level). Both panels show that trends are extreme particularly in 1986 and start to diverge precisely in 1987 which is the first year with tax cuts. Most of the effect of the tax reform takes place within a period of 3 years. The figure also reports basic difference-in-differences estimates of the elasticity of taxable income (standard errors in parentheses), comparing treatment and control groups over the 3-year interval from 1986 to 1989. The estimates DD₁ and DD₂ in Panel A refer to treatment 1 and treatment 2, respectively. DD estimates in both panels are based on 2SLS regressions of log income on an after-reform time dummy, a treatment group dummy and the log marginal net of tax rate, the latter variable being instrumented by the interaction of the after-reform and treatment group dummies.

Source: Kleven and Schultz '12
Key Findings:

a) Small labor income elasticity (.1)

b) bigger capital income elasticities (.2-.3)

c) bigger elasticities for large reforms

d) modest income shifting between labor and capital in Denmark (likely because top rates on labor and capital are carefully aligned)

⇒ Danish tax system optimized to have broad base and few avoidance opportunities
FISCAL EXTERNALITIES

Tax changes due to tax avoidance often generate fiscal externalities

A Fiscal externality is a change in tax revenue that occurs in any tax base $z^B$ other than $z$ due to the behavioral response to the tax change in the initial base $z$

(1) $z^B$ can be a different tax base in the same time period (such as corporate income tax base) ⇒ Income shifting

(2) $z^B$ can be the same tax base in a different time period (such as future income) ⇒ Inter-temporal Substitution

Efficiency and optimal tax analysis depend on effect on total tax revenue so critical to identify fiscal externalities
Inter-Temporal 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 KG increased from 15% to 20%+3.8% (Saez TPE’17 proposes simple analysis)

⇒ 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
Top 1% pre-tax income share and top tax rates

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.
US Top 0.1% Income Share and Composition

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.
INTER-TEMPORAL SUBSTITUTION: STOCK-OPTIONS

Goolsbee JPE'00 analyzes CEO pay around the 1993 Clinton top tax rate increase ↑ [from 31% in 1992 to 39.6% in 1993 announced in late 1992] on executive pay

⇒ Large short-term response due to re-timing, small long-term response

Some response but smaller around the 2013 tax increase
STOCK OPTIONS

Major form of compensation of US top executives. Theoretical goal is to motivate executives to increase the value of the company (stock price $P(t)$)

Stock-options granted at date $t_0$ allow executives to buy $N$ company shares at price $P(t_0)$ on or after $t_1$ (in general $t_1 - t_0 \approx 3 - 5$ years = vesting period)

Executive exercises option at (chosen) time $t_2 \geq t_1$: pays $N \cdot P(t_0)$ to get shares valued $N \cdot P(t_2)$. Exercise profit $N \cdot [P(t_2) - P(t_0)]$ (taxed as wage income in the US)

After $t_2$, executive owns $N$ shares, eventually sold at time $t_3 \geq t_2$: realized capital gain $N \cdot [P(t_3) - P(t_2)]$ (taxed as KG)
## EXECUTIVE COMPENSATION

### TABLE 2

**AVERAGE COMPENSATION BY TYPE FOR HIGH-INCOME EXECUTIVES**  
(in Thousands)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxable income</td>
<td>911</td>
<td>1,153</td>
<td>974</td>
<td>965</td>
<td>1,173</td>
</tr>
<tr>
<td>Salary</td>
<td>347</td>
<td>336</td>
<td>336</td>
<td>351</td>
<td>373</td>
</tr>
<tr>
<td>Bonus</td>
<td>198</td>
<td>207</td>
<td>241</td>
<td>284</td>
<td>330</td>
</tr>
<tr>
<td>LTIP payout</td>
<td>57</td>
<td>72</td>
<td>57</td>
<td>64</td>
<td>89</td>
</tr>
<tr>
<td>Options exercised</td>
<td>268</td>
<td>496</td>
<td>293</td>
<td>235</td>
<td>381</td>
</tr>
<tr>
<td>Other income (nontaxed)</td>
<td>36</td>
<td>37</td>
<td>66</td>
<td>54</td>
<td>78</td>
</tr>
</tbody>
</table>

*Source: Goolsbee (2000), p. 365*

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Source: Goolsbee (2000), p. 365

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**Source**—Author's calculations for executives with permanent income greater than $275,000 per year.
INCOME SHIFTING: CORPORATE AND INDIVIDUAL TAX BASE

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

Corporate profits are first taxed by corporate tax [tax rate $\tau_c$]

Net-of-tax profits are taxed again when finally distributed to shareholders. 2 distribution options:

a) dividends [tax rate $\tau_d$]

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

For unincorporated businesses: sole proprietorships, partnerships (including LLCs), S-corporations profits are taxed directly and solely as individual income (rate $\tau_i$)
Corporate form best if \( (1 - \tau_c)(1 - \tau_{cg}) > 1 - \tau_i \)

US fed taxes in 2016: \( \tau_c = 35\% \), \( \tau_{cg} = 20\% \) (less because of deferral value), \( \tau_d = 20\% \) vs. \( \tau_i = 39.6\% \) (top rate)

Today, individual form is best

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
The Top 0.01% US Income Share, Composition, and MTR

Source: Saez et al. (2010)
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.
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].

A. Top 1% Share and Top Marginal Tax Rate in 1960−4

Elasticity = 0.07 (0.15)

B. Top 1% Share and Top Marginal Tax Rate in 2005–9

Elasticity= 1.90 (0.43)

Change in Top Tax Rate and Top 1% Share, 1960-4 to 2005-9

### Table 2: International Evidence on Top Income Elasticities

<table>
<thead>
<tr>
<th></th>
<th>All 18 countries and fixed periods</th>
<th>Bootstrapping period and country set</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)       (2)       (3)</td>
<td>Median        (4)       (5)       (6)</td>
</tr>
<tr>
<td>No controls</td>
<td>0.324     0.163     0.803</td>
<td>0.364         0.128     0.821</td>
</tr>
<tr>
<td></td>
<td>(0.034)   (0.039)   (0.053)</td>
<td>(0.043)       (0.085)   (0.032)</td>
</tr>
<tr>
<td>Time trend control</td>
<td>0.375     0.182     0.656</td>
<td>0.425         0.191     0.761</td>
</tr>
<tr>
<td></td>
<td>(0.042)   (0.030)   (0.056)</td>
<td>(0.045)       (0.091)   (0.032)</td>
</tr>
<tr>
<td>Country fixed effects</td>
<td>0.314     0.007     0.626</td>
<td>0.267         0.008     0.595</td>
</tr>
<tr>
<td></td>
<td>(0.025)   (0.039)   (0.044)</td>
<td>(0.035)       (0.070)   (0.026)</td>
</tr>
<tr>
<td>Number of observations</td>
<td>774       292       482</td>
<td>286          132       516</td>
</tr>
</tbody>
</table>

**A. Effect of the Top Marginal Income Tax Rate on Top 1% Income Share**

Regression: $\log(\text{Top 1\% share}) = a + e^{\times \log(1 - \text{Top MTR})} + \varepsilon$
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
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
Tax Avoidance: Top 1% Income Shares and Top MTR

- Top 1% Share
- Top 1% (excl. KG)
- MTR K gains
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

- **Mean charitable giving of top 1% divided by mean income** [left y-axis]
- **Top 1% Income Share** [right y-axis]

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)

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 trickle-up

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 bargaining effects
The graph illustrates the relationship between the top income marginal tax rate and average CEO compensation across various countries. The elasticity observed is 1.97 (.27), indicating a strong positive correlation between the two variables.
B. Average CEO compensation with controls

Elasticity = 1.90 (.29)

CEOs pay ($ millions, log-scale) with controls

Top Income Marginal Tax Rate

United States, Canada, Germany, Netherlands, Norway, France, Italy, Switzerland, UK, Italy, Australia, Ireland, Belgium, Sweden

Piketty, Saez & Stantcheva () Three Elasticities November 2012 51 / 62
### Table 4: International CEO Pay Evidence

<table>
<thead>
<tr>
<th>Outcome (LHS variable)</th>
<th>Log(CEO pay)</th>
<th>Log(CEO pay)</th>
<th>Log(CEO pay)</th>
<th>Log(CEO pay)</th>
<th>Log(CEO salary)</th>
<th>Log(CEO bonus and equity pay)</th>
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<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
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<td>log(1-Top MTR)</td>
<td>1.97***</td>
<td>1.90***</td>
<td>1.92***</td>
<td>1.90***</td>
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<td>(0.038)</td>
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<td>log(1-Top MTR)*Governance index</td>
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<td>Firm and CEO controls</td>
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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, see Moretti-Wilson AER17, Young et al. 16)

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

Relatively little work on tax induced international migration of top skilled workers

Hard to get data but 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 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
Exploit the 1991 Danish tax scheme: immigrants with high earnings (≥ 103,000 Euros/year) taxed at flat 25% rate (instead of regular progressive 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 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 EU
**Figure 1**: Total number of foreigners in different income groups

Source: Kleven, Landais, Saez, Schultz QJE (2014)

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

DD specifications

DD elasticity:
Long-term: 1.62 (.16)
Short-term: 1.28 (.15)
REFERENCES


