The Future of Fiscal Policy:
American Economic Policy Debates in the 21st Century
Taxing Top Earners

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Week 4

Thanks to Emmanuel Saez for providing his notes and slides, many of which are reproduced here. Stephanie Kestelman provided excellent assistance making these slides.
Outline

1 Motivation

2 Policy
   - Federal US income tax policy (pre-TCJA)
   - State and local tax deduction
   - Mortgage interest deduction
   - Pass-throughs, taxes, and inequality
   - Recent top income tax reforms (pre-TCJA)
   - Tax Cuts and Jobs Act of 2017
   - Future Tax Reform

3 Theory

4 Evidence
   - Empirical estimation of $e$ and identification issues
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Credit to Heathcote Storesletten Violante (QJE, forthcoming) for the quote.

The hardest thing in the world to understand is income taxes.

(Albert Einstein)
TCJA change in top marginal rates

FIGURE 1
Marginal Tax Rate by Taxable Income

Prior Law, 2018
TCJA
## TABLE 4

Conference Agreement for H.R. 1, The Tax Cuts and Jobs Act  
Distribution of Federal Tax Change by Expanded Cash Income Percentile  
2018; Summary Table; Baseline: Current Law

<table>
<thead>
<tr>
<th>Expanded cash income percentile a,b</th>
<th>Tax Units</th>
<th>Percent change in after-tax income c,d</th>
<th>Share of total federal tax change</th>
<th>Average federal tax change ($)</th>
<th>Change (% points)</th>
<th>Under the proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest quintile</td>
<td>48,780</td>
<td>27.7</td>
<td>0.4</td>
<td>1.0</td>
<td>-60</td>
<td>-0.4</td>
</tr>
<tr>
<td>Second quintile</td>
<td>38,760</td>
<td>22.0</td>
<td>1.2</td>
<td>5.2</td>
<td>-380</td>
<td>-1.1</td>
</tr>
<tr>
<td>Middle quintile</td>
<td>34,290</td>
<td>19.5</td>
<td>1.6</td>
<td>11.2</td>
<td>-930</td>
<td>-1.4</td>
</tr>
<tr>
<td>Fourth quintile</td>
<td>28,870</td>
<td>16.4</td>
<td>1.9</td>
<td>18.4</td>
<td>-1,810</td>
<td>-1.6</td>
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<tr>
<td>Top quintile</td>
<td>24,300</td>
<td>13.8</td>
<td>2.9</td>
<td>65.3</td>
<td>-7,640</td>
<td>-2.2</td>
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<tr>
<td>All</td>
<td>176,100</td>
<td>100.0</td>
<td>2.2</td>
<td>100.0</td>
<td>-1,610</td>
<td>-1.8</td>
</tr>
</tbody>
</table>

Addendum

- 80-90: 12,490 7.1 2.0 13.1 -2,970 -1.6 18.5
- 90-95: 6,020 3.4 2.2 9.6 -4,550 -1.8 20.2
- 95-99: 4,650 2.6 4.1 22.1 -13,480 -3.1 22.2
- Top 1 percent: 1,140 0.7 3.4 20.5 -51,140 -2.3 30.3
- Top 0.1 percent: 120 0.1 2.7 7.9 -193,380 -1.8 31.6

Notes: Calendar year. Baseline is current law. Excludes effects of reduction in ACA Individual Shared Responsibility Payment to zero.  
http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm  
Number of AMT Taxpayers (millions). Baseline: 5.2; Proposal: 0.2  
(a) Includes both filing and nonfiling units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm  
(b) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2017 dollars): 20% $25,000; 40% $46,600; 60% $66,100; 80% $149,400; 90% $216,800; 95% $307,900; 99% $732,800; 99.9% $3,439,900.  
(c) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); estate tax; and excise taxes.  
(d) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, the estate tax, and excise taxes) as a percentage of average expanded cash income.
Mr. Johnson had become the first Senate Republican to say publicly that he could not vote for the Senate's version of the tax bill. During the phone call on Wednesday afternoon, Mr. Ryan, who had campaigned heavily for Mr. Johnson in 2016, posed an essential question, according to the senator: “What are you going to need?”

Source: NYTimes.
Recent top income tax policy debate

What Mr. Johnson needs, he said in an interview from Wisconsin on Friday, is for the bill to treat more favorably small businesses and other so-called pass-through entities – businesses whose profits are distributed to their owners and taxed at rates for individuals. Such entities, including Mr. Johnson’s family-run plastics manufacturing business, account for more than half of the nation’s business income, and the senator says the tax bill would give an unfair advantage to larger corporations.

“I just have in my heart a real affinity for these owner-operated pass-throughs,” he said. “We need to make American businesses competitive – they’re not right now. But in making businesses competitive, we can’t leave behind the pass-throughs.”

Source: NYTimes.
Rising Top 0.1% income shares

![Graph showing the rising income shares for the top 0.1% from 1960 to 2015, with income categories including dividends, other capital income, business income, and salaries. The graph illustrates the trend of income inequality over time.]


Future of Fiscal Policy (Econ 593i)
Source of top incomes

Source of top incomes by type of business income

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Federal US Income tax

- US income tax assessed on **annual family** income (not individual) [most other OECD countries have shifted to individual assessment]
- Sum all cash income sources from family members (both from labor and capital income sources) = called **Adjusted Gross Income (AGI)**
- Main exclusions: fringe benefits (health insurance, pension contributions), imputed rent of homeowners, unrealized capital gains
Federal US Income tax (pre-TCJA)

- Taxable income = AGI - personal exemptions - deduction
- personal exemptions = $4K * # family members (in 2016)
- deduction is max of standard deduction or itemized deductions
- Standard deduction is a fixed amount depending on family structure ($12.6K for couple, $6.3K for single in 2016)
- Itemized deductions: (a) state and local taxes paid, (b) mortgage interest payments, (c) charitable giving, various small other items
- About 10% of AGI lost through itemized deductions, called tax expenditures
Federal US Income tax deductions

Source: Tax Policy Center.
Federal US Income tax deductions

Source: Zidar’s calculations of IRS SOI 2013 data
Federal US Income tax brackets

- Tax $T(z)$ is piecewise linear and continuous function of taxable income $z$ with constant marginal tax rates (MTR) $T'(z)$ by brackets
- In 2013-2016, 6 brackets with MTR 10%, 15%, 25%, 28%, 33%, 35%, 39.6% (top bracket for $z$ above $470K), indexed on price inflation
- Lower preferential rates (up to a max of 20%) apply to dividends (since 2003) and realized capital gains [in part to offset double taxation of corporate profits]
- Tax rates change frequently over time. Top MTRs have declined drastically since 1960s (as in many OECD countries)
Federal US Income tax schedule (pre-TCJA)

Source: Saez.
Federal US Income marginal tax schedule (pre-TCJA)

Marginal Income Tax

\[ T'(z) \]

- \( T'(z) \) is a step function
- 10% at 0
- 15% at some point
- 39.6% at a higher point

Source: Saez.
Changes in income tax schedule since late 1990s

Source: Zidar Zwick (2019)
Federal US top income tax rate
# Federal US Income Tax Deductions

**TABLE 1**

Cost of Selected Itemized Deductions

Billions of dollars, 2017

<table>
<thead>
<tr>
<th>Deduction</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortgage interest on owner-occupied residences</td>
<td>63.6</td>
</tr>
<tr>
<td>State and local income, sales, and personal property taxes</td>
<td>69.3</td>
</tr>
<tr>
<td>Charitable contributions</td>
<td>56.9</td>
</tr>
<tr>
<td>Property taxes on real property</td>
<td>33.3</td>
</tr>
</tbody>
</table>


Source: Tax Policy Center.
Major tax reform proposals, such as the Tax Reform Act of 1986 and the 2005 President’s Advisory Panel on Federal Tax Reform, often propose eliminating or reducing the state and local tax deduction (SALT), which is one of the largest tax expenditures in the U.S. tax code and was deemed by President Reagan “the most sacred of cows.”

Tax Cuts and Job Acts 2017 limited this to 10K (after initially considering a full elimination)

SALT enables taxpayers to deduct state and local income taxes, which lowers tax liabilities by reducing the amount of taxable income that is subject to federal income tax.
State and Local Tax Deduction
2015 data from Tax Policy Center

Source: TPC 2015 data
State and Local Tax Deduction

2015 data from Tax Policy Center

Source: TPC 2015 data
State and Local Tax Deduction
2015 data from Tax Policy Center

Average State and local tax deduction

Source: TPC 2015 data
State and Local Tax Deduction

2015 data from Tax Policy Center

Source: TPC 2015 data
State and Local Tax Deduction

2015 data from Tax Policy Center

Source: TPC 2015 data
Mortgage interest deduction (pre-TCJA)

- People who itemize their deductions can deduct interest payments on the first $1 million of outstanding mortgage loan principal for a primary or secondary home and on the interest for up to $100,000 of home equity debt.
- Dollars: 7 percent of the benefits go the middle 20 percent of households, compared to roughly three-quarters that go to the top quintile.
- Participation: 17 percent of those in the middle quintile take the deduction, compared to about 70 percent in the top quintile.

Mortgage interest deduction (MID)

Source: Tax Policy Center.

FIGURE 1

Tax Benefit of the Deduction for Home Mortgage Interest under Current Law, 2017

Percentage

Source: Tax Policy Center T17-0124.
Table T17-0134
Tax Benefit of the Deduction for Home Mortgage Interest
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Percentile, 2017

<table>
<thead>
<tr>
<th>Expended Cash Income</th>
<th>Percent of Tax Units</th>
<th>Benefit as a Percent of After-Tax Income</th>
<th>Share of Total Benefit</th>
<th>Average Benefit</th>
<th>Share of Federal Taxes</th>
<th>Average Federal Tax Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Quintile</td>
<td>0.5</td>
<td>99.5</td>
<td>0.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Second Quintile</td>
<td>4.5</td>
<td>99.7</td>
<td>0.1</td>
<td>1.1</td>
<td>10</td>
<td>0.7</td>
</tr>
<tr>
<td>Middle Quintile</td>
<td>17.4</td>
<td>82.7</td>
<td>0.8</td>
<td>6.7</td>
<td>150</td>
<td>1.6</td>
</tr>
<tr>
<td>Fourth Quintile</td>
<td>58.7</td>
<td>61.3</td>
<td>6.6</td>
<td>19.5</td>
<td>510</td>
<td>2.6</td>
</tr>
<tr>
<td>Top Quintile</td>
<td>70.0</td>
<td>50.0</td>
<td>0.9</td>
<td>71.6</td>
<td>2,245</td>
<td>2.8</td>
</tr>
<tr>
<td>All</td>
<td>20.4</td>
<td>78.6</td>
<td>0.6</td>
<td>100.0</td>
<td>450</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Addendum
<table>
<thead>
<tr>
<th>Percentile</th>
<th>Percent of Tax Units</th>
<th>Benefit as a Percent of After-Tax Income</th>
<th>Share of Total Benefit</th>
<th>Average Benefit</th>
<th>Share of Federal Taxes</th>
<th>Average Federal Tax Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-90</td>
<td>66.0</td>
<td>34.1</td>
<td>1.0</td>
<td>22.9</td>
<td>1,380</td>
<td>3.8</td>
</tr>
<tr>
<td>90-95</td>
<td>73.8</td>
<td>26.2</td>
<td>1.1</td>
<td>18.1</td>
<td>2,260</td>
<td>4.0</td>
</tr>
<tr>
<td>95-99</td>
<td>79.7</td>
<td>23.3</td>
<td>1.2</td>
<td>23.5</td>
<td>3,780</td>
<td>3.4</td>
</tr>
<tr>
<td>Top 1 Percent</td>
<td>66.2</td>
<td>33.8</td>
<td>0.4</td>
<td>80</td>
<td>5,260</td>
<td>2.8</td>
</tr>
<tr>
<td>Top 0.1 Percent</td>
<td>53.2</td>
<td>46.8</td>
<td>0.1</td>
<td>0.7</td>
<td>4,960</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Tax Policy Center.
Pass-throughs, taxes, and inequality
Business Entity Types

**Tax Rate by Entity Type**

The Rise of Pass-throughs

Source: Cooper et al (TPE, 2016).
Pass-throughs and the Top-1% Income share

**Pass-Throughs and Top-1% Income Share**

Source: Cooper et al (TPE, 2016).
What is the nature of top incomes?

Thresholds: Top 1% ≈ $400K. Top 0.1% ≈ $1.5M. Top 0.01% ≈ $6.8M.

Source: Piketty Saez (2003, 2016)

Have passive rentiers replaced the working rich?


No rise in wage share since 2000

Top 1% income in this form as share of total income (%)

Year


Wages

Business, interest, rents, royalties, estates, trusts
Rising top incomes is largely a private biz inc phenomenon

Most top earners own a private business

**Compare:** 9,900 S&P 1500 execs with total pay ≈ $32B (Execucomp)

Private business ownership is concentrated

Source: Cooper et al (TPE, 2016).
Private business income is very concentrated
Roughly 70% of pass-through income goes to top 1%

Source: Cooper et al. (TPF, 2016)
Industrial composition of S-corporation business income

Industries: Diverse, skill-intensive
2014 main sample. Statistics in millions of 2014 USD.

<table>
<thead>
<tr>
<th>Industry (NAICS)</th>
<th>Rank</th>
<th>Profits</th>
<th>Industry (NAICS)</th>
<th>Rank</th>
<th>Profits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices of physicians (6211)</td>
<td>1</td>
<td>8980</td>
<td>Mnt of cos (5511)</td>
<td>1</td>
<td>12870</td>
</tr>
<tr>
<td>Othr prof/tech svc (5419)</td>
<td>2</td>
<td>4890</td>
<td>Othr fin invstmnt activy (5239)</td>
<td>2</td>
<td>7815</td>
</tr>
<tr>
<td>Offices of dentists (6212)</td>
<td>3</td>
<td>4430</td>
<td>Auto dealers (4411)</td>
<td>3</td>
<td>6482</td>
</tr>
<tr>
<td>Othr spcly trade cntrctr (2389)</td>
<td>4</td>
<td>4300</td>
<td>Othr prof/tech svc (5419)</td>
<td>4</td>
<td>5157</td>
</tr>
<tr>
<td>Legal svc (5411)</td>
<td>5</td>
<td>3540</td>
<td>Oil/gas extraction (2111)</td>
<td>5</td>
<td>4359</td>
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<tr>
<td>Architects/engineer svc (5413)</td>
<td>6</td>
<td>2880</td>
<td>Offices of physicians (6211)</td>
<td>6</td>
<td>4266</td>
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<tr>
<td>Restaurants (7225)</td>
<td>7</td>
<td>2850</td>
<td>Durable goods whsl (4239)</td>
<td>7</td>
<td>4244</td>
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<tr>
<td>Building equip cntrctr (2382)</td>
<td>8</td>
<td>2780</td>
<td>Mnt/tech consult svc (5416)</td>
<td>8</td>
<td>3889</td>
</tr>
<tr>
<td>Computer sys design svc (5415)</td>
<td>9</td>
<td>2680</td>
<td>Computer sys design svc (5415)</td>
<td>9</td>
<td>3861</td>
</tr>
<tr>
<td>Insurance agencies/brokers (5242)</td>
<td>10</td>
<td>2680</td>
<td>Othr heavy constr (2379)</td>
<td>10</td>
<td>3835</td>
</tr>
<tr>
<td>Mgmt/tech consult svc (5416)</td>
<td>11</td>
<td>2230</td>
<td>Othr spcly trade cntrctr (2389)</td>
<td>11</td>
<td>3815</td>
</tr>
<tr>
<td>Offices of health pract (6213)</td>
<td>12</td>
<td>1960</td>
<td>Othr fabric metal mfg. (3329)</td>
<td>12</td>
<td>3695</td>
</tr>
<tr>
<td>Nonres building constr (2362)</td>
<td>13</td>
<td>1920</td>
<td>Othr miscellaneous mfg. (3399)</td>
<td>13</td>
<td>3684</td>
</tr>
<tr>
<td>Durable goods whsl (4239)</td>
<td>14</td>
<td>1720</td>
<td>Nonrubl gds whsl (4249)</td>
<td>14</td>
<td>3240</td>
</tr>
<tr>
<td>Othr fabric metal mfg. (3329)</td>
<td>15</td>
<td>1680</td>
<td>Legal svc (5411)</td>
<td>15</td>
<td>3048</td>
</tr>
</tbody>
</table>

Top S-corporations are diverse and skill-intensive

- Representatives from all sectors, also geographically diverse
- Not just finance, technology, physical capital

Recent top income tax reforms

1) ACA (Obamacare) surtax rates (AGI above $250K):
   + 3.8 points on capital income
   + 0.9 points on labor income
   S-corporation “active” profits and pensions are exempt

2) Individual income tax top bracket (above $450K):
   Top ordinary tax rate increases from 35% to 39.6%
   Divid./capital gains top tax rate increases from 15% to 20%

Increase was expected when Obama re-elected in early November 2012 (but actual increase enacted in early January 2013)

Source: Saez (TPE, 2017).
Recent top income tax reforms

Table 1
Effect of the 2013 Reform on Top Federal Marginal Tax Rates

<table>
<thead>
<tr>
<th>Top Federal Marginal Tax Rates</th>
<th>Income Thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Reform (%)</td>
<td>Post-Reform (%)</td>
</tr>
<tr>
<td>A. Health care tax</td>
<td></td>
</tr>
<tr>
<td>Labor income (wages and self-employment)</td>
<td>2.9</td>
</tr>
<tr>
<td>Investment income</td>
<td>0.0</td>
</tr>
<tr>
<td>Other income (includes S corporation active profits, pensions, and other forms of income)</td>
<td>0.0</td>
</tr>
<tr>
<td>B. Individual income tax</td>
<td></td>
</tr>
<tr>
<td>Top income tax bracket:</td>
<td></td>
</tr>
<tr>
<td>Ordinary income</td>
<td>35.0</td>
</tr>
<tr>
<td>Long-term realized capital gains and dividends</td>
<td>15.0</td>
</tr>
<tr>
<td>Limitation on itemized deductions:</td>
<td></td>
</tr>
<tr>
<td>All income forms</td>
<td>0.0</td>
</tr>
<tr>
<td>C. Total effect on top federal marginal tax rates by specific income components</td>
<td></td>
</tr>
<tr>
<td>Labor income (wages and self-employment)</td>
<td>37.4</td>
</tr>
<tr>
<td>Realized capital gains and dividends</td>
<td>15.0</td>
</tr>
<tr>
<td>Other investment income</td>
<td>35.0</td>
</tr>
<tr>
<td>S corporation active profits, pensions, other income</td>
<td>35.0</td>
</tr>
<tr>
<td>Charitable giving (subsidy rate)</td>
<td>35.0</td>
</tr>
</tbody>
</table>

Source: Saez (TPE, 2017).
Individual Tax Changes in TCJA

- Lowered top rate from 39.6 to 37 (and changed other brackets)
- Doubled standard deduction
- Eliminated personal exemption
- Reduced the AMT
- Doubled the child tax credit from $1K to $2K
- Limited benefits
  - Cap SALT at $10K
  - Lowered cap on MID for new mortgages from $1.1M to $750K
- Sets shared responsibility payment to zero, which effectively repeals the individual mandate in the ACA
- Made pass-through changes (see next slide)
Deductions: Same as pertinent “old school” provisions

Rate cut:
- Allows 20% deduction of qualified business income
- Reduces top rate from 37% to 29.6%

Phase-out of deduction:
- Specified service businesses – health, law, consulting, etc.
- Businesses with low wages AND low capital. Cap on the deduction is greater of (a) 50% of W2 comp or (b) 25% of W2 comp and 2.5% of purchase of tangible assets
- Phase-out begins at $157,500 for individuals, $315,000 for joint filers
### Conventional Revenue Score of the 2017 Tax Law

<table>
<thead>
<tr>
<th></th>
<th>2027 Law</th>
<th>2018-2027</th>
<th>2019 Law Permanent</th>
<th>2018-2027</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual and Estate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(excluding passthrough)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gross Cuts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statutory Rates</td>
<td>$0</td>
<td>-$1,214</td>
<td>-$186</td>
<td>-$1,525</td>
</tr>
<tr>
<td>Standard Deduction</td>
<td>$0</td>
<td>-$720</td>
<td>-$106</td>
<td>-$899</td>
</tr>
<tr>
<td>Child Credit</td>
<td>$1</td>
<td>-$544</td>
<td>-$76</td>
<td>-$694</td>
</tr>
<tr>
<td>Alternative Minimum Tax</td>
<td>$0</td>
<td>-$637</td>
<td>-$108</td>
<td>-$777</td>
</tr>
<tr>
<td>Estate Tax</td>
<td>-$3</td>
<td>-$83</td>
<td>-$13</td>
<td>-$94</td>
</tr>
<tr>
<td><strong>Subtotal, Gross Individual Cuts</strong></td>
<td>-$3</td>
<td>-$3,198</td>
<td>-$488</td>
<td>-$3,989</td>
</tr>
<tr>
<td><strong>Gross Increases</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Exemption</td>
<td>$0</td>
<td>$1,212</td>
<td>$182</td>
<td>$1,517</td>
</tr>
<tr>
<td>Itemized Deductions</td>
<td>$0</td>
<td>$676</td>
<td>$112</td>
<td>$835</td>
</tr>
<tr>
<td>Shared Responsibility Payment</td>
<td>$53</td>
<td>$314</td>
<td>$53</td>
<td>$314</td>
</tr>
<tr>
<td>Chained CPI</td>
<td>$32</td>
<td>$134</td>
<td>$32</td>
<td>$134</td>
</tr>
<tr>
<td>Other</td>
<td>$2</td>
<td>$2</td>
<td>$2</td>
<td>$2</td>
</tr>
<tr>
<td><strong>Subtotal, Gross Individual Increases</strong></td>
<td>$86</td>
<td>$2,337</td>
<td>$380</td>
<td>$2,801</td>
</tr>
<tr>
<td><strong>Subtotal, Individual</strong></td>
<td>$84</td>
<td>-$862</td>
<td>-$108</td>
<td>-$1,188</td>
</tr>
<tr>
<td><strong>Passthrough</strong></td>
<td>-$1</td>
<td>-$265</td>
<td>-$42</td>
<td>-$344</td>
</tr>
</tbody>
</table>

## TCJA Changes for Individual Provisions (1/2)

### TABLE 1
Prior Law vs. TCJA
2018

<table>
<thead>
<tr>
<th>Individual provisions</th>
<th>Prior Law</th>
<th>Tax Cuts and Jobs Act</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Taxable Income ($)</strong></td>
<td><strong>Single Filers</strong></td>
<td><strong>Married Couples Filing Jointly</strong></td>
</tr>
<tr>
<td>Single Filers</td>
<td>But not over</td>
<td>Over</td>
</tr>
<tr>
<td>0</td>
<td>9,525</td>
<td>0</td>
</tr>
<tr>
<td>9,525</td>
<td>38,700</td>
<td>19,050</td>
</tr>
<tr>
<td>38,700</td>
<td>93,700</td>
<td>77,400</td>
</tr>
<tr>
<td>93,700</td>
<td>195,450</td>
<td>156,150</td>
</tr>
<tr>
<td>195,450</td>
<td>424,950</td>
<td>237,950</td>
</tr>
<tr>
<td>424,950</td>
<td>426,700</td>
<td>424,950</td>
</tr>
<tr>
<td>426,700 and over</td>
<td>480,050 and over</td>
<td>480,050 and over</td>
</tr>
<tr>
<td><strong>Individual alternative minimum tax</strong></td>
<td>AMT exemption equal to $55,400 (single), $86,200 (joint); Phases out above $123,100 (single), $164,100 (joint)</td>
<td>AMT exemption equal to $70,300 (single), $109,400 (joint); Phases out above $500,000 (single), $1,000,000 (joint)</td>
</tr>
<tr>
<td>Standard deduction</td>
<td>$6,500 (single), $13,000 (joint), $9,550 (head of household); Indexed for inflation</td>
<td>$12,000 (single), $24,000 (joint), $18,000 (head of household); Indexed for inflation; Sunsets after 2025</td>
</tr>
<tr>
<td>Personal and dependent exemptions</td>
<td>$4,150; Indexed for inflation</td>
<td>Repealed; Sunsets after 2025</td>
</tr>
<tr>
<td>Child tax credit</td>
<td>Credit equal to $1,000 per qualifying child under 17; Phases out above $75,000 (single), $110,000 (joint); Refundable portion equals 15% of earnings in excess of $3,000</td>
<td>Credit equal to $2,000 per qualifying child under 17, $500 for other dependents; Phases out beginning at $400,000 for joint filers; Refundable portion equals 15% of earnings in excess of $2,500 up to $1,400 per qualifying child; Maximum refundable portion indexed for inflation; Requires Social Security Number to claim; Sunsets after 2025</td>
</tr>
<tr>
<td>Higher education</td>
<td>American Opportunity Tax Credit; Lifetime Learning Credit; Tuition and Fees Deduction (expired after 2016); Student Loan Interest Deduction</td>
<td>No change</td>
</tr>
<tr>
<td>State and local tax deduction</td>
<td>Real estate, personal property, and either income or sales taxes are deductible</td>
<td>Real estate, personal property and either income or sales taxes up to $10,000 (single and joint) are deductible; Sunsets after 2025</td>
</tr>
<tr>
<td>Mortgage interest deduction</td>
<td>Interest payments on up to $1.1 million of debt (including $100,000 of home equity debt) are deductible; Refundable portion of interest deduction</td>
<td>Interest payments on up to $750,000 of new acquisition debt are deductible; Applicable to principle and one other debt; Sunsets after 2025</td>
</tr>
</tbody>
</table>
## TCJA Changes for Individual Provisions (2/2)

<table>
<thead>
<tr>
<th>Prior Law</th>
<th>Tax Cuts and Jobs Act</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual provisions</strong></td>
<td></td>
</tr>
<tr>
<td>Medical expense deduction</td>
<td>Out-of-pocket medical expenses in excess of 10% of AGI are deductible</td>
</tr>
<tr>
<td></td>
<td>Out-of-pocket medical expenses in excess of 7.5 percent of AGI are deductible</td>
</tr>
<tr>
<td></td>
<td>AGI are deductible in 2017 and 2018; Reverts to current law in 2019</td>
</tr>
<tr>
<td>Overall limit on itemized deductions</td>
<td>Repealed; Sunsets after 2025</td>
</tr>
<tr>
<td>Top capital gains rate</td>
<td>Rate unchanged, but based on income levels rather than brackets; Change in determination of applicable capital gains rate sunsets after 2025</td>
</tr>
<tr>
<td>Inflation index</td>
<td>Consumer Price Index (CPI)</td>
</tr>
<tr>
<td>Estate tax</td>
<td>Top rate of 40% on estates above $5.6 million (single), $11.2 million (joint); Indexed for inflation</td>
</tr>
<tr>
<td>ACA individual mandate penalty</td>
<td>Penalty set to zero</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Business Provisions</strong></td>
<td></td>
</tr>
<tr>
<td>Income from pass-through businesses</td>
<td>Taxed at ordinary income rates (maximum rate of 39.6%)</td>
</tr>
<tr>
<td></td>
<td>Provides 20% deduction (maximum rate of 29.6%); Deduction limited above $157,500 (single), $315,000 (joint) for personal service income and based on compensation paid or investment property; Sunsets after 2025</td>
</tr>
<tr>
<td>Top corporate income tax rate</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>21%</td>
</tr>
<tr>
<td>Corporate alternative minimum tax</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Repealed</td>
</tr>
<tr>
<td>New investment purchases</td>
<td>2018: 40% bonus depreciation for qualified property;</td>
</tr>
<tr>
<td></td>
<td>2019: 30% bonus depreciation for qualified property;</td>
</tr>
<tr>
<td></td>
<td>2020: 20% bonus depreciation for qualified property;</td>
</tr>
<tr>
<td></td>
<td>Small business (section 179) expensing up to $500,000</td>
</tr>
<tr>
<td>Business interest deduction</td>
<td>Fully deductible (generally)</td>
</tr>
<tr>
<td></td>
<td>Disallowed for net interest in excess of 30% of business income (excluding depreciation after 2022); Exemption for businesses with gross receipts of $25 million or less</td>
</tr>
<tr>
<td>Taxation of US multinational companies</td>
<td>Worldwide system with deferral and foreign tax credit</td>
</tr>
<tr>
<td></td>
<td>Modified territorial system with base erosion provisions; Anti-abuse tax on certain payments to foreign corporations; One-time tax on unrepatriated foreign earnings at 8% (15.5% for liquid assets)</td>
</tr>
</tbody>
</table>

**Source:** H. R. 1—A Bill to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018.

(a) Provisions revert to current law in 2026. Inflation-indexed tax parameters are computed using chain-weighted consumer price index.

TCJA = Tax Cuts and Jobs Act; ACA = Affordable Care Act; AGI = Adjusted Gross Income
Some options to raise revenue:

- Raising revenue outside of tax expenditures
- Raising revenue via limiting specific tax expenditures
- Raising revenue via limiting tax expenditures across the board
- A new tax on imputed income from wealth?
- Changes to capital gains + dividend taxes
- Other steps
### How much revenue from raising rates by group?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Quintile</td>
<td>3.0</td>
<td>8,280</td>
<td>414</td>
</tr>
<tr>
<td>Second Quintile ($25,500)</td>
<td>7.6</td>
<td>17,625</td>
<td>881</td>
</tr>
<tr>
<td>Middle Quintile ($50,000)</td>
<td>12.4</td>
<td>29,198</td>
<td>1,460</td>
</tr>
<tr>
<td>Fourth Quintile ($87,300)</td>
<td>15.7</td>
<td>42,693</td>
<td>2,135</td>
</tr>
<tr>
<td>Top Quintile ($157,900)</td>
<td>23.4</td>
<td>108,883</td>
<td>5,444</td>
</tr>
<tr>
<td>80-90 ($157,900)</td>
<td>18.7</td>
<td>29,488</td>
<td>1,474</td>
</tr>
<tr>
<td>90-95 ($229,900)</td>
<td>20.2</td>
<td>20,518</td>
<td>1,026</td>
</tr>
<tr>
<td>95-99 ($334,900)</td>
<td>22.6</td>
<td>26,716</td>
<td>1,336</td>
</tr>
<tr>
<td>Top 1 Percent ($738,300)</td>
<td>30.2</td>
<td>32,231</td>
<td>1,612</td>
</tr>
<tr>
<td>Top 0.1 Percent ($3,452,900)</td>
<td>31.3</td>
<td>15,712</td>
<td>786</td>
</tr>
<tr>
<td>All</td>
<td>18.2</td>
<td>206,789</td>
<td>10,339</td>
</tr>
</tbody>
</table>

### Other options

<table>
<thead>
<tr>
<th>Option</th>
<th>Revenue Raised / 10 Years (Billions $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raise ordinary rates by 2 percentage points</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>$1,468</td>
</tr>
<tr>
<td>Above $90K / 150K</td>
<td>$302</td>
</tr>
<tr>
<td>Above $415K</td>
<td>$186</td>
</tr>
<tr>
<td>Raise capital gain and dividend rates by 2 percentage points</td>
<td>$57</td>
</tr>
<tr>
<td>30% minimum tax above $1 million in AGI</td>
<td>$66</td>
</tr>
<tr>
<td>Increase payroll tax</td>
<td></td>
</tr>
<tr>
<td>Increase Medicare HI tax by 2 percentage points</td>
<td>$1,646</td>
</tr>
<tr>
<td>Apply Social Security tax above $250K</td>
<td>$1,010</td>
</tr>
<tr>
<td>Repeal NIIT/SECA gaming</td>
<td></td>
</tr>
<tr>
<td>Apply NIIT to all active participants</td>
<td>$160</td>
</tr>
<tr>
<td>Apply SECA to all material participants</td>
<td>$137</td>
</tr>
<tr>
<td>Increase funding for IRS enforcement (including indirect effects)</td>
<td>$18 per $1 increase</td>
</tr>
</tbody>
</table>

Source: CBO, Options for Reducing the Deficit: 2017 to 2026 (2016); President’s Budget, FY2017.

Source: Lily Batchelder.
Other option: partly like it’s 1997

---

Source: Zidar Zwick (2019), Penn Wharton Budget Model.

Table 1. Conventional revenue estimates

<table>
<thead>
<tr>
<th>Table 1. Conventional revenue estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>1) Eliminate stepped-up basis</td>
</tr>
<tr>
<td>2) Raise the estate tax</td>
</tr>
<tr>
<td>3) Increase tax rates on ordinary income</td>
</tr>
<tr>
<td>4) Increase tax rates on capital gains and dividends</td>
</tr>
<tr>
<td>5) Close the Gingrich-Edwards loophole</td>
</tr>
<tr>
<td>6) Repeal Section 199A</td>
</tr>
<tr>
<td>7) Tax privately-held C corps as pass-throughs</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Distributional impact

Table 4. Conventional distributional measures, 2022

<table>
<thead>
<tr>
<th>Income group</th>
<th>Baseline</th>
<th></th>
<th>Proposal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Average</td>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>expanded</td>
<td>federal tax</td>
<td>after-tax</td>
<td>tax</td>
</tr>
<tr>
<td></td>
<td>income</td>
<td>liability</td>
<td>income</td>
<td>change</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>$3,150</td>
<td>-$155</td>
<td>$3,305</td>
<td>$-145</td>
</tr>
<tr>
<td>Second quintile</td>
<td>$25,385</td>
<td>$230</td>
<td>$25,615</td>
<td>$-775</td>
</tr>
<tr>
<td>Middle quintile</td>
<td>$53,415</td>
<td>$5,370</td>
<td>$48,045</td>
<td>$-110</td>
</tr>
<tr>
<td>Fourth quintile</td>
<td>$98,395</td>
<td>$13,040</td>
<td>$85,355</td>
<td>$2,120</td>
</tr>
<tr>
<td>60-90%</td>
<td>$160,910</td>
<td>$26,590</td>
<td>$134,320</td>
<td>$5,770</td>
</tr>
<tr>
<td>90-95%</td>
<td>$234,445</td>
<td>$43,780</td>
<td>$190,665</td>
<td>$12,810</td>
</tr>
<tr>
<td>95-99%</td>
<td>$405,360</td>
<td>$86,535</td>
<td>$316,825</td>
<td>$29,930</td>
</tr>
<tr>
<td>99-99.9%</td>
<td>$1,222,415</td>
<td>$340,825</td>
<td>$881,596</td>
<td>$128,296</td>
</tr>
<tr>
<td>Top 0.1%</td>
<td>$10,389,425</td>
<td>$2,916,660</td>
<td>$7,472,765</td>
<td>$1,054,650</td>
</tr>
</tbody>
</table>

Source: Zidar Zwick (2019), Penn Wharton Budget Model.
Tax expenditures

Size of Government, by Income Taxes

Source: Lily Batchelder.
Major Individual Tax Incentives: 10 Year Cost and Form


Source: Lily Batchelder.
Capping Tax Expenditures Globally

- TCJA limited specific expenditures: e.g., state and local tax, mortgage interest
- Globally capping expenditures may generate less pushback than cutting individual tax expenditures
  - Capping the level of tax expenditures
  - Capping expenditures as a share of income (e.g., Feldstein, Feenberg, & MacGuineas, 2011)
  - Capping the marginal tax rate at deductions and exclusions are claimed (e.g. 24%)
- Global caps do less to decrease tax complexity than outright removal of tax expenditures
### Static Tax Benefit of Rate Preference for Capital Gains + Dividends

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Capital Gains</th>
<th>Dividends</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Quintile</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Second Quintile</td>
<td>$0</td>
<td>$0</td>
<td>$1</td>
</tr>
<tr>
<td>Middle Quintile</td>
<td>$2</td>
<td>$1</td>
<td>$3</td>
</tr>
<tr>
<td>Fourth Quintile</td>
<td>$3</td>
<td>$3</td>
<td>$6</td>
</tr>
<tr>
<td>Top Quintile</td>
<td>$102</td>
<td>$30</td>
<td>$132</td>
</tr>
<tr>
<td>All</td>
<td>$107</td>
<td>$34</td>
<td>$141</td>
</tr>
</tbody>
</table>

**Addendum**

<table>
<thead>
<tr>
<th>Income Level</th>
<th>Capital Gains</th>
<th>Dividends</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-90</td>
<td>$3</td>
<td>$2</td>
<td>$4</td>
</tr>
<tr>
<td>90-95</td>
<td>$4</td>
<td>$2</td>
<td>$5</td>
</tr>
<tr>
<td>95-99</td>
<td>$11</td>
<td>$5</td>
<td>$16</td>
</tr>
<tr>
<td>Top 1 Percent</td>
<td>$85</td>
<td>$21</td>
<td>$106</td>
</tr>
<tr>
<td>Top 0.1 Percent</td>
<td>$89</td>
<td>$15</td>
<td>$104</td>
</tr>
</tbody>
</table>

Source: Author's calculations based on Tax Policy Center Tables T18-0183, T17-0082.

*This is not even including benefit of step up in basis and deferral under realization rule.*
Issue with taxing capital gains and dividends

### Elasticities and Revenue Maximizing Capital Gains Rate

<table>
<thead>
<tr>
<th>Revenue Maximizing Rates and Revenue Gain Under JCT/Treasury Assumptions (Very Approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. Elasticity of Realizations at Current Top Rate</td>
</tr>
<tr>
<td>Joint Committee on Taxation</td>
</tr>
<tr>
<td>Treasury</td>
</tr>
<tr>
<td>Static Gain from Increasing to 37% on Top 1%</td>
</tr>
</tbody>
</table>

Note: These calculations are done based on reports of the semi-elasticity used by Treasury and JCT (to Jane Gravelle) of capital gains realizations. The coefficient is a fixed estimate that, multiplied by the tax rate, equals the elasticity of capital gains realizations. Gravelle reported a semi-elasticity of 3.1 for JCT and 3.25 for Treasury.

Source: Author’s calculations based on TPC Table T18-0183 and T17-0082 and and Jane Gravelle, CRS, "Capital Gains Tax Options: Behavioral Responses and Revenues," 2010.

- These behavioral responses are taken into account in traditional scoring (“microdynamic”).
- Conclusion that ordinary rates above rev maximizing point and raising rates would generate little additional revenue has had significant influence on policy debate in Washington.
Motivation

Policy
- Federal US income tax policy (pre-TCJA)
- State and local tax deduction
- Mortgage interest deduction
- Pass-throughs, taxes, and inequality
- Recent top income tax reforms (pre-TCJA)
- Tax Cuts and Jobs Act of 2017
- Future Tax Reform

Theory

Evidence
- Empirical estimation of e and identification issues
Progressive income tax distorts consumption-leisure choices

A key question: how much do hours of work ($H_2$ vs $H_1$) increase when tax schedule becomes flatter?
How progressive should labor income tax be?

What is the optimal degree of tax progressivity when households economic outcomes are determined by their initial ability, partially insurable wage shocks, taste for work, and human capital investment?

- **Argument in favor of progressivity: missing markets**
  - Social insurance of privately-uninsurable lifecycle shocks
  - Redistribution with respect to unequal initial conditions

- **Argument against progressivity: distortions**
  - Labor supply
  - Human capital investment

- **Another consideration - fiscal externality**
  - Financing of public good provision

Source: Heathcote Storesletten Violante (QJE, forthcoming)
Three lessons on optimal progressivity

1. The endogeneity of the skill distribution limits optimal progressivity
   • Key: skill-complementarity in production ($\theta$), price-elasticity of skill investment ($\psi$), alterability of past skill choices

2. The externality in the provision of public goods limits progressivity
   • Low progressivity induces higher labor supply, output, and $G'$

3. Age-dependent progressivity delivers large welfare gains
   • Low progressivity at young ages induces skill investment
   • High progressivity at old ages redistributes against shocks
OPTIMAL TOP INCOME TAX RATE  
(Diamond and Saez JEP’11)

In practice, individual income tax is progressive with brackets with increasing marginal tax rates. What is the optimal top tax rate?

Consider constant MTR \( \tau \) above fixed \( z^* \). Goal is to derive optimal \( \tau \)

In the US in 2016, \( \tau = 39.6\% \) and \( z^* \approx \$500,000 \) (\( \approx \) top 1%).

Denote by \( z \) average income of top bracket earners [depends on net-of-tax rate \( 1 - \tau \)], with elasticity \( e = [(1 - \tau)/z] \cdot dz/d(1 - \tau) \)

Suppose the government wants to maximize tax revenue collected from top bracket taxpayers (marginal utility of consumption of top 1% earners is small)
Optimal Top Income Tax Rate (Mirrlees ’71 model)

Disposable Income
\[ c = z - T(z) \]

Top bracket:
Slope \(1 - \tau\)

Reform:
Slope \(1 - \tau - d\tau\)

Market income \(z\)
Optimal Top Income Tax Rate (Miryrees ’71 model)

\[ \text{Disposable Income: } c = z - T(z) \]

\[ z^* - T(z^*) \]

Mechanical tax increase:
\[ d\tau [z - z^*] \]

Behavioral Response tax loss:
\[ \tau \, dz = - d\tau \, e \, z \, \tau / (1 - \tau) \]
OPTIMAL TOP INCOME TAX RATE

Consider small $d\tau > 0$ reform above $z^*$. 

1) Mechanical increase in tax revenue:

$$dM = [z - z^*]d\tau$$

2) Behavioral response reduces tax revenue:

$$dB = \tau dz - \tau \frac{dz}{d(1 - \tau)} d\tau = -\frac{\tau}{1 - \tau} \cdot e \cdot z \cdot d\tau$$

$$dM + dB = d\tau \left\{ [z - z^*] - e \frac{\tau}{1 - \tau} z \right\}$$

Optimal $\tau$ such that $dM + dB = 0$

$$\Rightarrow \frac{\tau}{1 - \tau} = \frac{1}{e} \cdot \frac{z - z^*}{z} \Rightarrow \tau = \frac{1}{1 + a \cdot e} \quad \text{with} \quad a = \frac{z}{z - z^*}$$
**OPTIMAL TOP INCOME TAX RATE**

Optimal top tax rate: \( \tau = \frac{1}{1 + a \cdot e} \) with \( a = \frac{z}{z - z^*} \)

Optimal \( \tau \) decreases with \( e \) [efficiency]

Optimal \( \tau \) decrease with \( a \) [thinness of top tail]

Empirically \( a \approx 1.5 \), easy to estimate using distributional data

Empirically \( e \) is harder to estimate [controversial]

Example: If \( e = .25 \) then \( \tau = 1/(1+1.5\cdot0.25) = 1/1.75 = 73\% \)

Source: Saez and Diamond (JEP, 2011).
Outline

1 Motivation

2 Policy
- Federal US income tax policy (pre-TCJA)
- State and local tax deduction
- Mortgage interest deduction
- Pass-throughs, taxes, and inequality
- Recent top income tax reforms (pre-TCJA)
- Tax Cuts and Jobs Act of 2017
- Future Tax Reform

3 Theory

4 Evidence
- Empirical estimation of \( e \) and identification issues
Basic empirical strategy

- Assume:
  - No income effects on reported income
  - Immediate and permanent response to tax rates
  - $e$ constant over time and uniform across individuals at all income levels
  - Individuals have perfect knowledge of the tax structure and choose $z_{it}$ after they know $z_{it}^0$ exactly

- In year $t$, individual $i$ reports income $z_{it}$ and faces $\tau_{it} = T'(z_{it})$. Reported income $z_{it} = z_{it}^0(1 - \tau_{it})^e$, where $e$ is ETI and $z_{it}^0$ is income reported when $\tau_{it} = 0$ (i.e., potential income)

- We can estimate $e$ using
  \[ \log z_{it} = e \log(1 - \tau_{it}) + \log z_{it}^0 \]

- The last equation cannot be identified using OLS if $\tau$ is correlated with income $z_{it}^0$, so need to instrument $\tau_{it}$
Share Analysis

Estimating ETI using 2+ years/periods of data

- Assume that no tax change for individuals outside the top groups
- Estimate elasticity of reported income around a tax reform episode, where $t_0$ and $t_1$ are pre- and post-reform years

$$e = \frac{\log s_{t_1} - \log s_{t_0}}{\log(1 - \tau_{s,t_1}) - \log(1 - \tau_{s,t_0})}$$

- $s_t$: share of income accruing to the top 1% earners in $t$
- $\tau_{s,t}$: income-weighted avg marginal tax rate faced by taxpayers in this income group in $t$

Identification assumption: Absent the tax change, the share would have remained constant from year $t_0$ to $t_1$ (on average)

- Using full time series: estimate a time-series regression of the form

$$\log s_t = e \log(1 - \tau_{s,t}) + \varepsilon_t$$
METHODOLOGY

Question: How are top incomes affected by the 2013 reform?

Simplest and most transparent method is to analyze top income shares and their composition (Saez TPE ’04)

Analysis can be done with timely public SOI tabulated data

My view: panel methods of Feldstein JPE’95, Gruber-Saez JpubE’02 are much less transparent and robust

Micro-data useful to refine analysis along specific dimensions

Use a share analysis

Relate share changes to 2013 tax rate changes

Shifting

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.

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.

Shifting

A control group?

Source: Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.
**SHORT-TERM ELASTICITY ESTIMATION**

\[ e_S = \frac{\Delta \log s_h}{\Delta \log (1 - MTR)} = \frac{\log s_{h2013} - \log s_{h2012}}{\log(1 - MTR_{2013}) - \log(1 - MTR_{2012})} \]

where \( s_{ht} \) is top income share and \( MTR_t \) is the average MTR for top group in year \( t \)

**Identification assumption:** absent tax change, \( s_{h2013} = s_{h2012} \) [retiming spike is big relative to top income share trend]

This slightly underestimates \( e_S \) as there is an overall upward trend in top income shares (in opposite direction to retiming)

Elasticity estimate with shifting

Top 1% income share (with capital gains), 1962-2015

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

Short-term elasticity:
2013 vs. 2012

\[ e_s = \frac{\Delta \log(sh)}{\Delta \log(1-MTR)} = 1.16 \]

Shares by income group

Decomposing Top 1% into top 0.1% and next 0.9%

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

Elasticity estimate with shifting for top 1% to top 0.1%

Decomposing Top 1% into top 0.1% and next 0.9%

Top 0.1% big effect: $e_s = 1.84$
Next 0.9% much smaller: $e_s = 0.45$

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

Source: Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"
## 2. Short-run Elasticity $e_s$ Comparing 2012 and 2013 Top Incomes

<table>
<thead>
<tr>
<th>Top Income Groups</th>
<th>2012</th>
<th>2013</th>
<th>2013-2012 Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 1%</td>
<td>22.8%</td>
<td>20.0%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>Top 1-.1%</td>
<td>11.1%</td>
<td>10.6%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Top .1%</td>
<td>11.7%</td>
<td>9.4%</td>
<td>-2.3%</td>
</tr>
</tbody>
</table>

### A. Elasticity Computation

- Top income share in 2012: 22.8%
- Top income share in 2013: 20.0%
- Log change in top income shares 2012 to 2013: -13.2%
- Net-of-tax rate in 2012: 67.8%
- Net-of-tax rate in 2013: 60.5%
- Log change in net-of-tax rate 2012 to 2013: -11.4%
- Elasticity of income wrt net-of-tax rate: 1.16

This table presents the short-run elasticity estimates $e_s$ of reported income with respect to one minus the marginal tax rate comparing 2012 and 2013 top incomes.

Income composition

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.

Income composition

US Top 0.1% Income Share and Composition

Short-term response driven by K gains

- Realized capital gains
- Income excluding capital gains

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.

Source: Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"
Income composition

US Top 0.1% Income Share and Composition

- Short-term response driven by K gains
- Smaller response for other income

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 composition

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.
Income composition

US Top 0.1% Income Share and Composition (excl. K gains)

Strong response of dividends

- 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 of the top 1%.
Income composition

US Top 0.1% Income Share and Composition (excl. K gains)

Strong response of dividends
Some response of salaries and business

- Dividends
- Other capital income
- Business income
- Salaries

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income ex
## 2. Short-run Elasticity $e_s$ Comparing 2012 and 2013 Top Incomes

<table>
<thead>
<tr>
<th></th>
<th>Top Income Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Top 1%</td>
</tr>
<tr>
<td><strong>C. Elasticity of Each Income Component</strong></td>
<td></td>
</tr>
<tr>
<td>Total income including realized capital gains</td>
<td>1.16</td>
</tr>
<tr>
<td>Realized capital gains</td>
<td>3.16</td>
</tr>
<tr>
<td>Income excluding realized capital gains</td>
<td>0.73</td>
</tr>
<tr>
<td>Wages, Salaries, and Pensions</td>
<td>0.44</td>
</tr>
<tr>
<td>Business income</td>
<td>0.55</td>
</tr>
<tr>
<td>Ordinary capital income</td>
<td>1.59</td>
</tr>
<tr>
<td>Dividends</td>
<td>3.19</td>
</tr>
<tr>
<td>Interest, rents, royalties, fiduciaries</td>
<td>0.42</td>
</tr>
</tbody>
</table>

This table presents the short-run elasticity estimates $e_s$ comparing 2012 and 2013 for each income component. Computations are based on the composition of top incomes from Piketty-Saez series.

Income composition


Top 0.1% wage income share, 1990-2015

Source: Piketty and Saez, 2003 updated to 2015 based on Social Security Administration data. Series based on indiv. wage income inclusive of elective pension contributions (like 401(k)s).
Income composition

Top 0.1% wage income share, 1990-2015

Elasticity $e_S = 0.9$
close to $e_S = 1.1$
elasticity for wages
from tax data

Source: Piketty and Saez, 2003 updated to 2015 based on Social Security Administration data.
Series based on indiv. wage income inclusive of elective pension contributions (like 401(k)s).

Medium-term elasticity

MEDIUM-TERM ELASTICITY ESTIMATION

\[ e_M = \frac{\Delta \log s_{h}^{c}}{\Delta \log (1 - MTR)} = \frac{\log s_{h_{2015}} - \log s_{h_{2015}^{c}}}{\log (1 - MTR_{2015}) - \log (1 - MTR_{2011})} \]

where \( s_{h_{2015}^{c}} \) is counterfactual top share absent the reform

Difficult identification assumption: Is \( s_{h_{2015}^{c}} = s_{h_{2011}} \)?

Upward trend in top income share absent tax change likely:

a) secular increase [top 1% ↑ 0.32 pts/year in 1978-2011]

b) fast recovery trend after Great Recession [top 1% ↑ 0.76 pts/year in 2009-2011]

Assumption: assume same trend over 2011-5 as over 2009-11

\[ \Rightarrow s_{h_{2015}^{c}} = s_{h_{2011}} + (2015 - 2011) \times (s_{h_{2011}} - s_{h_{2009}})/2 \]

Source: Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"
Income composition

Source: Piketty and Saez, 2003 updated to 2015 based on Social Security Administration data. Series based on indiv. wage income inclusive of elective pension contributions (like 401(k)s).

Top 0.1% wage income share, 1990-2015

Elasticity $e_s = 0.9$

close to $e_s = 1.1$

elasticity for wages from tax data

Source: Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"
Which trend?

Source: Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

Medium term response: compare 2011 and 2015
Which trend?

Counterfactual top 1% income shares

Source: Piketty and Saez, 2003 updated to 2014. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.
Which trend?

**Graph:**

- **Title:** Counterfactual top 1% income shares

- **Source:** Piketty and Saez, 2003 updated to 2014. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

- **Legend:**
  - Top 1% Income Share
  - Long-term Trend 1978-2011
  - Medium-term trend post Great Recession: 2009-2011

**Source:** Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"
Which trend?

Source: Saez (TPE, 2017) "Taxing the Rich More: Evidence from the 2013 Tax Increase"

Source: Piketty and Saez, 2003 updated to 2015. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.
Implied elasticity depends on trend

Implied elasticity depends on trend

## Medium-term elasticity estimates

### 3. Estimates for the Medium-run Elasticity $e_M$

<table>
<thead>
<tr>
<th>Top Income Groups</th>
<th>Top 1%</th>
<th>Top 1-.1%</th>
<th>Top .1%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Comparing 2011 and 2015 Top Incomes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elasticity for income incl. K gains</td>
<td>0.26</td>
<td>0.29</td>
<td>0.24</td>
</tr>
<tr>
<td>Elasticity for income excl. K gains</td>
<td>0.32</td>
<td>0.39</td>
<td>0.22</td>
</tr>
<tr>
<td><strong>B. Comparing 2011 and 2014 Top Incomes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elasticity for income incl. K gains</td>
<td>0.21</td>
<td>0.21</td>
<td>0.20</td>
</tr>
<tr>
<td>Elasticity for income excl. K gains</td>
<td>0.33</td>
<td>0.34</td>
<td>0.31</td>
</tr>
</tbody>
</table>

This table presents the medium-run elasticity estimates $e_M$ comparing 2011 and 2015 incomes in Panel A and 2011 and 2014 incomes in Panel B. We assume that, absent the tax change, top income shares would have increased at the same rate as the medium-term post Great Recession increase from 2009 to 2011.

Medium-term elasticity estimates

These estimates have implications for top rate

\[ \tau^* = \frac{1}{1 + ae} \]

When \( a = 1.5 \),

- If \( e = .25 \), then \( \tau^* = .73 \)
- If \( e = .5 \), then \( \tau^* = .57 \)
- If \( e = 1 \), then \( \tau^* = .40 \)
Differences-in-Differences estimation

- Let $T$ be the group affected by the tax change (e.g., the top 1%) and $C$ the control group.
- Estimate the equation

$$\log z_{it} = \alpha_0 1(\text{Post}_{it}) + \beta_0 1(i \in T) + \beta_1 1(\text{Post}_{it} \times 1(i \in T)) + \varepsilon_{it}$$

- Control, pre: $0$
- Control, post: $\alpha_0$
- Difference: $\alpha_0$
- Treat, pre: $\beta_0$
- Treat, post: $\alpha_0 + \beta_0 + \beta_1$
- Difference: $\alpha_0 + \beta_1$
- Difference in difference: $\beta_1$

Then need to relate $\beta_1$ to size of tax change to get $e$.
## Summary of empirical evidence of ETI

<table>
<thead>
<tr>
<th>Estimation</th>
<th>$e$</th>
<th>Authors (Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tabulated diff-in-diff, OLS. The difference in the % change in taxable income between $T$ and $C$ is divided by the difference in the % change in the average net-of-tax-rate between $T$ and $C$.</td>
<td>1-3</td>
<td>Feldstein (1995)</td>
</tr>
<tr>
<td>2SLS, regress change in log AGI between 1985 and 1989 against change in log net-of-tax rate. Instrument for change in net-of-tax rate by inflating adjusted 1985 incomes by the CPI to 1989 levels and then applying 1989 law to these incomes.</td>
<td>0.55</td>
<td>Auten and Carroll (1999)</td>
</tr>
<tr>
<td>Moffitt and Wilhelm calculate $e$ using Feldstein’s (1995) approach, which yields $e$ from 1.76 to 1.99, and a 2SLS regression approach, employing alternative instruments for the change in the net-of-tax rate. Those instruments that are successful yield $e \in [0.35, 0.97]$.</td>
<td>0.35-0.97</td>
<td>Moffitt and Wilhelm (2000)</td>
</tr>
<tr>
<td>2SLS. Instrument for the change in the net-of-tax rate using an instrument very similar to that used by Auten and Carroll (1999). They also construct an analogous instrument for capturing the income effect, the log change in after-tax income assuming that base year income grows at the same rate as total income.</td>
<td>0.17 (broad income of top earners)</td>
<td>Gruber and Saez (2002)</td>
</tr>
</tbody>
</table>
Explaining empirical findings

- No reason to expect a universal parameter:
  - Kopczuk (2002) argues that the ETI is a function of preferences and the breadth of the tax base and tax enforcement
  - Giertz (2007): elasticity w.r.t. taxable income varies much more by decade than the elasticity w.r.t. broad income → changing rules for deductions affects the taxable income elasticity

- Methodological issues drive the differences between decades:
  - Model is unable to adequately control for exogenous income trends → non-tax-related aspects of income inequality trend could bias ETI estimates upward when top tax rates fall and downward when they rise
  - Models fail to capture important types of income shifting, such as the shifting between the corporate and individual income tax base
There are two ideas of government. There are those who believe that if you just legislate to make the well-to-do prosperous, that their prosperity will leak through on those below. The Democratic idea has been that if you legislate to make the masses prosperous their prosperity will find its way up and through every class that rests upon it.

—William Jennings Bryan (July, 1896)
Consequences of changing tax policy for different groups are fiercely debated

1. Tax changes for high income earners “trickle down” and are the most effective way to affect prosperity
   - Higher marginal tax rates for top-income taxpayers lead to large distortions in labor supply, investment, and hiring, so tax cuts for top-income taxpayers most effectively increase aggregate economic activity.

2. Others contend the opposite
   - Lower-income groups have higher marginal propensities to consume and disincentives to work from means-tested benefits, so tax cuts for lower-income groups generate sizable consumption and labor supply responses, and thereby, more overall activity

Source: Zidar (2018)
Question:

- Do tax changes for high-income earners “trickle down?”
- Would these effects be larger if the tax changes were less targeted at the top?

Variation in income tax policy in the U.S. can help us answer these questions and inform this debate.

Source: Zidar (2018)
Tax changes for each income percentile

Source: Zidar (2018)
Zidar (2018)

Quantifies the importance of the distribution of tax changes for their overall impact on economic activity

- **New data** using tax returns from NBER TAXSIM
- **New variation** from federal tax shocks × variation in income distribution across states
Federal tax changes by income group

Source: Zidar (2018)
Geographic variation in top income shares

Source: Zidar (2018)
Findings

1. The positive relationship between tax cuts and employment growth is largely driven by tax cuts for lower-income groups.

2. The effect of tax cuts for the top 10% on employment growth is small.
   - Holds at both the state and federal level.
   - Not confounded by changes in progressive spending, state trends, prior economic conditions.
A. Employment-to-Population Ratio

Source: Zidar (2018)
B. Employment

Source: Zidar (2018)
State: real wage increase $\Rightarrow L^S$ response

Source: Zidar (2018)
State: consumption effects $\Rightarrow$ demand response

D. Consumption

Source: Zidar (2018)
Labor Supply Theory

Individual has utility over labor supply $l$ and consumption $c$: $u(c, l)$ **increasing** in $c$ and **decreasing** in $l$ [⇐ increasing in leisure]

$$\max_{c, l} u(c, l) \text{ subject to } c = w \cdot l + R$$

with $w = \bar{w} \cdot (1 - \tau)$ the net-of-tax wage ($\bar{w}$ is before tax wage rate and $\tau$ is tax rate), and $R$ non-labor income.

FOC $w \frac{\partial u}{\partial c} + \frac{\partial u}{\partial l} = 0$ defines Marshallian labor supply $l = l(w, R)$

**Uncompensated labor supply elasticity:**

$$\epsilon^u = \frac{w}{l} \cdot \frac{\partial l}{\partial w}$$

**Income effects:**

$$\eta = \frac{w}{l} \frac{\partial l}{\partial R} \leq 0$$

Source: Saez.
Labor Supply Theory

Source: Saez.
Labor Supply Theory

Labor Supply Income Effect

Budget: \( c = wI + R \)

\[ c = z - T(z) \]

consumption

Source: Saez.
Labor Supply Theory

Labor Supply Income Effect

$c = z - T(z)\text{ consumption}$

Budget: $c = w + R + dR$

Budget: $c = w + R$

Source: Saez.
Labor Supply Theory

Source: Saez.
Labor Supply Theory

**Substitution effects:** Hicksian labor supply: \( l^c(w, u) \) minimizes cost needed to reach \( u \) given slope \( w \) ⇒

Compensated elasticity \( \epsilon^c = \frac{w}{l} \cdot \frac{\partial l^c}{\partial w} > 0 \)

Slutsky equation \( \frac{\partial l}{\partial w} = \frac{\partial l^c}{\partial w} + l \frac{\partial l}{\partial R} \Rightarrow \epsilon^u = \epsilon^c + \eta \)

Tax rate \( \tau \) discourages work through substitution effects (work pays less at the margin)

Tax rate \( \tau \) encourages work through income effects (taxes make you poorer and hence in more need of income)

Net effect ambiguous (captured by sign of \( \epsilon^u \))

Source: Saez.
Labor Supply Theory

\[ c = z - T(z) \]

consumption

\[ \text{utility } u \]

Slope = w

Minimize cost to reach utility u given slope w:

Hicksian Labor Supply \( l^*(w,u) \)

Source: Saez.
Labor Supply Theory

Source: Saez.
Labor Supply Theory

Source: Saez.
Labor Supply Theory

Uncompensated Labor Supply Effect

$c = z - T(z)$

consumption

Budget: $c = wl + R$

slope = w

Source: Saez.
Labor Supply Theory

Uncompensated Labor Supply Effect

Source: Saez.