Rethinking How We Score Capital Gains Tax Reform

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*The views expressed here do not necessarily reflect those of the Treasury Department (and possibly some of the coauthors).

Motivation

- How much revenue would a 25% (or higher) capital gains tax raise?
- Capital gains viewed as quite elastic: $|\varepsilon_{\text{capital gains},\tau}| > |\varepsilon_{X,\tau}|$ (e.g., $X =$ labor)
  - Retiming a capital gain realization in an investor's stock portfolio is easier than changing investment strategy for executives seeking to avoid a corporate tax increase, or reducing labor supply for workers when income tax rates rise.
  - Some believe a capital gains rate of 25% is on the wrong side of the Laffer curve

Question: Are these behavioral responses overstated, resulting in a potentially large underestimate of the revenue at play from capital gains tax increases?

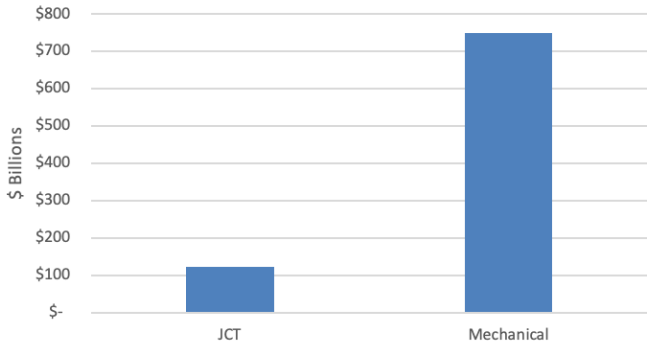
Overview

- We recognize answering this question is quite challenging, but we are concerned that the prevailing mode of analysis assumes a very large response
- We suggest considerations that indicate these approaches exaggerate the response
- Alternative calculations suggest much larger revenue estimates

Bottom line: Revenue potential of capital gains taxes are larger than prevailing scores

JCT and Mechanical ten-year revenue estimates for 5 p.p. increase in τ_{cg}

JCT estimates only 16% of mechanical revenue



- Sept2021 JCX-42-21 "Increase top tax rate on long-term capital gains and qualified dividends to 25% and lower income thresholds to which it applies" is $123B
- CBO projections of cap gains realizations + qualified dividends 2022-2031: ≈$15T

Revenue potential of capital gains taxes may be larger than many believe

1. **Many prior studies focus primarily on short-run taxpayer responses**, and so miss revenue from gains that are deferred when rates change
2. Rise of pass-throughs, index funds, has shifted **composition of capital gains**
3. Closer parity to income rates provides **backstop to rest of tax system**
4. **Base-broadening reforms** will likely decrease the elasticity of tax base to τ_{cg}

#1a. Consider a simple 2 year example of medium-term retiming of realizations

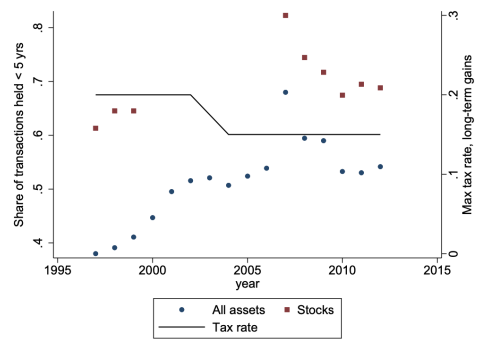
- Suppose that doubling capital gains rates from 20% to 40% causes realizations to occur half as often: instead of realizing gains every year, individuals realize gains every two years.
- Suppose assets grow at 10% annually.
- In the **low-tax regime**, \$100 of assets yield realizations of \$10 in year 1 and \$10.80 in year 2 (after paying two dollars of tax in year 1).
- In the **high-tax regime**, \$100 of assets yield realizations of \$0 in year 1 and \$21 in year 2.
- Despite the appearance in year 1 of a large elasticity of realizations in response to the tax increase, total revenues over both years increase from \$4.16 in the low-tax regime to \$8.40 in the high-tax regime.

Without other behavioral responses, the short-run revenue score is zero and the medium-run revenue score is double the baseline.

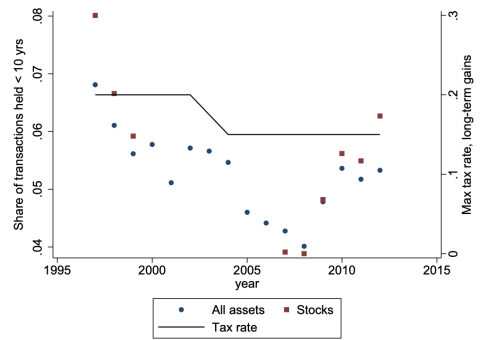
#1a. Suggestive evidence of medium-term retiming

The duration that taxpayers hold their gains before realizing falls when rates fall

(a) Held less than 5 years



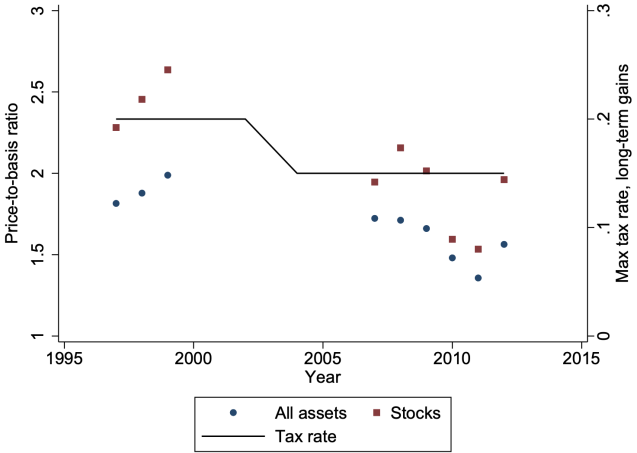
(b) Held 10 years or more



Notes: These graphs plot the average share of capital gains realizations that are held for less than five years and for more than 10 years. For reference, we also plot the maximum federal long-term capital gains tax rate. Data from the IRS SOCA.

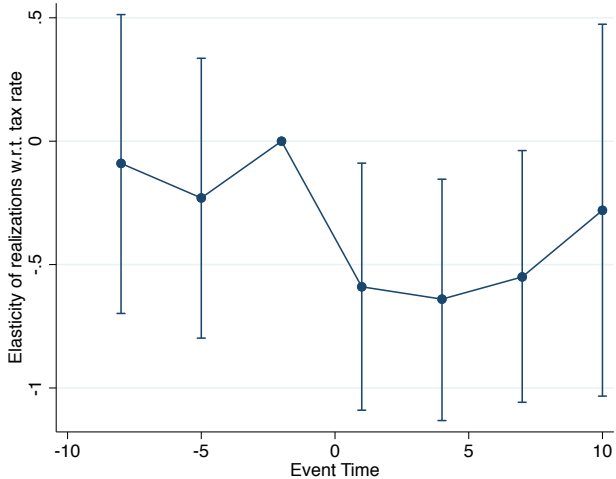
#1a. Suggestive evidence of medium-term retiming

The ratio of sales price to basis falls when rates fall



Notes: This graph plots the ratio of sales price to basis for long-term gain realizations of all assets and for stocks only. For reference, we also plot the maximum federal long-term capital gains tax rate. Data from the IRS SOCA.

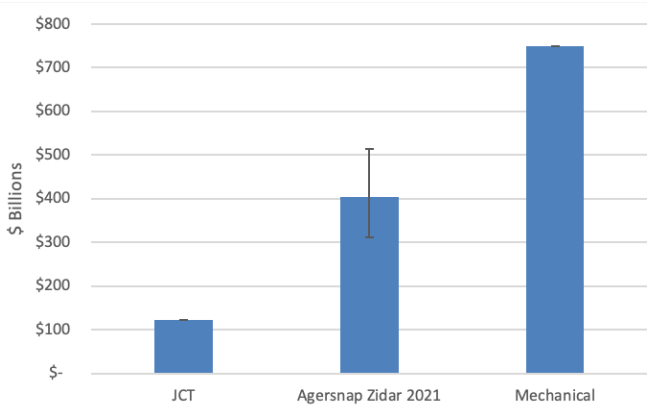
#1b. Event studies over 10-year budget window (e.g., Agersnap Zidar, 2021)



Source: Agersnap and Zidar (AER: Insights, 2021).

#1b. Crude ten-year revenue estimates for 5 p.p. increase in τ_{cg}

JCT estimates only 16% of mechanical revenue; AZ estimates are 54% (other specifications give 42% to 68%)



- Plot shows estimates using $\varepsilon_{NTR} = \{1.87, 1.48, 1.01\}$ from AZ Table 2.
- Use net-of-tax-rates at 22% rate (e.g., $e_\tau = -0.42 \Rightarrow e_{ntr} = \frac{-0.42}{.22/(1-.22)} = 1.48$)

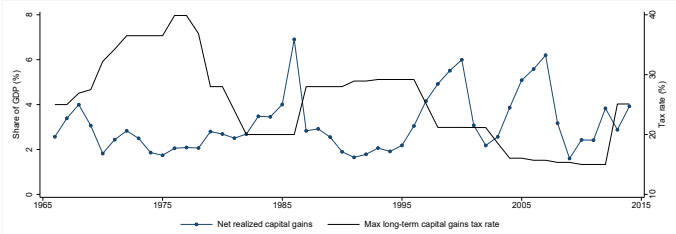
1c. What do we know and how do we know it?

Examples of different types of approaches to investigate the effects of capital gains taxation

	Aggregate time series	**Individual-level**	**State-level**		**Calibrated models**
	Eichner, Sinai (2000)	*Dowd, McClelland, Muthitacharoen (2015)*	*Bakija, Gentry (2014)*	*Agersnap, Zidar (2021)*	*Jakobsen, Jakobsen, Kleven, Zucman (2020)*
Dynamics	✓	X	X	✓	✓
Aggregation	✓	X	✓	✓	X
Selection model	X	✓	X	X	X
Small changes	X	✓	✓	✓	X
Comparison group	X	✓	✓	✓	✓

#1c. What do we know and how do we know it? Aggregate time series

(a) Capital gains



(b) C-Corporation equity wealth

Source: Sarin, Summers, Zidar, and Zwick (2021).

▸ US vs. UK

#1c. Individual-level (e.g., Dowd, McClelland, Muthitacharoen, NTJ 15)

- Main estimating equation (DMM eq 3)

$$\ln g_{it} = \beta_1 \tau_{it-1} + \beta_2 \tau_{it} + \beta_3 \tau_{it+1} + X_{it}\beta_4 + \lambda_{it} + \epsilon_{it}; \text{ if Realization}_{it} > 0 \quad (1)$$

- Elasticity (DMM eq 4)

$$\begin{aligned} \varepsilon_{pit} &\approx \hat{\tau}_{it+1}(\beta_1 + \beta_2 + \beta_3) \\ &= 17.4\% \times \underbrace{(0.053 - 0.069 - 0.025)}_{=-0.041} = .71(\pm.22) \end{aligned}$$

Empirical challenges:

- Dynamics: misses effects outside narrow window of $t-1, t, t+1$
- Controls, e.g,. imputed unrealized gains, may influence implied impulse response
- Aggregation, heterogeneity, and weighting by dollars to map to 10 year score
- Selection model of positive realizations
- Small changes (paper uses state tax rates as IV)

#1d. Model parameters (e.g., Jakobsen, Jakobsen, Kleven, Zucman QJE 2020)

Use wealth elasticity estimates w.r.t. after-tax net return $\varepsilon_{w,R} = .4$ from JJKZ Table II

- Consider \$100K invested for 10 years at pre-tax return of 7%.
- After-tax net return $R = \underbrace{[(1.07)^{10} - 1]}_{=.97}\underbrace{(1 - \tau_{cg})}_{=.8} = .77$
- Increasing τ_{cg} from 20% to 40% $\Rightarrow \Delta \ln(R) = \ln(.58) - \ln(.77) = -.29$

$$\varepsilon_{w,R} = .4 \Rightarrow W' = (1 - .29 \times .4)100,000 = 88,492 \quad (2)$$

- Change in Capital Gains:
  $88,492 \times [(1.07)^{10} - 1] - 100,000 \times [(1.07)^{10} - 1] \approx 86K - 97K = -11K$
- Implied elasticity of realizations w.r.t τ_{cg} (under strong assumptions):
  $\varepsilon_{CG,\tau_{cg}} = \frac{-.11}{1} = -.11$

#1d. Model parameters (e.g., Jakobsen, Jakobsen, Kleven, Zucman QJE 2020)

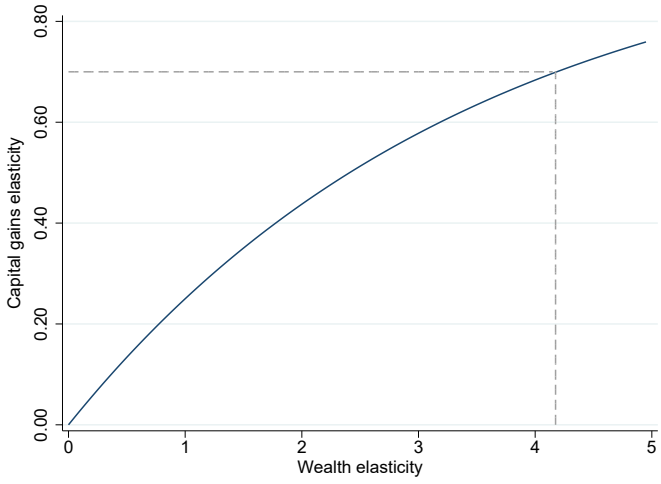
		τ_{CG} = 20%				τ_{CG} = 40%				
Source	ε_w	w_0	w_{10}	Gains	R	w_0'	w_{10}'	Gains	R	ε_{CG}
8-yr couples	0.20	100,000	196,715	96,715	0.77	94,409	185,716	91,308	0.58	0.06
8-yr wealthiest	0.40	100,000	196,715	96,715	0.77	89,130	175,332	86,202	0.58	0.11
30-yr couples	0.77	100,000	196,715	96,715	0.77	80,130	157,629	77,498	0.58	0.20
30-yr wealthiest	1.15	100,000	196,715	96,715	0.77	71,832	141,305	69,473	0.58	0.28
Implied	4.18	100,000	196,715	96,715	0.77	30,087	59,186	29,099	0.58	0.70

Under the $\tau_{CG} = 40\%$ regime, we calculate:

- $R = (1 - \tau_{CG}) * (1.07^{10} - 1) = 0.58$
- $w_0' = \exp\left(\varepsilon_w \left(\ln(0.58) - \ln(0.77)\right) + \ln(100,000)\right)$
- $w_{10}' = w_0' \cdot (1.07)^{10}$

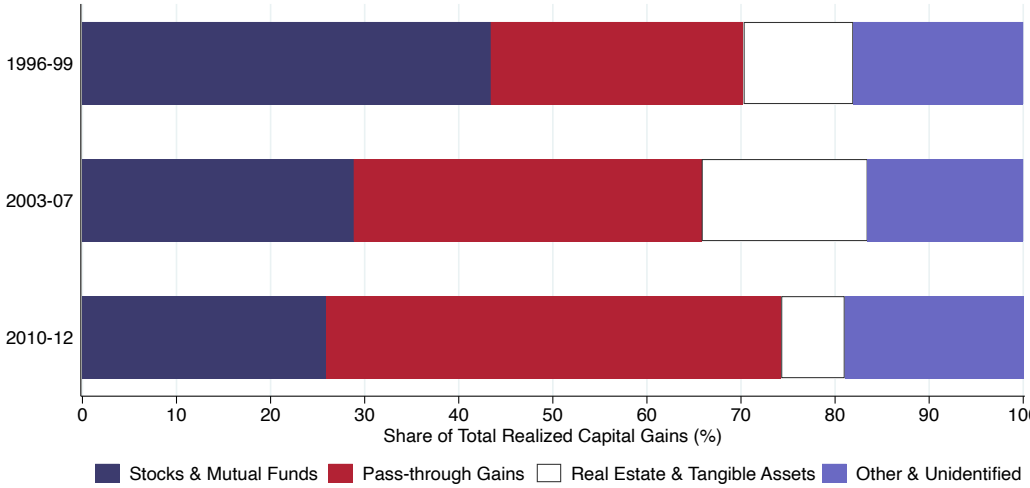
We calculate $\varepsilon_{CG} = \left(1 - \frac{Gains_{\tau_{CG}=40\%}}{Gains_{\tau_{CG}=20\%}}\right) \cdot \frac{0.4-0.2}{0.2}$

#1d. Model parameters (e.g., Jakobsen, Jakobsen, Kleven, Zucman QJE 2020)



#2a. A Rising Share of Capital Gains Cannot Be Easily Retimed

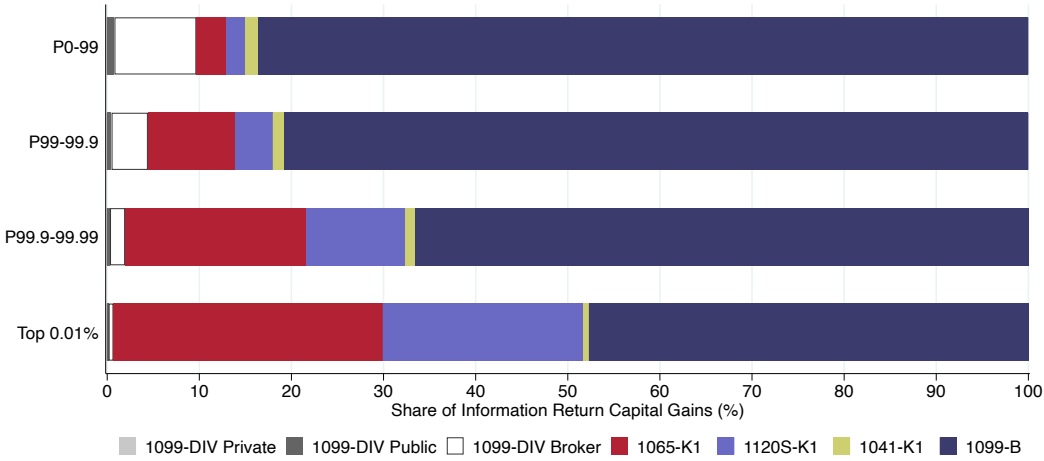
The share of capital gains that stock transactions represent has fallen substantially



Data Source: Smith, Zidar, and Zwick (2021).

#2b. A Rising Share of Capital Gains Cannot Be Easily Retimed

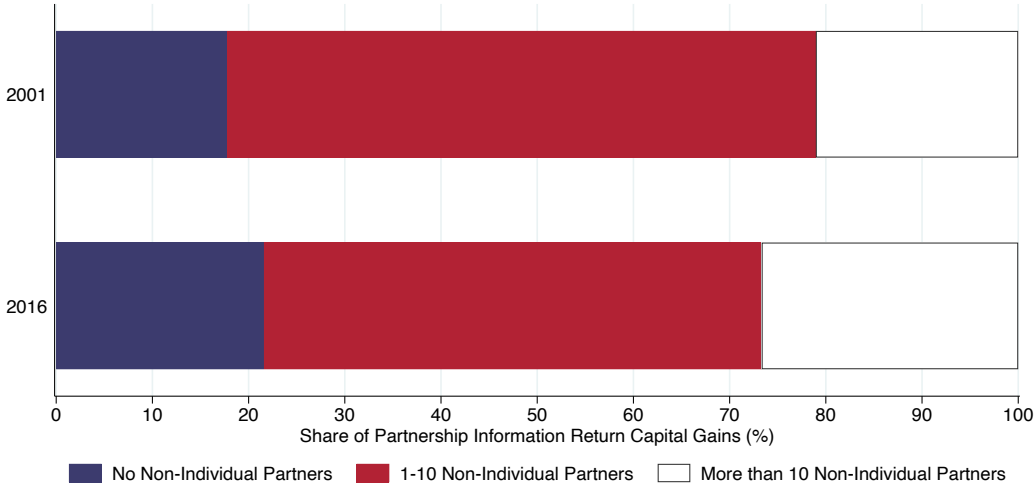
Capital Gains from pass-throughs are especially large at top of AGI distribution



Data Source: Smith, Zidar, and Zwick (2021).

#2c. A Rising Share of Capital Gains Cannot Be Easily Retimed

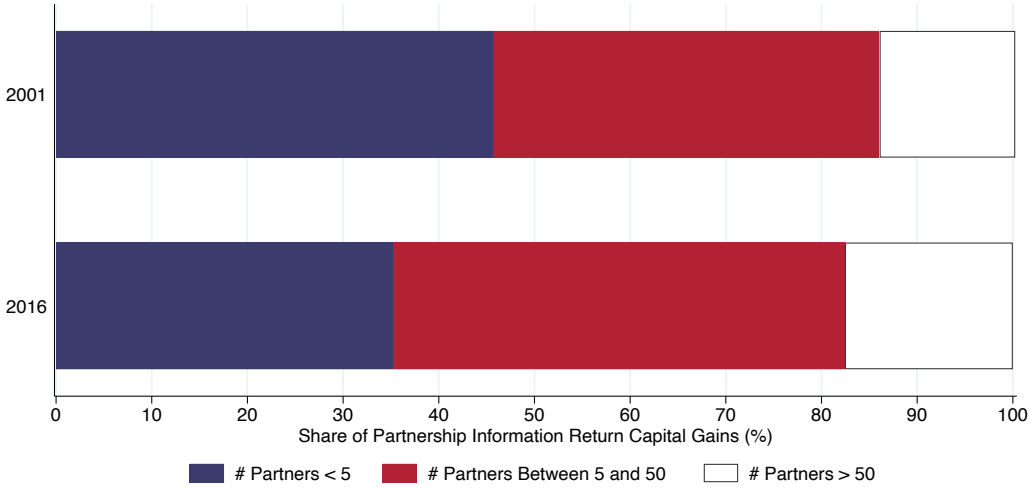
Around 80% of gains in partnerships come from funds with Non-individual owners



Data Source: Smith, Zidar, and Zwick (2021).

#2d. A Rising Share of Capital Gains Cannot Be Easily Retimed

Most gains in partnerships come from funds with many other partners



Data Source: Smith, Zidar, and Zwick (2021).

#2e. Scoring large changes with heterogeneous subcomponents

- If half of capital gains are not sensitive to the tax environment, then for $e_\tau = -0.76$ to be the right average elasticity across all gains, the elasticity for the other half of gains would be $e_\tau = -1.52$
- Even if timeable realizations were so sensitive as to fall to zero in response to a tax increase, a large stock of non-timeable gains would remain to be taxed at the higher rates
- If some parts are less elastic, then their elasticity should get more weight when scoring big changes (b/c will be more of remaining tax base)

#3. Closer parity to income rates provides a backstop to rest of tax system

Higher τ_{cg} can affect

- prevalence of recharacterized wages and carried interest compensation
- amount of stock-based compensation (Eisfeldt, Falato, and Xiaolan 2021)
- substitution to taxable dividends
- the level tax avoidance and evasion

Takeaway: Accounting for spillovers across tax bases likely increases effects on total federal tax revenue

#4. Base-broadening reforms will likely decrease the elasticity of tax base to τ_{cg}

- Eliminating stepped-up basis / enacting carryover basis (JCT score of $110B)
- Making charitable giving a realization event
- Reforming donor advised funds
- Limiting opportunity zones to places with the highest poverty rates

Concluding Discussion

What are revenue effects of $\tau_{cg} = .20, .25, .28, .35$, or $.43$?

- Large tax rate changes require extrapolation $\Rightarrow$ increased uncertainty
- Though investment and innovation are important considerations, surprisingly limited evidence on real effects of payout taxes (e.g., Yagan 2015 vs Moon 2021)
- Taxpayer perception about duration of tax changes is important
- Relabeling and timing considerations are important
- Incorporating asset-turnover models (like Auerbach 1989) and implied savings responses (e.g., JJKZ, 2020) might help provide additional moments
- More research on composition, spillovers across tax bases, and true savings behavior responses would help

Takeaway: Current scores seem quite pessimistic. Helpful to know scoring model to guide research, quantify uncertainty, and improve accuracy of revenue estimation.

Appendix

Main table from Agersnap and Zidar

	Baseline					Big changes only					Control for other taxes				
Time Horizon	*0-10*	*0-2*	*3-5*	*6-8*	*6-10*	*0-10*	*0-2*	*3-5*	*6-8*	*6-10*	*0-10*	*0-2*	*3-5*	*6-8*	*6-10*
Total elasticity	3.39***	3.32***	4.78***	4.07***	3.66***	2.81***	3.54***	4.96***	3.77***	2.8**	2.28*	2.38**	3.58***	3.32**	2.98*
ε^{CG}	(1.01)	(.97)	(1.1)	(1.2)	(1.27)	(1.02)	(.97)	(1.1)	(1.19)	(1.3)	(1.32)	(1.19)	(1.24)	(1.43)	(1.54)
Policy elasticity	1.87**	2.09**	2.28***	1.94**	1.47	1.48*	2.5**	2.4***	1.65*	.99	1.01	1.25	1.64	1.4	1.18
$\varepsilon^{R} = \varepsilon^{CG} - \varepsilon^{N}$	(.91)	(.91)	(.88)	(.92)	(.97)	(.89)	(.98)	(.92)	(.91)	(1)	(1.18)	(1.16)	(1.01)	(1.14)	(1.19)
Laffer rate	.33***	.3***	.29***	.32***	.38**	.38***	.27***	.28***	.35***	.47*	.47*	.42**	.36**	.39**	.43*
$\tau^{*} = \frac{1-\tau_S}{1+\varepsilon^{R}}$	(.1)	(.09)	(.08)	(.1)	(.15)	(.14)	(.07)	(.07)	(.12)	(.24)	(.27)	(.21)	(.14)	(.19)	(.24)
Elast. w.r.t. tax	-.53**	-.59**	-.64***	-.55**	-.41	-.42*	-.71**	-.68***	-.46*	-.28	-.29	-.35	-.46	-.39	-.33
$\varepsilon^{tax} = \varepsilon^{R} \cdot \frac{-0.22}{1-0.22}$	(.26)	(.26)	(.25)	(.26)	(.27)	(.25)	(.28)	(.26)	(.26)	(.28)	(.33)	(.33)	(.29)	(.32)	(.34)
χ^2 test: $\varepsilon^{tax} = -1$	3.38	2.58	2.05	3.02	4.54	5.31	1.14	1.54	4.35	6.48	4.64	3.88	3.54	3.57	3.96
p-value	(.066)	(.108)	(.152)	(.082)	(.033)	(.021)	(.286)	(.214)	(.037)	(.011)	(.031)	(.049)	(.06)	(.059)	(.047)

Source: Agersnap and Zidar (AER: Insights, Forthcoming).

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JCT estimates of revenue potential from reforming capital gains taxation

Policy	**Revenue estimate ($B)**	**Notes**
5 p.p. τ^{cg} increase	123	September 2021 JCX-42-21 "Increase top tax rate on long-term capital gains and qualified dividends to 25% and lower income thresholds to which it applies"
2 p.p. τ^{cg} increase	75	December 2020 Score for CBO "Raise the Tax Rates on Long-Term Capital Gains and Qualified Dividends by 2 Percentage Points"
Adopt carryover basis	110	December 2020 Score for CBO "Change the Tax Treatment of Capital Gains From Sales of Inherited Assets"

#1b. Crude revenue calculations accounting for behavioral responses

These are crude realization and revenue calculations - not a final score

Inputs:

- Elasticity of capital gain realizations w.r.t. net-of-tax rate ε_{NTR}
- Percent change in net-of-tax rate $\%\Delta NTR = (.75 - .8)/.8 = -6.25\%$

Crude ten-year revenue estimates for $\tau_{cg} = 25\%$:

$$Gains = \$15T \times \underbrace{(1 + \%\Delta NTR \times \varepsilon_{NTR})}_{=1-.0625\times 1} \approx 13.6T \tag{3}$$

$$Revenue \approx 13.6T \times .25 = 3.4T \Rightarrow \$400B \tag{4}$$

Notes:

- If $\varepsilon_{NTR} = 1.01$ (i.e., $\varepsilon_\tau = -.28$), then $\Delta Revenue \approx \$520$
- If $\varepsilon_{NTR} = 1.46$ (i.e., $\varepsilon_\tau = -.42$), then $\Delta Revenue \approx \$400$
- If $\varepsilon_{NTR} = 2$ (i.e., $\varepsilon_\tau = -.56$), then $\Delta Revenue \approx \$281$
- If $\varepsilon_{NTR} = 2.7$ (i.e., $\varepsilon_\tau = -.76$), then $\Delta Revenue \approx \$120$
- Use net-of-tax-rates at 22% rate (e.g., $e_\tau = -0.3 \Rightarrow e_{ntr} = \frac{-0.3}{.22/(1-.22)} = 1.06$)