

# Permanent and Transitory Responses to Capital Gains Taxes: Evidence from a Lifetime Exemption in Canada

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# Research Question: How does taxation affect the realization of capital gains?

- Capital income is very unequally **distributed** but **economically important**
- Estimating **elasticity of capital gains realizations** is important for:
  - calculating optimal tax rates on capital
  - measure effects of tax reforms on government revenue
- An empirical question with **wide range of estimates**
  - capital income is easy to manipulate  $\Rightarrow$  likely to be elastic
  - But: perhaps manipulations are of short-term nature while 'real' economic responses are small
  - **Goal: separate real versus avoidance responses**

# Today: Individual Responses to Capital Gains Taxation

**Question:** How do individuals respond to CG taxes?

**Approach:** Explore cancellation of a 100K lifetime exemption for CG in Canada

- Treated groups: tax filers with unused exemption space at time of cancellation
- Comparison group: tax filers who exhausted exemption space prior to cancellation

**Study three outcomes:**

- 1 short-run avoidance
- 2 long-run changes to capital gains realizations
- 3 substitution with other sources of capital income (interest, dividends, tax-advantaged accounts)

# Preview of Results: Responses to 26pp Tax Increase

## 1 short-run:

- large avoidance response
- both extensive and intensive margins

## 2 medium-to-long run (3-5 years):

- extensive margin: no response
- intensive margin: 0-34% increase in CG realizations post-cancellation
- proposed explanation: income effect applied to savings/spending/portfolio allocation decisions

## 3 substitution:

- no evidence of substitution with interest, dividends, tax-advantaged accounts

# Literature Review

## ■ Large range of elasticity estimates: from 0 to -6

Feldstein et al. (1980), Minarik (1981), Auten and Clotfelter (1982), Lindsey (1987), Poterba (1987), Auerbach and Poterba (1988), Auten et al. (1989), Slemrod and Shobe (1990), Gillingham and Greenlees (1992), Burman and Randolph (1994), Bogart and Gentry (1995), Auerbach and Siegel (2000), Bakija and Gentry (2013), Dowd et al. (2015), Dowd and McClelland (2019), Buhlmann et al (2020), Agersnap and Zidar (2020)

## ■ Important to **distinguish between transitory and permanent** responses

- transitory: -1.2 to -6.4
- permanent: 0 to -1.7

## ■ Estimates are based on **small cross-state variation** or aggregate time-series

- Validity of parallel trends hard to verify
- Frequent small changes  $\Rightarrow$  hard to distinguish permanent from transitory

# Institutional Setting

# This Paper: Canada

$$\text{Tax Due} = \text{Income MTR} * \text{Inclusion Rate} * (\text{Cap Gains} - \text{Exemption})$$

Three ingredients:

- 1 income MTRs: (0-56%)
  - incl. provincial taxes
- 2 inclusion rate (50-75%)
  - unlike short/long term distinction in the US
- 3 **100K lifetime capital gains exemption**
  - available from **1985 until 1994**
  - 100K nominally fixed, per person, per life exemption
  - cancellation in 1994 unexpected but gov't allowed for a one-time crystallization opportunity up to unused exemption space in 1994 without selling assets

# Capital Gains Rules in Canada

Capital Gains:			Income Tax:				
Year	Inclusion Rate	General Exemption	Federal MTR:			Provincial Top MTRs:	
			# of Tax Brackets	Top MTR Cutoff	Top MTR	Range	Median
1982	0.5	0	10	53,376	34	13 - 33	18
1983	0.5	0	10	56,592	34	13 - 33	19
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# Lifetime Capital Gains Exemption: Details

- 1 Justification: efficiency (intro) and deficit reduction (cancellation)
- 2 Not part of 1993 federal election campaign promises for any party
- 3 Unlikely that cancellation in Feb 1994 was anticipated
  - not known during a Tax Symposium held on Jan 1994 (organizers: U of Toronto + Ministry of Finance)
- 4 Bank/Brokerage CGs are 3rd party reported
- 5 Primary residence always exempt and not reported on tax return until 2016
- 6 \$500,000 CAD lifetime exemption for qualifying farm and small businesses (never cancelled, now  $\approx$  1mil)

# Tax Reform Incentives: Effective Marginal Tax Rates

	No Unused LCGE Space	Positive Unused LCGE Space	
		Expected Lifetime CG $\geq$ \$100K	Expected Lifetime CG $<$ \$100K
Pre-cancellation	0.75·MTR	0	0
No LCGE Cancellation (counterfactual)			
Post, short-run	0.75·MTR	0	0
Post, long-run	0.75·MTR	0.75·MTR	0
LCGE Cancelled			
Post, short-run	0.75·MTR	0.75·MTR	0.75·MTR
Post, long-run	0.75·MTR	0.75·MTR	0.75·MTR

Average MTR is 35%  $\Rightarrow$   $0.75 \cdot \text{MTR} \approx 26.25\%$

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# Data - Longitudinal Administrative Data

- **20% random sample of tax filers**
- panel spanning 1982 – 2016
- individual taxation, but some info about spousal and child returns available
- basic demographics + key tax return items

## Yearly capital gains info for each person:

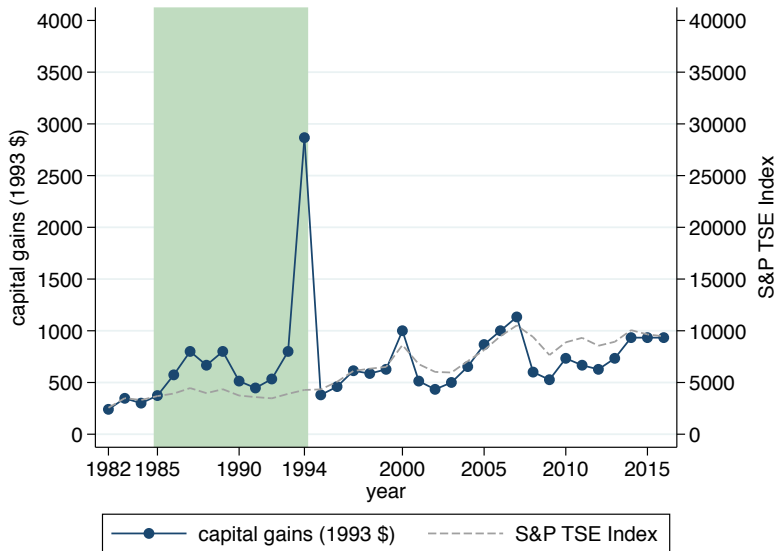
- **net total capital gain** during the year ( $\geq 0$ )
- capital losses from previous years **claimed** to offset gains
- capital gains exemption claimed in a given year

## Sample restrictions:

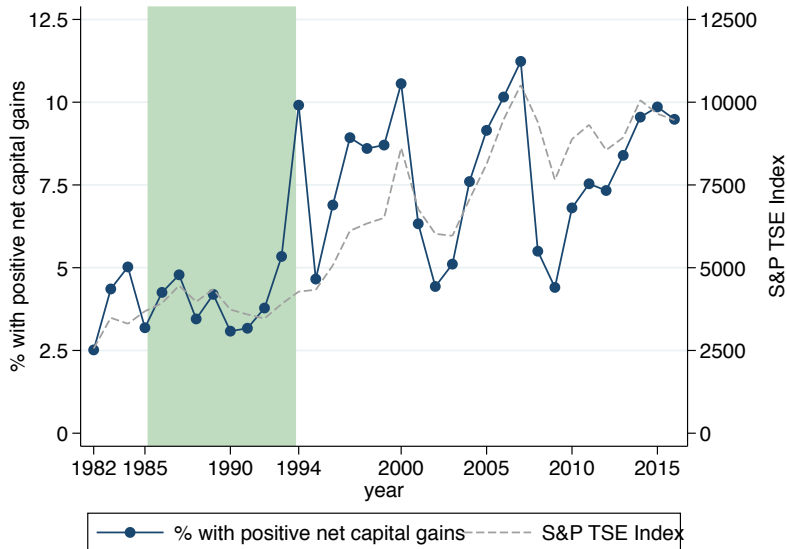
- drop years of death (estate subject to capital gains tax)
- drop realizations above 500,000 (in 1982 \$)

# Overview: Time Series Evidence

# Average Capital Gains Over the Years (incl. zeros)

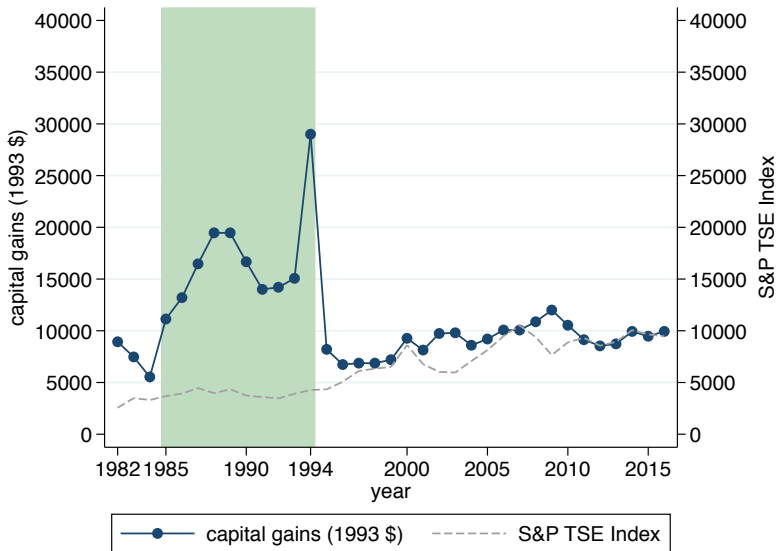


# Extensive Margin: Share with Positive Capital Gains





# Intensive: Mean Positive Capital Gains Over the Years



# Empirical Approach

# Empirical Approach: Intuition

## Idea: difference-in-differences with

- **Control:** individuals with **large lifetime capital gains**
  - exemption  $\approx$  lump-sum transfer
  - introduction  $\Rightarrow$  income effect
  - cancellation  $\Rightarrow$  no effect
- **Treatment:** individuals with **small lifetime capital gains**
  - exemption  $\approx$  permanent tax decrease to 0
  - cancellation  $\Rightarrow \uparrow$ MTR  $\Rightarrow$  substitution + income effects

Empirically: 75% of individuals realize 10K or less during lifetime

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# Empirical Approach: Implementation

**"Lifetime capital gains" proxy = sum of CGs in 1985-1993**

(recall: exemption available 1985-1994)

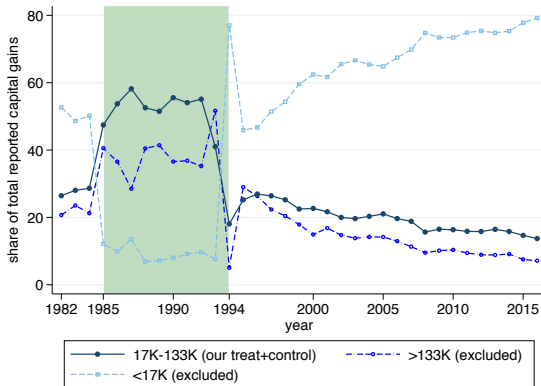
**Compare pre-1994 to post-1994** and define:

- **Control:** individuals with CGs of 100-133K (1993\$)
  - exhausted exemption by 1994
- **Treatment:** individuals with CGs of less than 100K (1993\$)
  - broken into groups: \$17K-\$33K, \$33K-\$67K,  
\$67K-\$100K
  - helps control for uncertainty over expectations about exceeding LCGE limit
  - differential importance of substitution/income effects

# Capital Gains Shares of Treat/Control Groups

Dashed: excluded groups

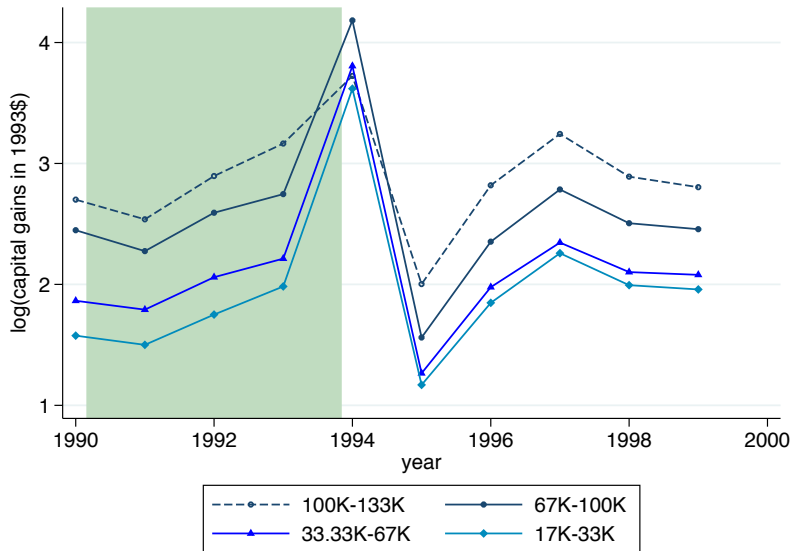
Solid: treatment+control



# Capital Gain Rules in Canada

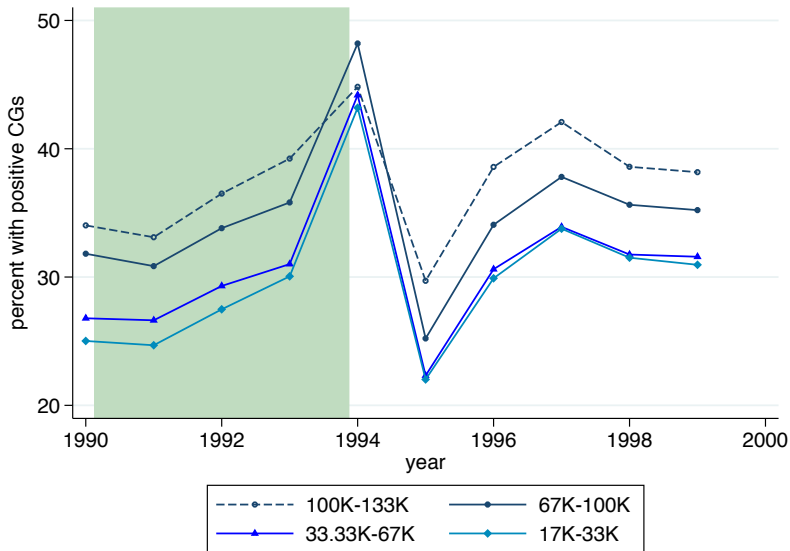
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# Unconditional Average CGs by Group

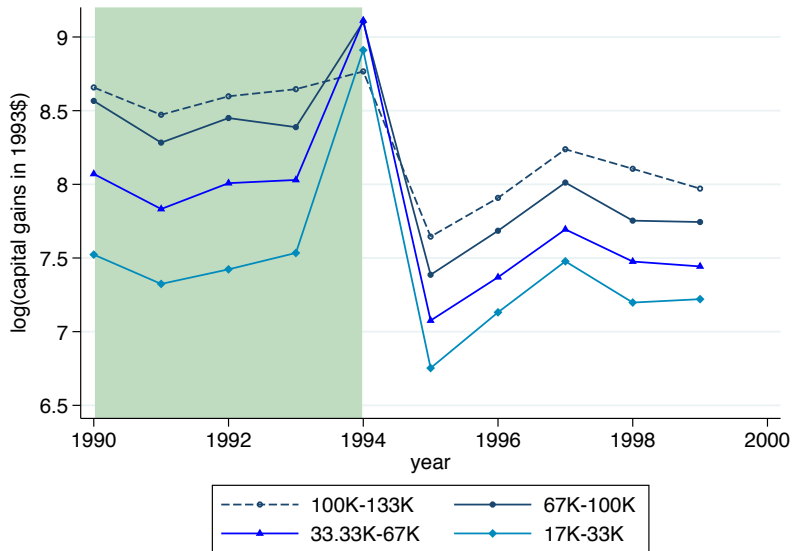




# Fraction Reporting CGs by Group



# Average Conditional CGs by Group (Intensive Margin)



# Empirical Approach Specification

## Unconditional + Intensive Margin: Difference-in-Differences

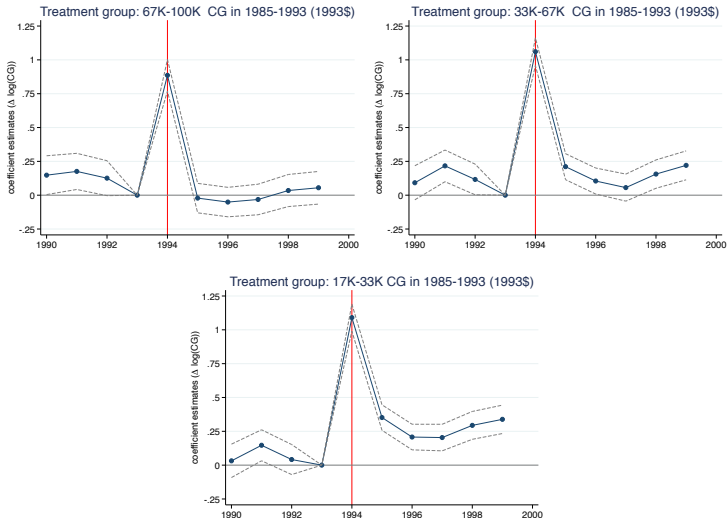
$$\log(CG_{it}) = \alpha + \beta \cdot Treat_i^k + \delta_t + \sum_{\tau=1990}^{T=1999} \gamma_{\tau} \cdot \mathbb{1}_{t=\tau} \cdot Treat_i^k + X_{it} + \eta_i,$$

## Extensive Margin: LPM Difference-in-Differences

$$\mathbb{1}(CG_{it} > 0) = \alpha + \beta \cdot Treat_i^k + \delta_t + \sum_{\tau=1990}^{T=1999} \gamma_{\tau} \cdot \mathbb{1}_{t=\tau} \cdot Treat_i^k + X_{it} + \eta_i$$

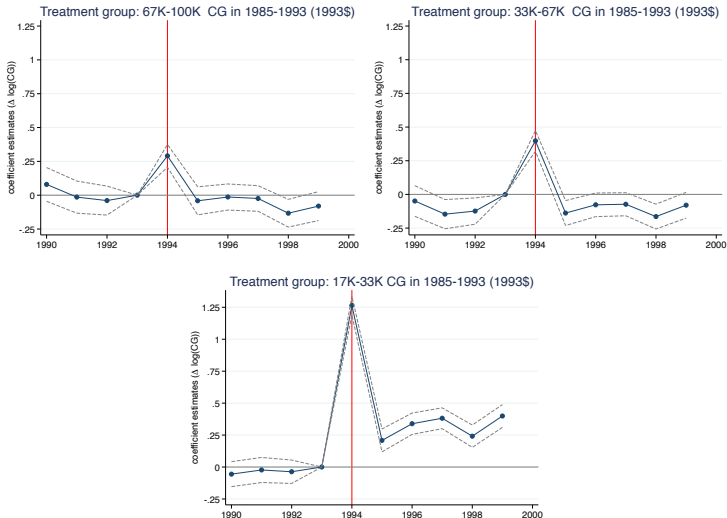
- $i$  individual,  $t$  year;
- $CG_{it}$  = realized capital gains (in 1993 \$)
- $Treat_i^k = 0$  for individuals with predicted  $CG \in [100K, 133K)$ ;  
1 otherwise

# Unconditional (Total) Responses



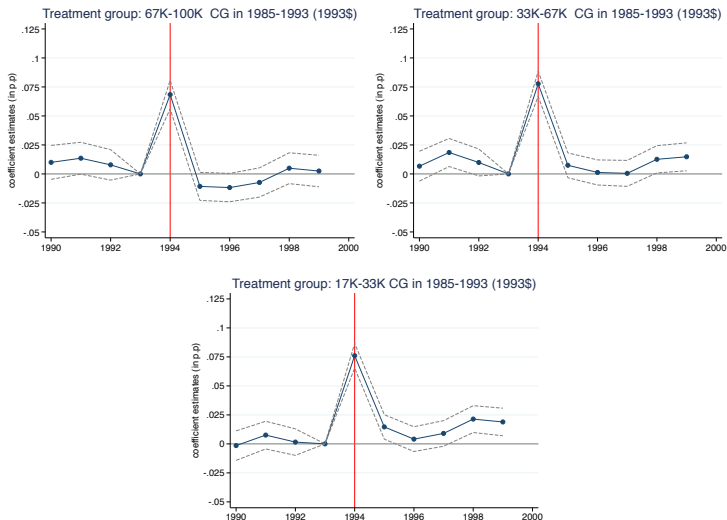
Control = individuals with 100K-133K total CG in 1985-1993

# Intensive Margin Responses



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# Extensive Margin Responses



Pre-reform average:  $\approx 30\%$

Control = individuals with 100K-133K total CG in 1985-1993

# Interpretation

We consider **3 theoretical models of capital gains**:

- 1 CGs arising from **savings**
- 2 CGs arising from **spending (using assets for consumption)**
- 3 CGs arising from **risky** but not risk-less **assets**

**These models imply:**

- substitution effect  $\downarrow$  when  $\tau \uparrow$
- income effect  $\uparrow$  when  $\tau \uparrow$

$\Rightarrow$  **Income effect on savings/spending/allocation can rationalize our findings**

# Identification Concern #1

## #1: Misclassification

- some treated individuals may actually belong in the control group  $\Rightarrow$  bias towards zero
- Checks:
  - 3 treatment groups by 1985-1993 CGs
    - individuals with very low 1985-1993 CGs (i.e. more unused LCGE space) less likely to be misclassified
  - same results for 65+ year olds
  - drop individuals whose 1985-1994 CGs exceed 100K

Age65+

Drop94



## Identification Concerns #2 and #3

## #2: Intertemporal substitution

- treated individuals (but not control) may bring 1995+ contributions forward to 1994
- $\Rightarrow$  downward bias of the long-run estimates

### #3: Mean-reversion:

- high CGs in the past imply low CGs in the future  $\Rightarrow$  could explain differential responses of treat/control
- Checks:
  - treat/control defined based on 9-years of realizations
  - extend event study window
  - flexible age controls (include Proxy x Age, and Year x Age fixed effects)

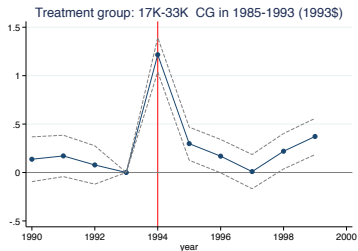
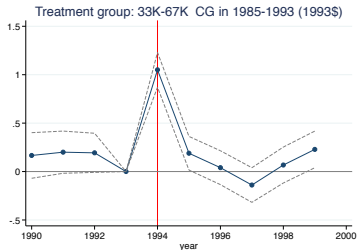
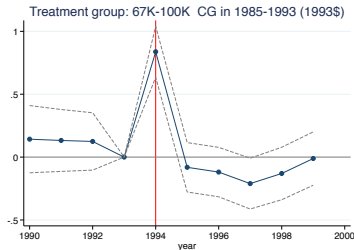
# Conclusion

We study cancellation of a 100K lifetime exemption for capital gains

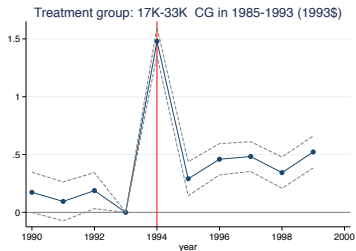
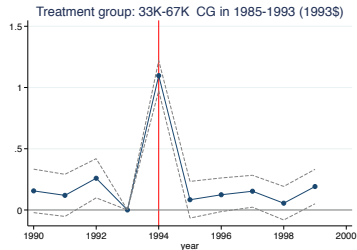
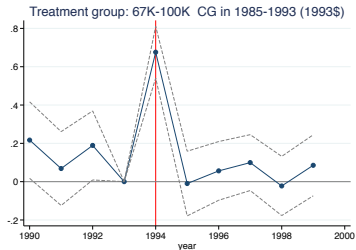
- 1 **Extensive margin:** No response except for spike in 1994 realizations
- 2 **Intensive margin:** 0-35% increase in the dollar-value of CG after cancellation
  - Large bunching in 1994
  - Negative medium/long-run elasticity estimates for tax filers with low pre-reform CGs
- 3 No evidence of substitution with dividends, interest, tax-advantaged accounts

Overall: capital gains are not very responsive to CGs taxes in the long run

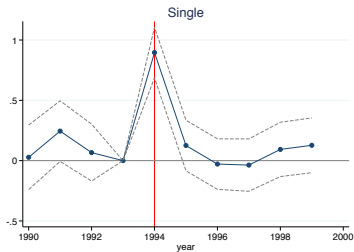
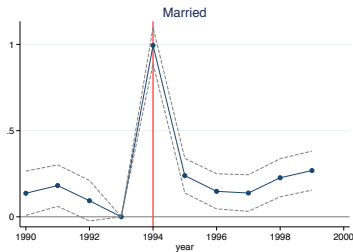
# Total Response: 65+ Year Olds



# Intensive Response: 65+ Year Olds

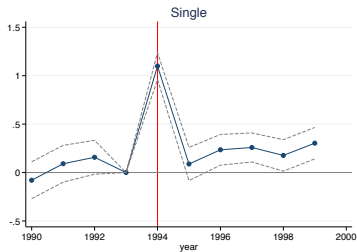
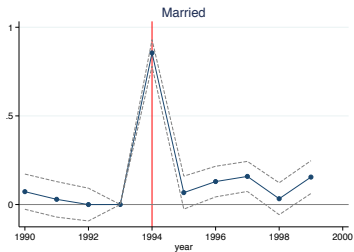


# Married/Single (Total)



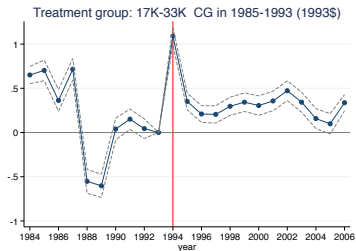
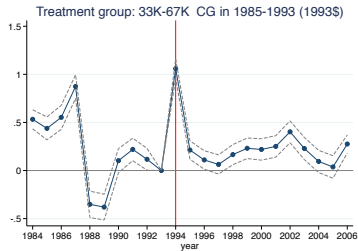
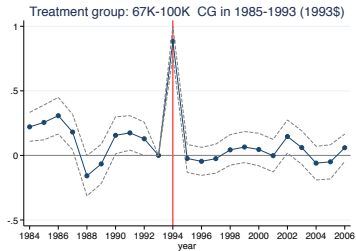
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# Married/Single (Intensive)

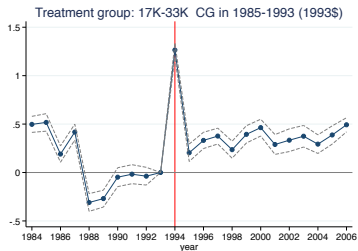
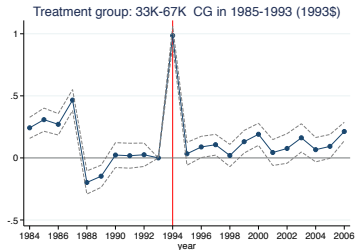
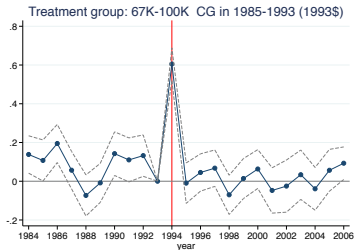


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# Extended Event Study Window (Total)

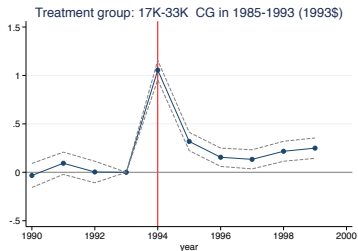
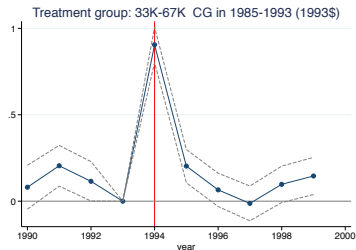
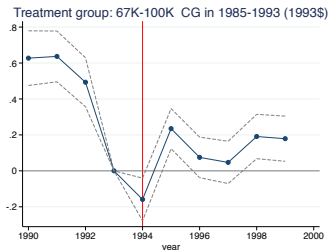


# Extended Event Study Window (Intensive)

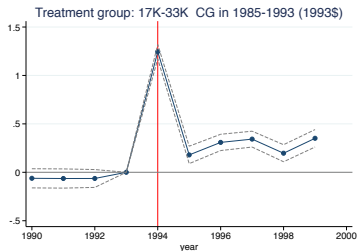
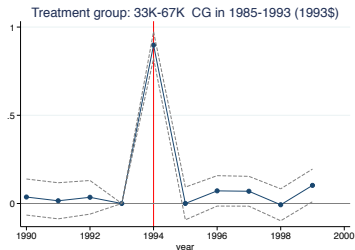
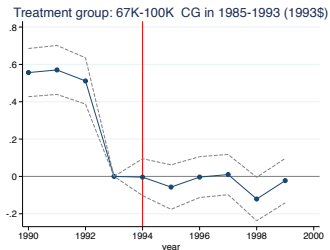




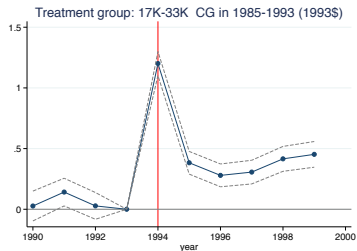
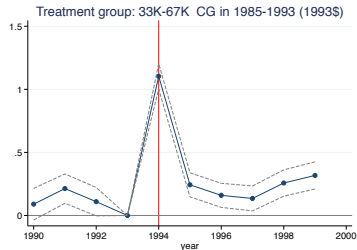
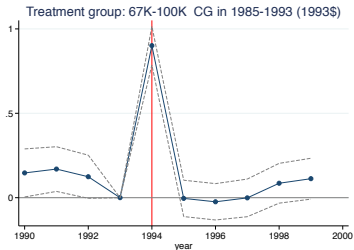
# Drop Treated Individuals with 1985-1994 CGs > 100K (Total)



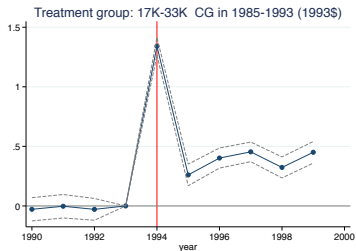
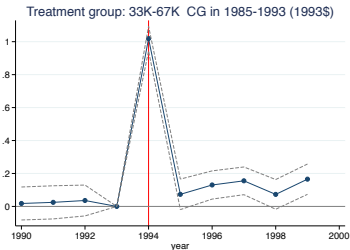
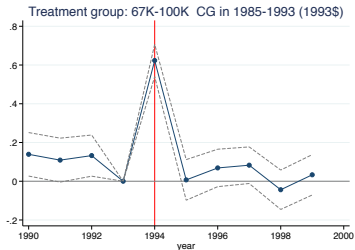
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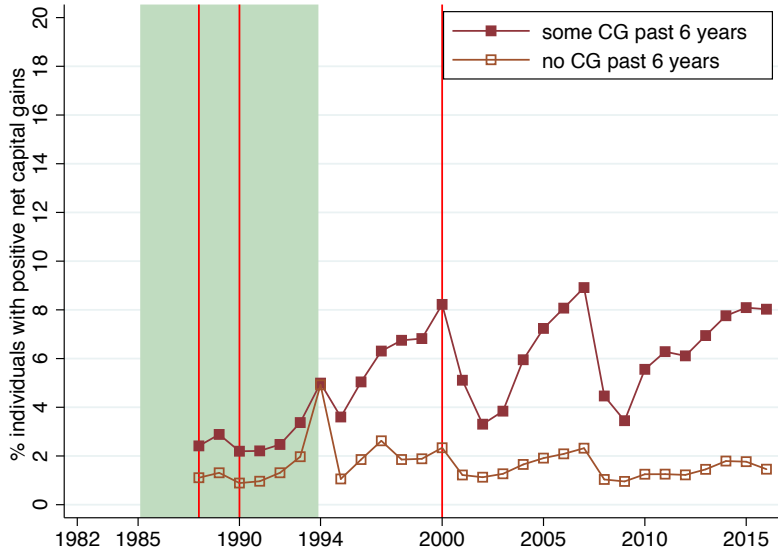
# Flexible Age Controls (Total)



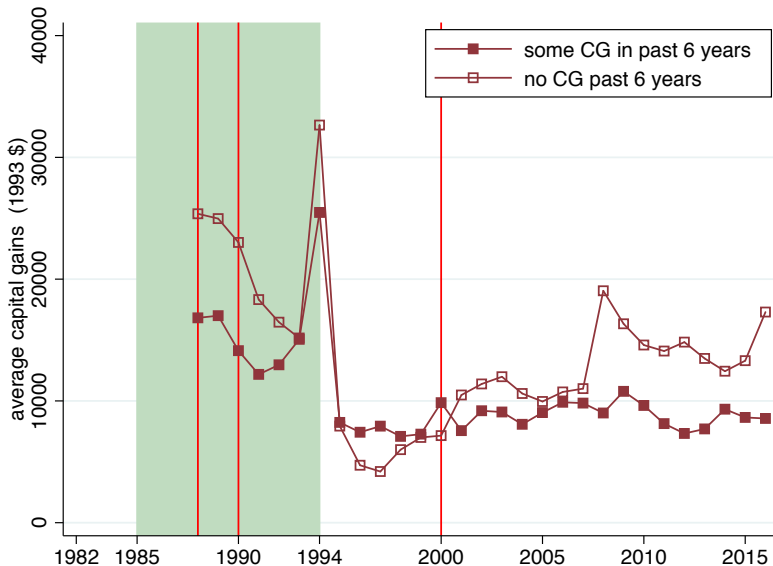
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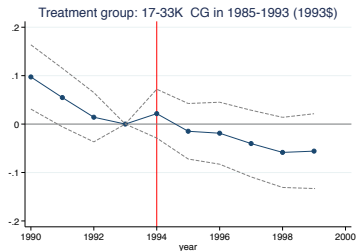
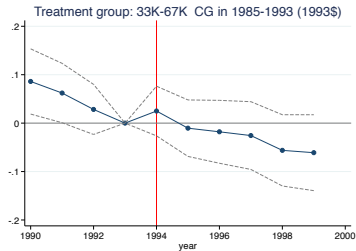
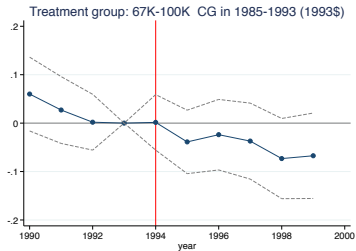
# Who Realized in 1994?



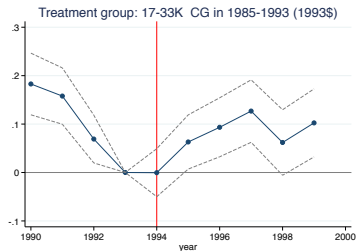
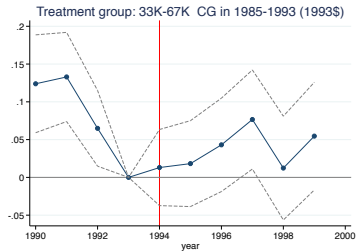
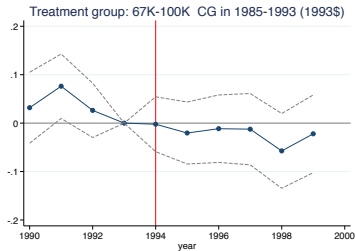
# Who Realized in 1994?



# Substitution: Dividends



# Substitution: Interest





# Substitution: RRSP

