Non-linear Corporate Income Tax: Learning, intensive and extensive margins

Théo Valentin

CREST - ENSAE

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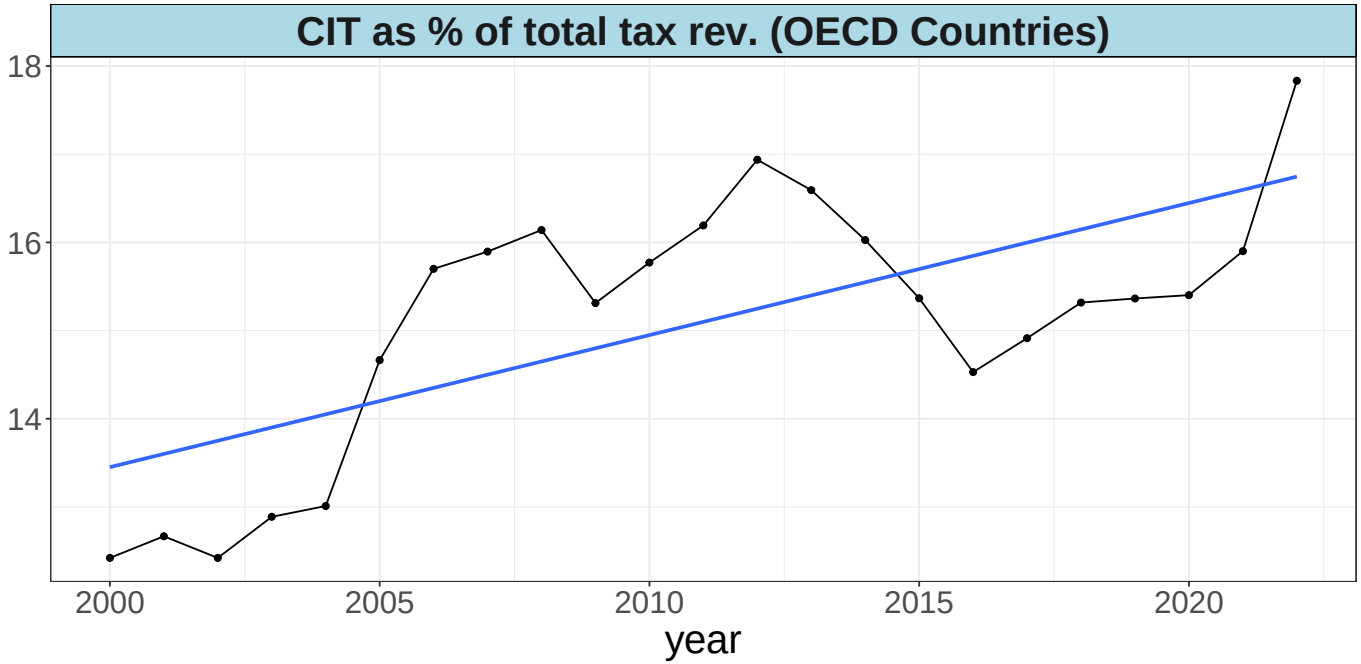
Rising importance of the corporate tax as a policy tool

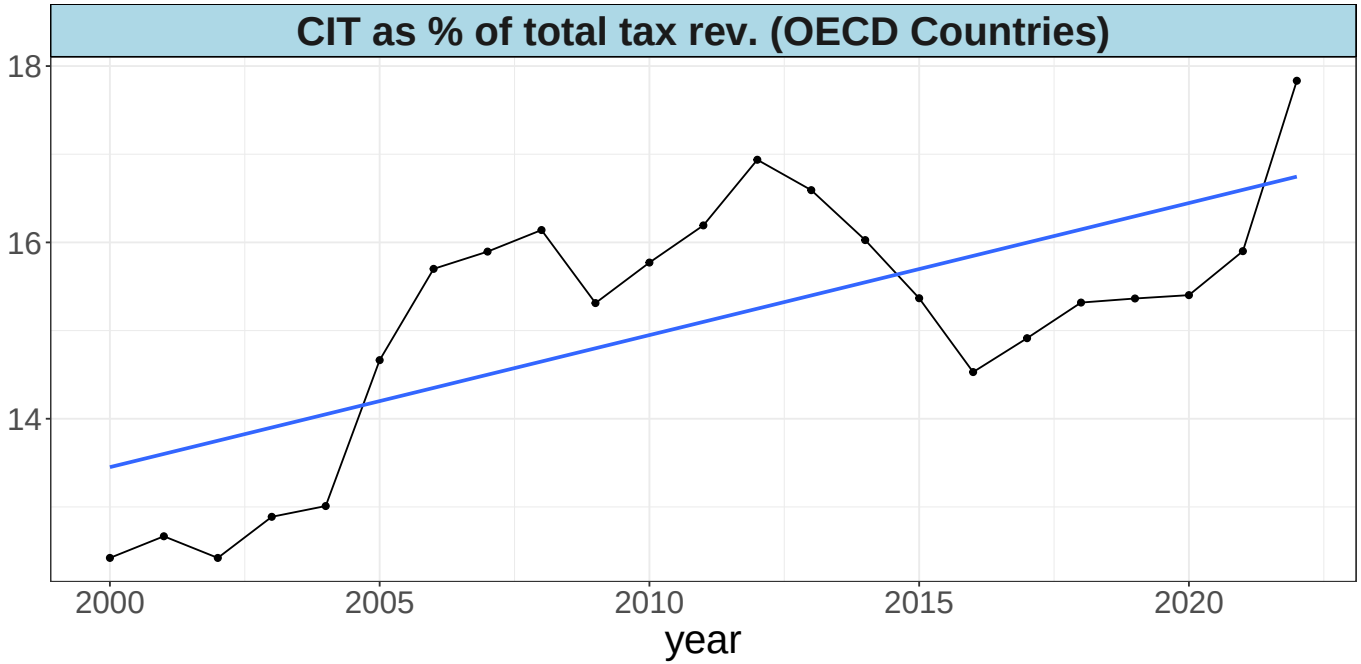


$\Longrightarrow$ The Corporate Income Tax (CIT) is becoming more and more important

so as its design

to design better, we need to **understand better**

Rising importance of the corporate tax as a policy tool



→ All OECD countries modified their statutory CIT rate between 2000 and 2011

→ Each reform affects firms in many ways...

Problem: the corporate tax literature lags behind the one on individuals

Research questions

The CIT is becoming more and more important but...

1. We know individuals are inattentive to taxes

↪ **Are companies inattentive to taxes?**

2. Business entry is fundamental for growth and innovation

↪ **How do corporate tax reforms affect business entry?**

3. How do these mechanisms interact with each other and inform us for tax policy?

Challenges

1. **Corporate tax inattention**: very scarce literature, need specific data
   - "Ideally, one would measure knowledge directly using data on individuals' perceptions of the EITC schedule." Chetty et al. [2013]
   - "To make progress, researchers need large-scale data on labor supply under different tax regimes, including measures of how incentives are perceived" Kostøl and Myhre [2021]

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2. **Business entry**: burgeoning literature, but
   - How much does entry compare to intensive margin responses in term of welfare?
   - And how much of these entries are driven by avoidance?

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2. **Business entry**: burgeoning literature, but
   - How much does entry compare to intensive margin responses in term of welfare?
   - And how much of these entries are driven by avoidance?

3. **Optimal tax**: how should we modify the standard framework to study these mechanisms?

This paper

1. **Investigates firms' inattention to tax reforms**

   How? Using a unique institutional feature + tax variation

   \+ how much does it distort **firms' responses** to tax reforms

   How? Using elasticity estimation through bunching

2. **Computes the business entry response to a corporate tax cut**

   How? Using treatment intensity variation across counties

   \+ estimate the importance of **entity splitting** in entry

   How? Using family names and addresses of business-owners

\+ Extends the CIT framework and gives relative importance of each object in the welfare

Preview of results

1. **Inattention among firms is real**
   - 19% of firms affected by tax variation are inattentive (upper bound)
   - inattention is the largest source of friction in the short-run
   - the elasticity of corporate taxable income$\approx$ 0.13, relatively low
2. **Business entry responses are positive & large after a tax cut**
   - +15% of business entry
   - entity splitting is real and sensitive to the tax rate, but small in magnitude
3. **Positive welfare gains from the reform, but**
   - Inattention reduces welfare gains by 13%
   - Business entry increases welfare gains by 20%

Main contributions to the literature

Complexity and the learning of the tax code

of **individuals**: Chetty et al. [2013], Chetty and Saez [2013], Feldman et al. [2016], Rees-Jones and Taubinsky [2020], Benzarti [2020], Kostøl and Myhre [2021], Benzarti and Wallossek [2024], Bohne and Nimczik [2025]

of **firms**: Bach [2017], Zwick [2021], Almunia et al. [2024]

- Estimate inattention, its importance over other frictions and on firms' reaction

Main contributions to the literature

Complexity and the learning of the tax code

- Estimate inattention, its importance over other frictions and on firms' reaction

Taxes and business creation Gentry and Hubbard [2000], Rathelot and Sillard [2008], Djankov et al. [2010], Da Rin et al. [2011], Duranton et al. [2011], Bacher and Brülhart [2013], Gordon et al. [2018], Zawisza and Klejdysz [2024], Sapollnik and Swonder [2025]

- Find large and positive business creation effect at the national level

Main contributions to the literature

Complexity and the learning of the tax code

- Estimate inattention, its importance over other frictions and on firms' reaction

Taxes and business creation

- Find large and positive business creation effect at the national level

Change of organizational form Goolsbee [2004], Alstadsæter and Wangen [2010], DeBacker et al. [2019], Tazhitdinova [2020], Massenz [2025]

- Uncover a new channel of tax avoidance: entity-splitting

Main contributions to the literature

Complexity and the learning of the tax code

- Estimate inattention, its importance over other frictions and on firms' reaction

Taxes and business creation

- Find large and positive business creation effect at the national level

Change of organizational form

- Uncover a new channel of tax avoidance: entity-splitting

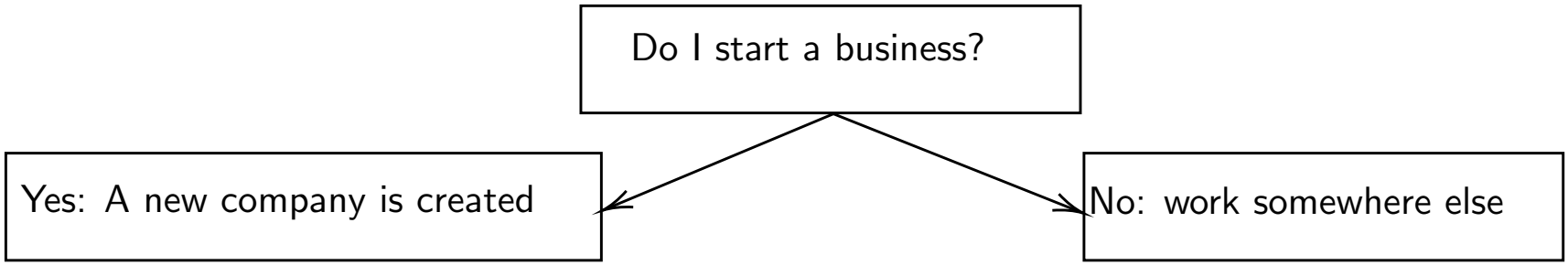
Optimal corporate taxation Kopczuk and Slemrod [2006], Scheuer [2014], Best et al. [2015], Sharma et al. [2025], Berg [2025], Swonder and Vergara [2025]

- Add inattention and extensive margin channels in sufficient stat approach

Today's talk

1. Setting, Policy and Data
2. The intensive margin
3. Business creation and entity splitting
4. Welfare and policy implications

The channels of the policy



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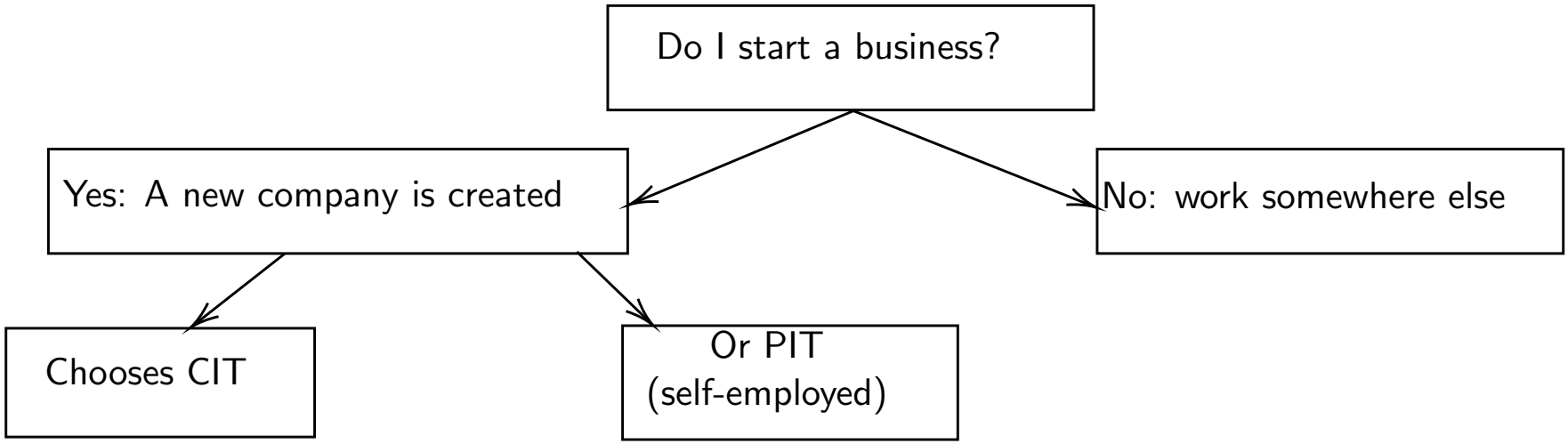

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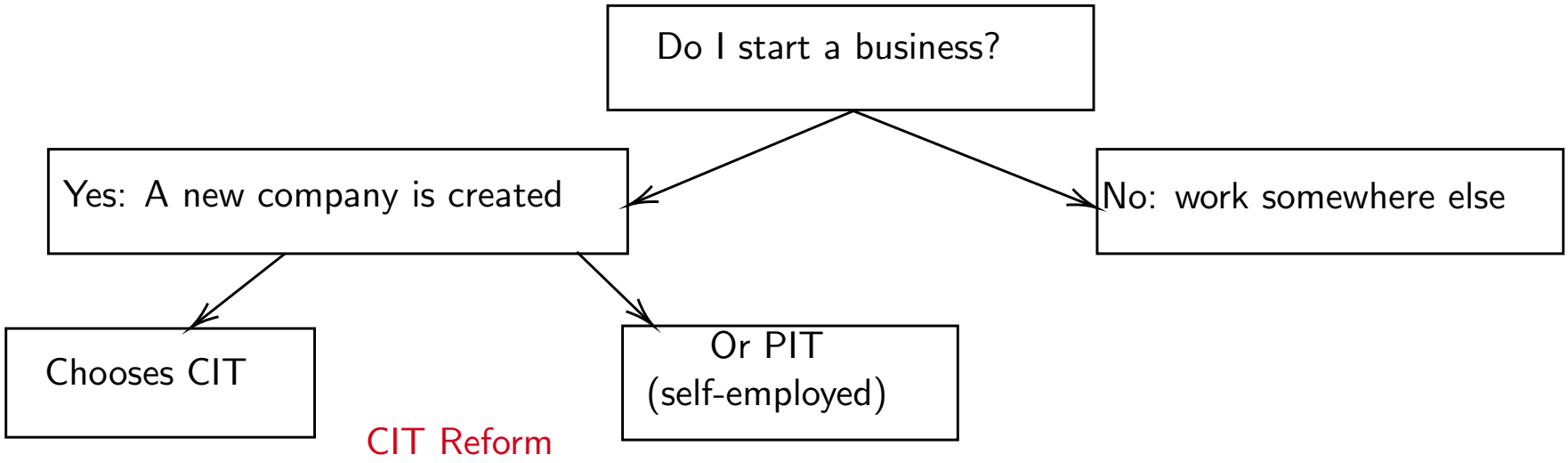

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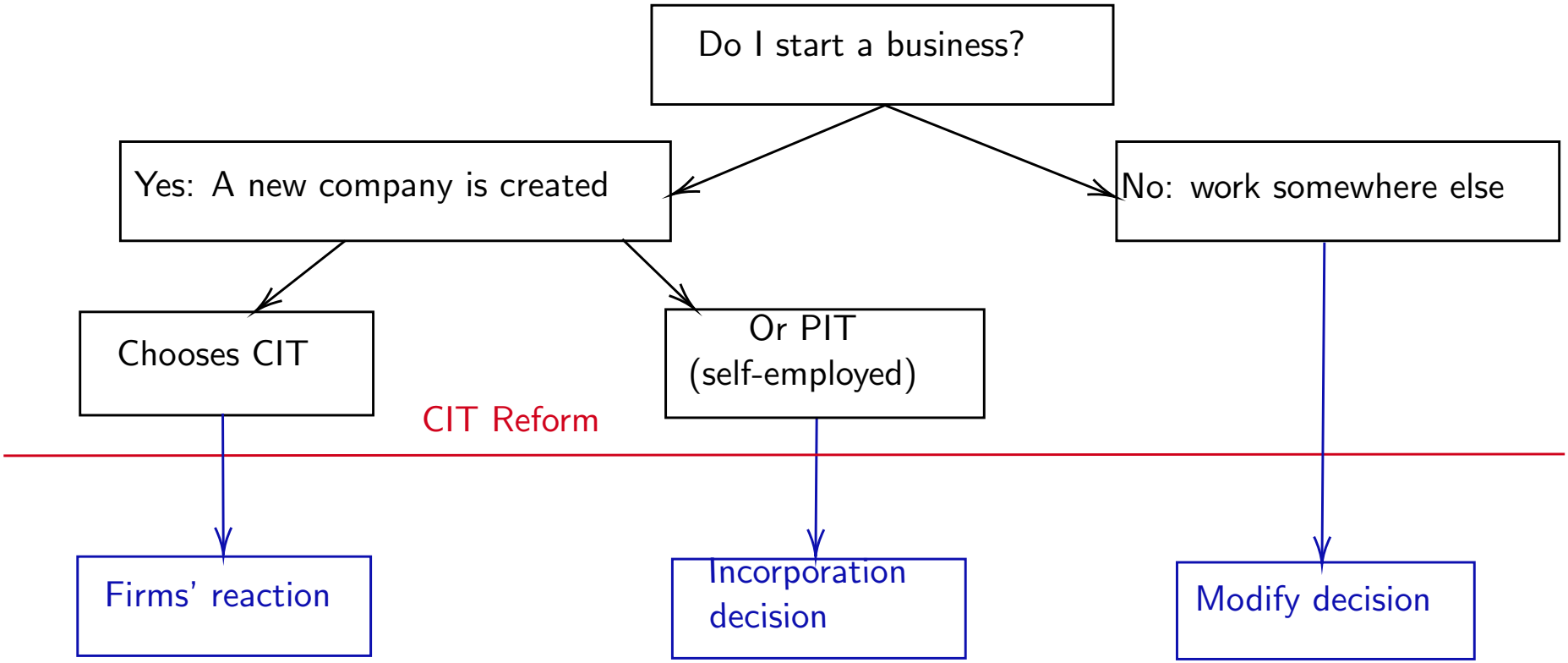

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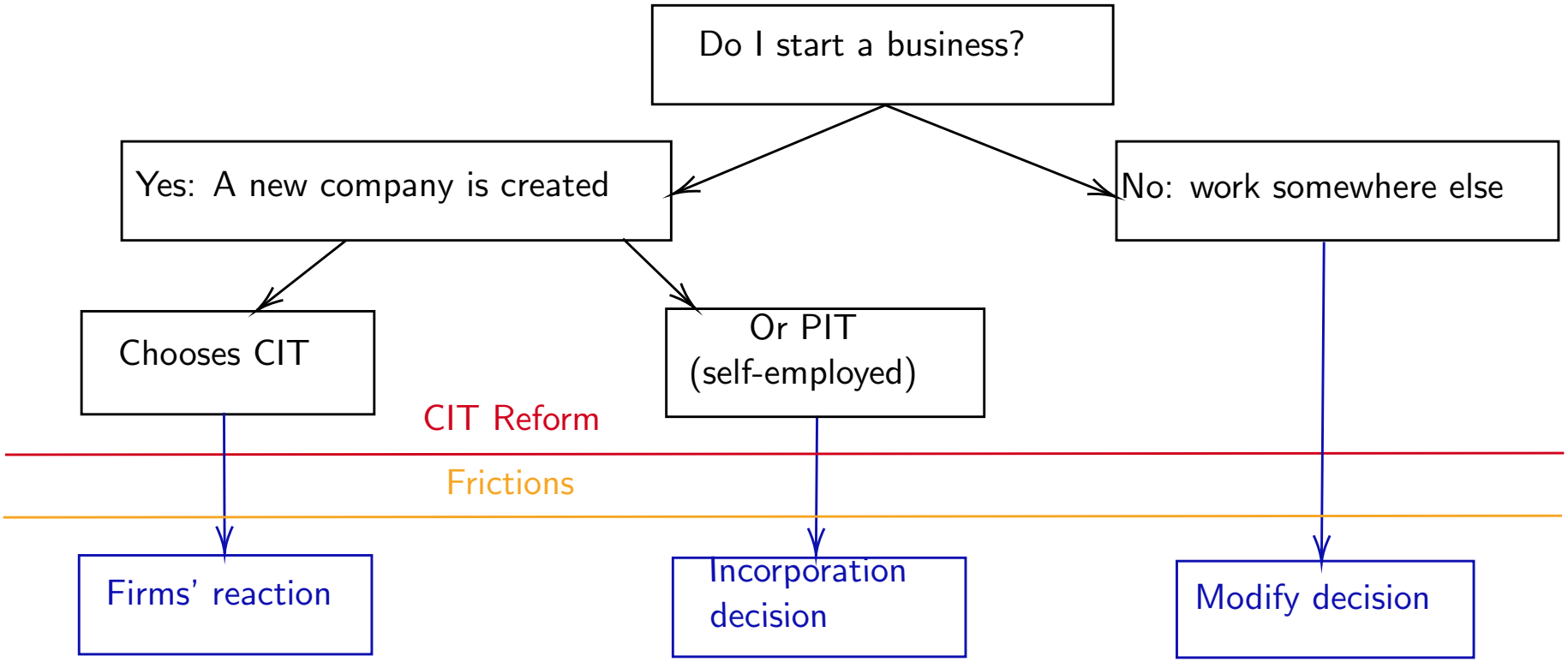

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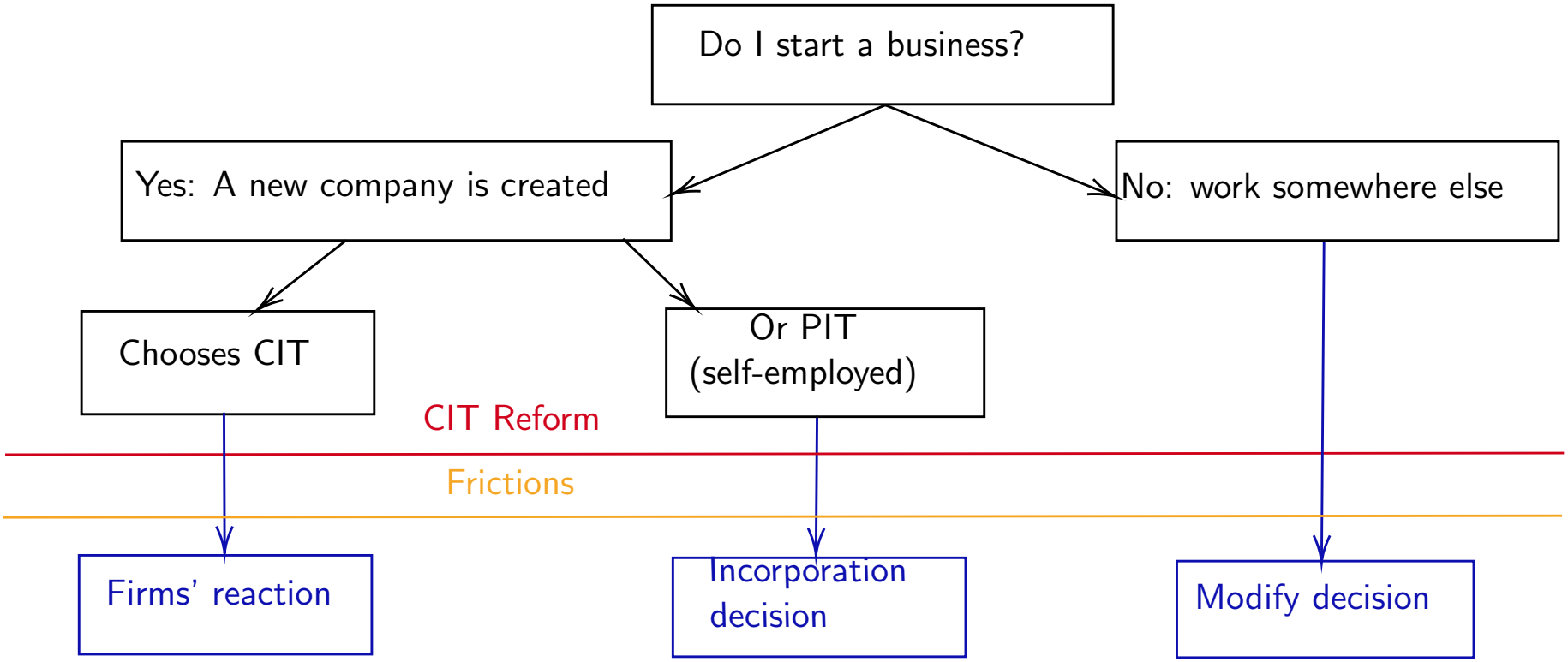
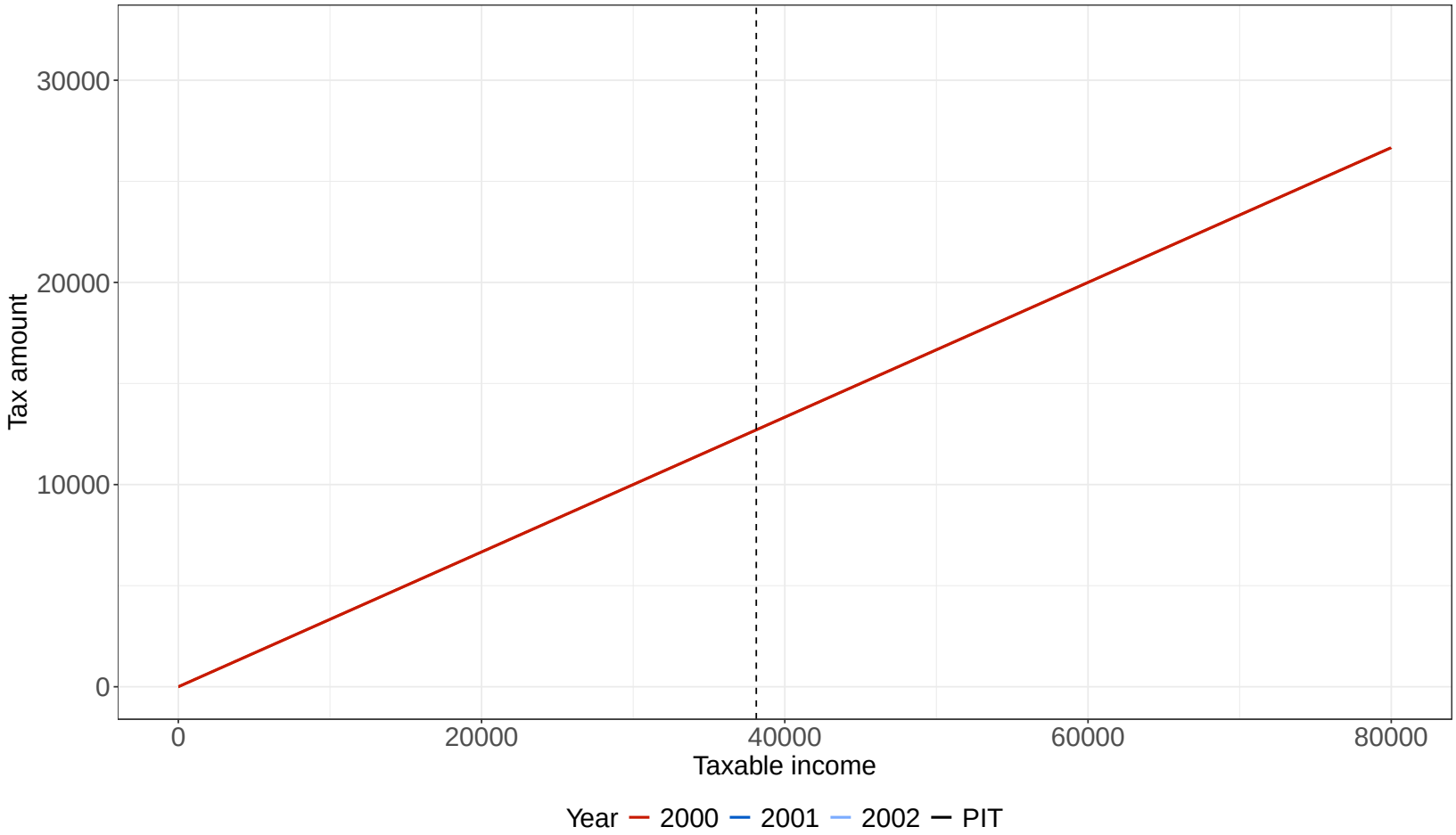


$\Longrightarrow$ **All these channels matter for welfare**

Setting - The corporate income tax reform

The kink: change in the marginal tax rate

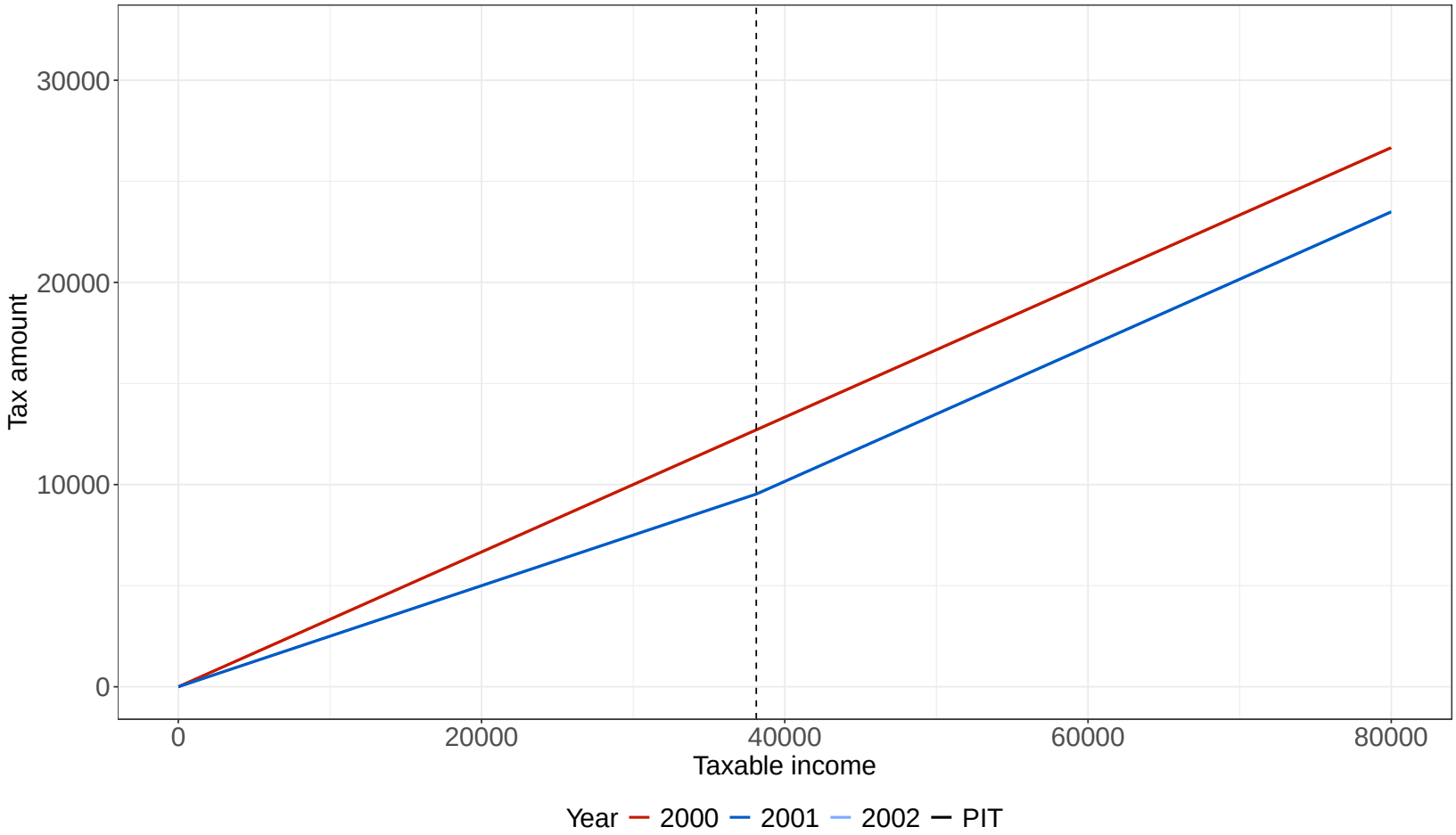


$$T(x) = 33.3\% \cdot x$$

Political context Notch Back to model

Setting - The corporate income tax reform

The kink: change in the marginal tax rate



$$T(x) = 25\% \cdot min(x, 38K) + 33.3\% \cdot max(x - 38K, 0)$$

Political context Notch Back to model

Setting - The corporate income tax reform

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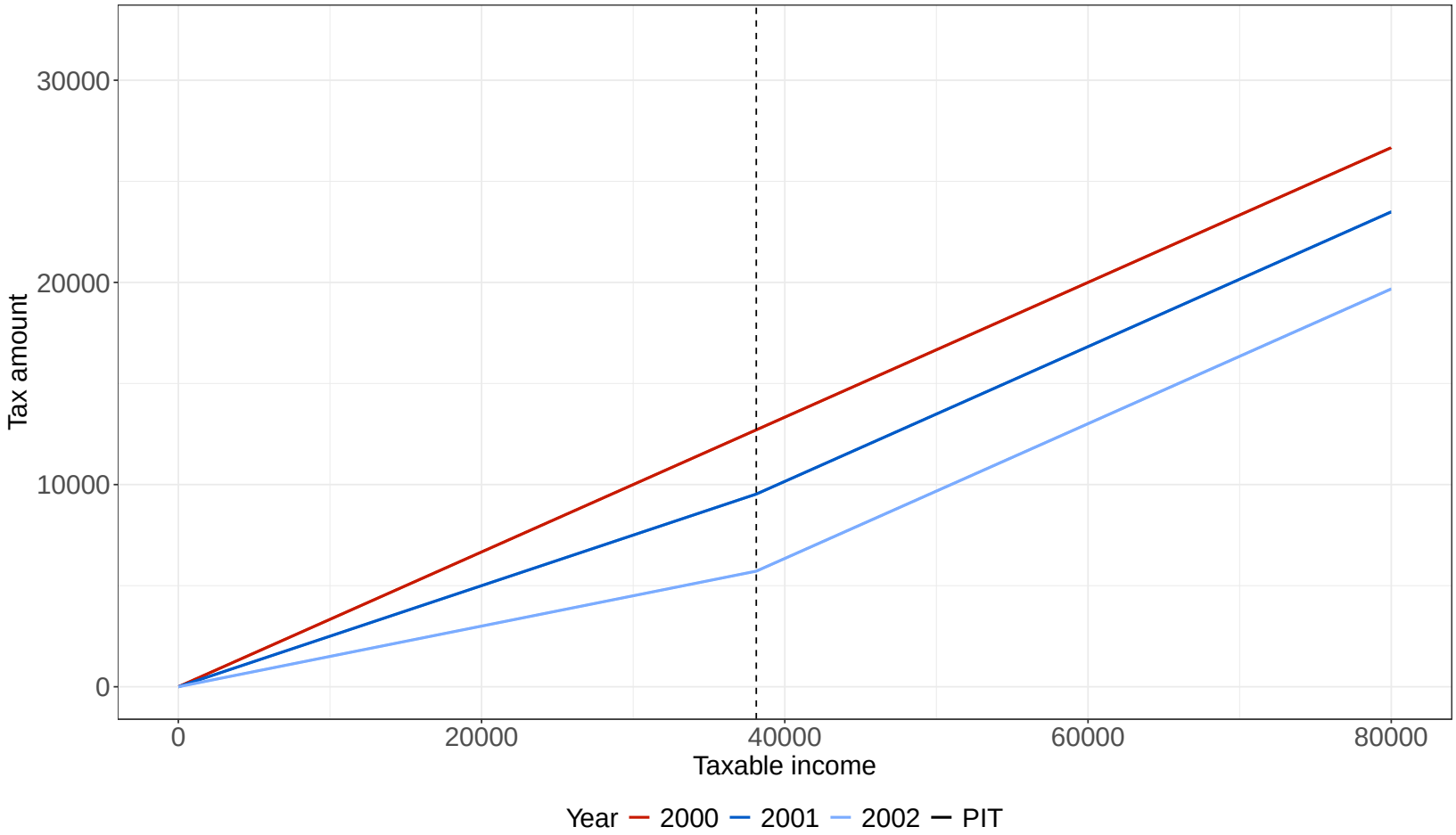
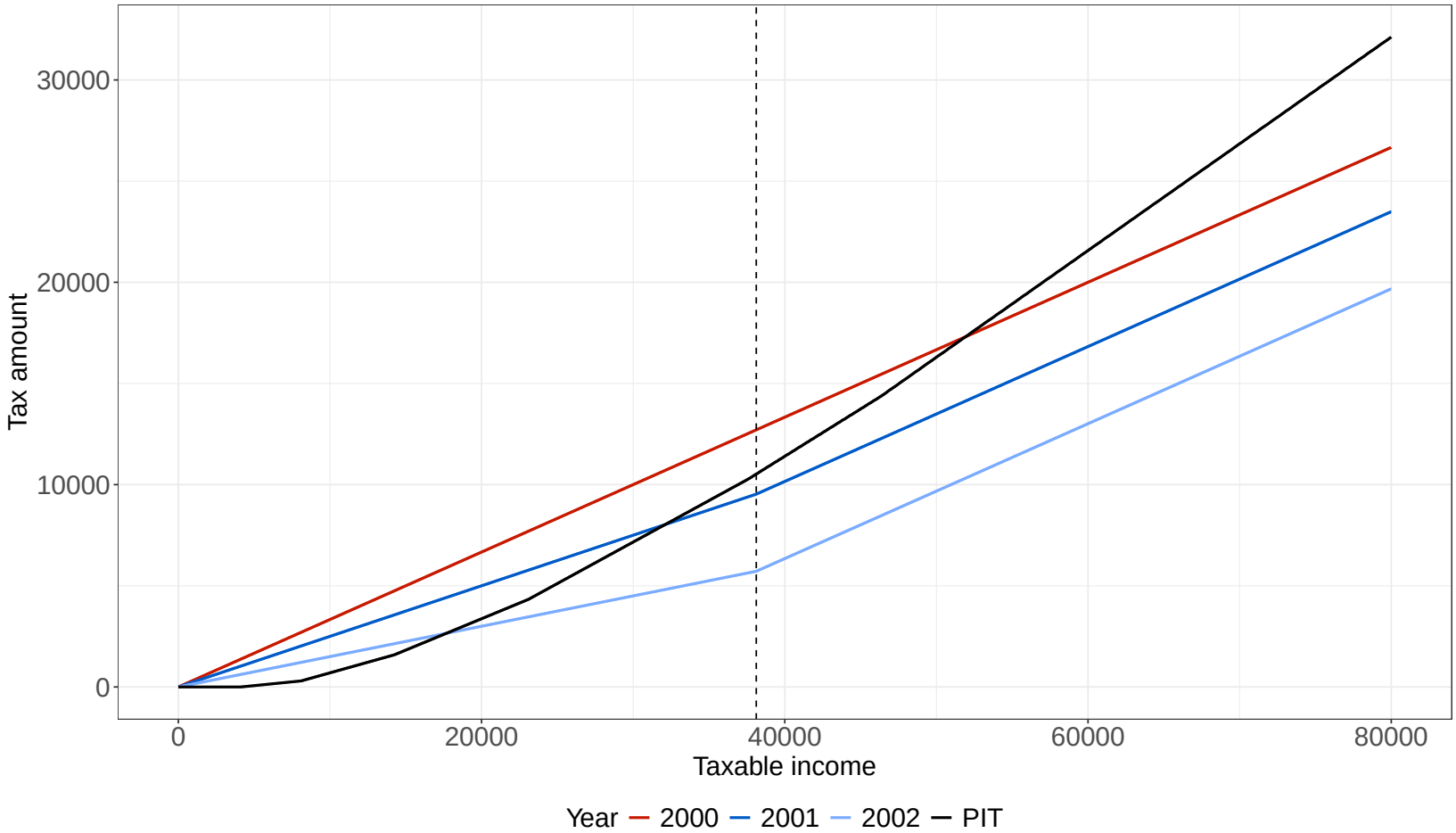


$$T(x) = 15\% \cdot min(x, 38K) + 33.3\% \cdot max(x - 38K, 0)$$

Political context Notch Back to model

Setting - CIT vs Personal Income Tax

The reform distorts the choice of tax schedule



$\Longrightarrow$ **More and more profitable to incorporate**

Political context Notch Back to model

Data

French Tax Administrative data (**BIC-RN/BIC-IS**, **FICAS/FICUS**)

1. Yearly basis detailed balance sheet information
   $\Rightarrow$ turnover, payroll, breakdown of costs, breakdown of assets...
2. Tax information (taxable income)
3. Year of creation
4. From 1995 to 2007
5. Exhaustive panel

Which firms are targeted?

- → 45% of affected firms (95% including PIT firms)
- → 39% face a change of marginal tax rate (78% including PIT firms)
- → Affected firms
  1. hire on average 6 employees (median of 3)
  2. generate more than 600,000 € of sales
- → Account for 30% of commercial workforce

More descriptive statistics

Today's talk

A unique institutional feature to measure inattention to tax reforms

In France, firms have to remit their own CIT amount

- → have to **compute and send** the amount to the tax authority
- → $\neq$ withholding tax
- → in every year t in May, firms report for $t-1$ their
  - balance sheet information,
  - taxable income,
  - tax amount.

Taxable income + tax system $\Longrightarrow$ tax amount

Measuring inattention to tax reforms

Taxable income + tax system $\Longrightarrow$ tax amount **if firms are attentive**

Inattention: use the wrong (previous) tax system

Measuring inattention to tax reforms

Taxable income + tax system $\Longrightarrow$ tax amount **if firms are attentive**

Inattention: use the wrong (previous) tax system

However, I do not observe the **true** tax amount $\rightarrow$ need to compute it

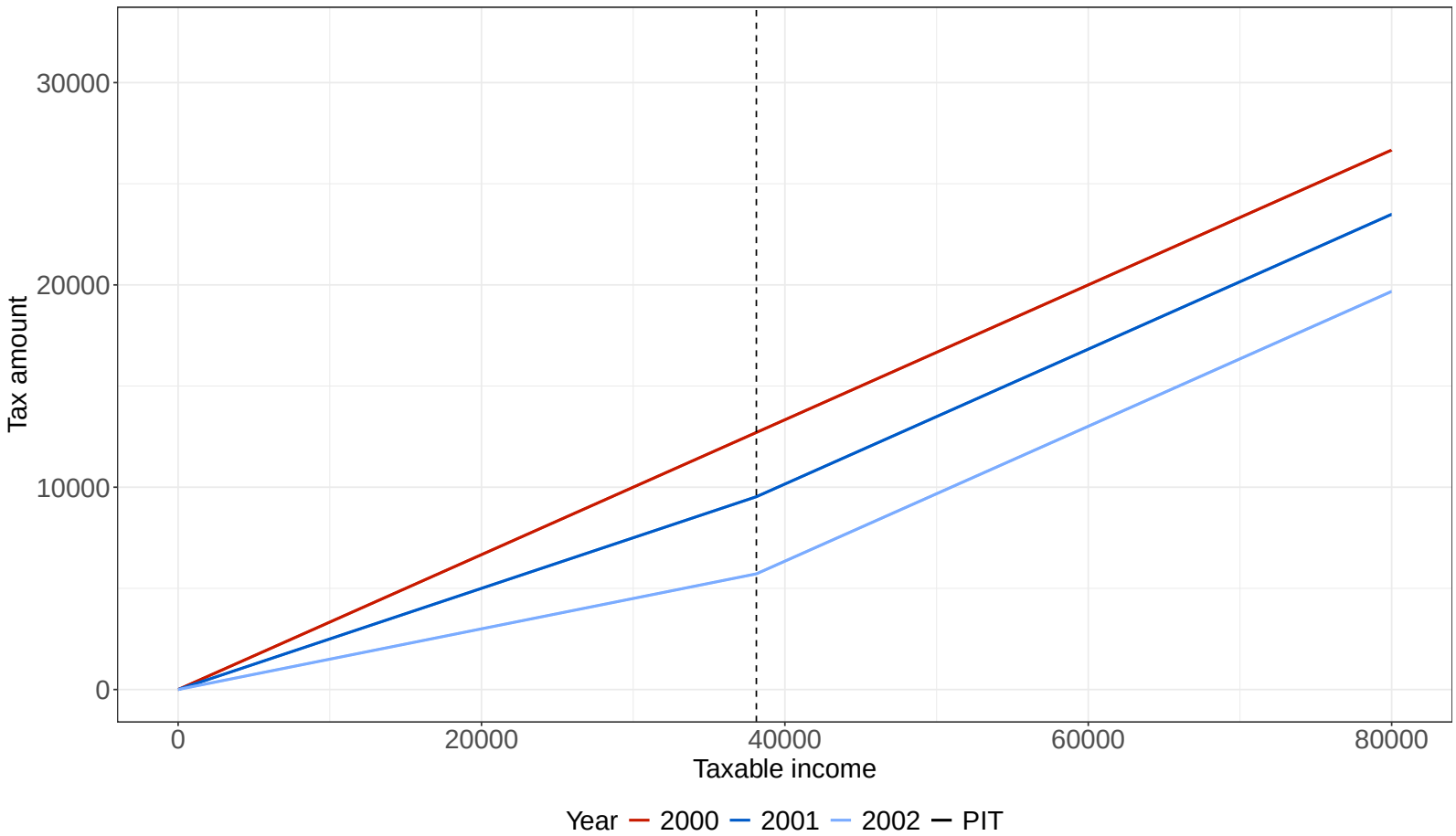
To have a clean identification $\rightarrow$ Need a large tax change

$\Longrightarrow$ **This allows to know which firms understood a reform and which did not**

Measuring inattention to tax reforms

The post-reform tax schedule is, with $\Delta\tau < 0$, τ the tax rate, k the tax kink and z the taxable income

$$T(z \quad) = (\tau + \quad \Delta\tau) \cdot min(z, k) + \tau \cdot max(0, z - k)$$



Measuring inattention to tax reforms

The post-reform tax schedule is, with $\Delta\tau < 0$, τ the tax rate, k the tax kink and z the taxable income, but firms face

$$T(z \mid \delta) = (\tau + \delta \cdot \Delta\tau) \cdot min(z, k) + \tau \cdot max(0, z - k)$$

with $\delta = 1$ if a firm is attentive, 0 otherwise

Measuring inattention to tax reforms

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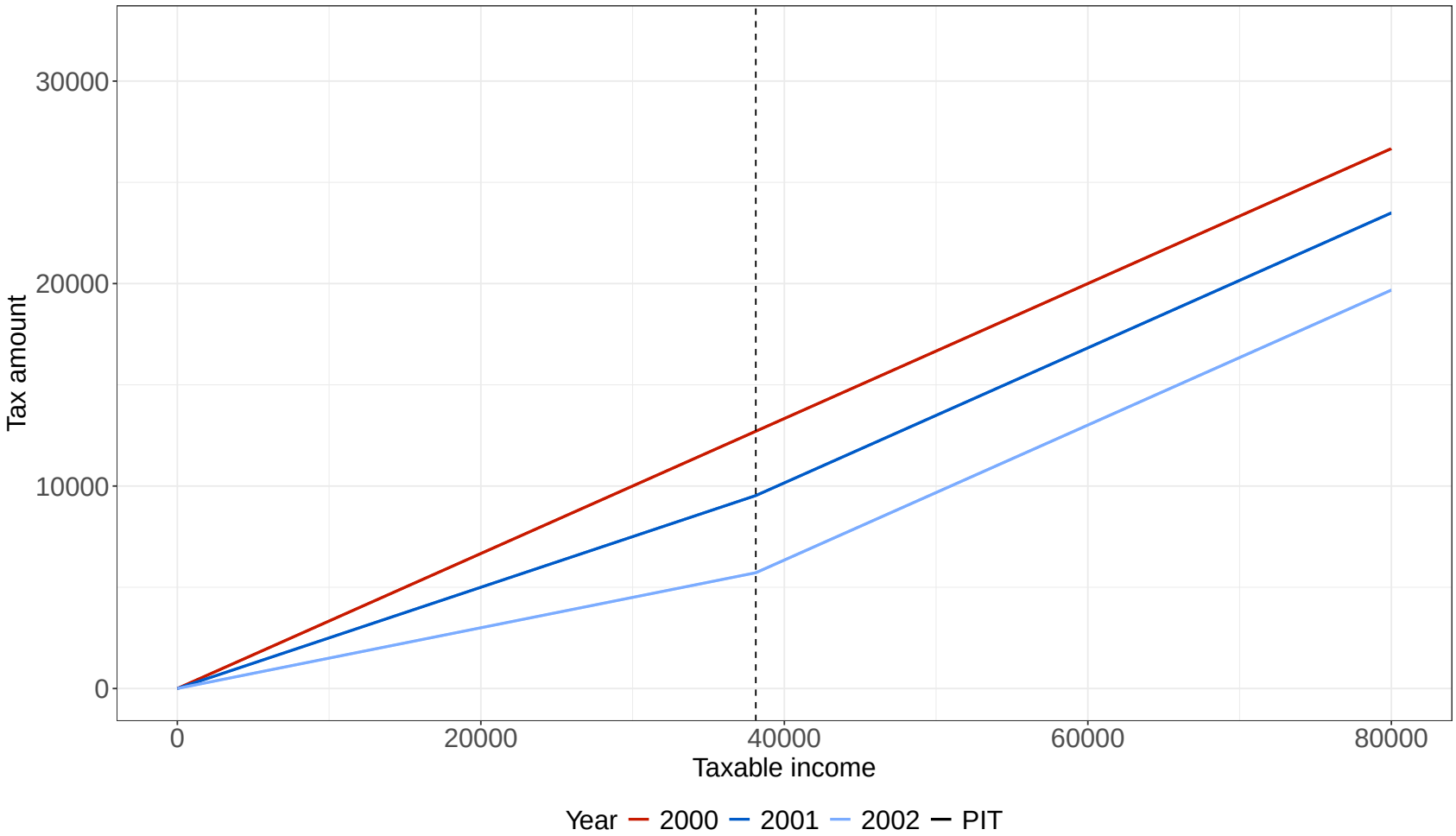
with $\delta = 1$ if a firm is attentive, 0 otherwise

- $\rightarrow$ $T(z \mid \delta)$ = reported tax amount (observable)
- $\rightarrow$ I define $\widehat{\delta_{it}}$ as:

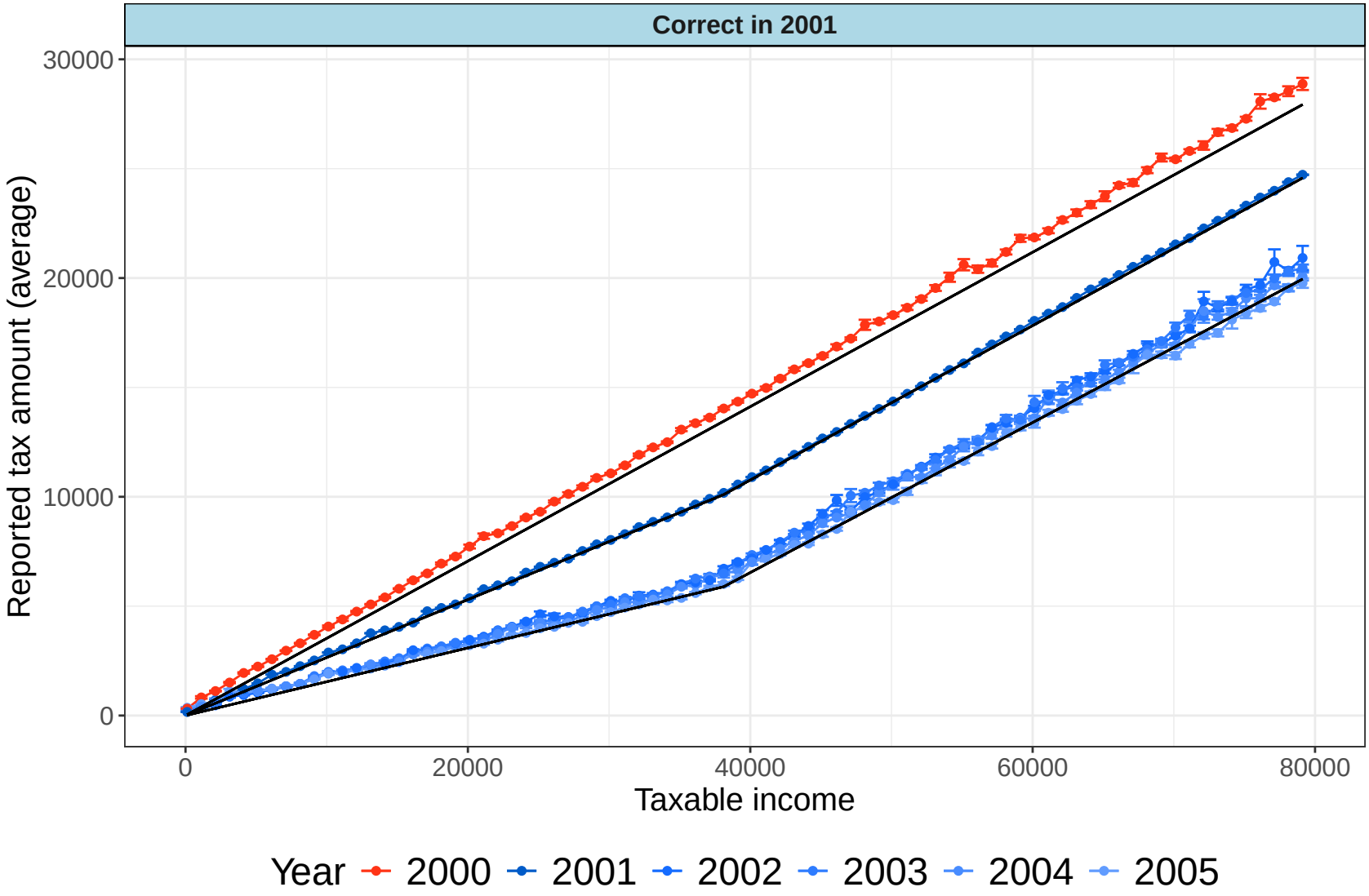
$$\widehat{\delta_{it}} = \mathbb{1}\left(\left|\frac{T(z \mid \delta) - \tau \cdot z}{min(z, k)}\right| < \Delta\tau + \epsilon_t\right)$$

Distribution

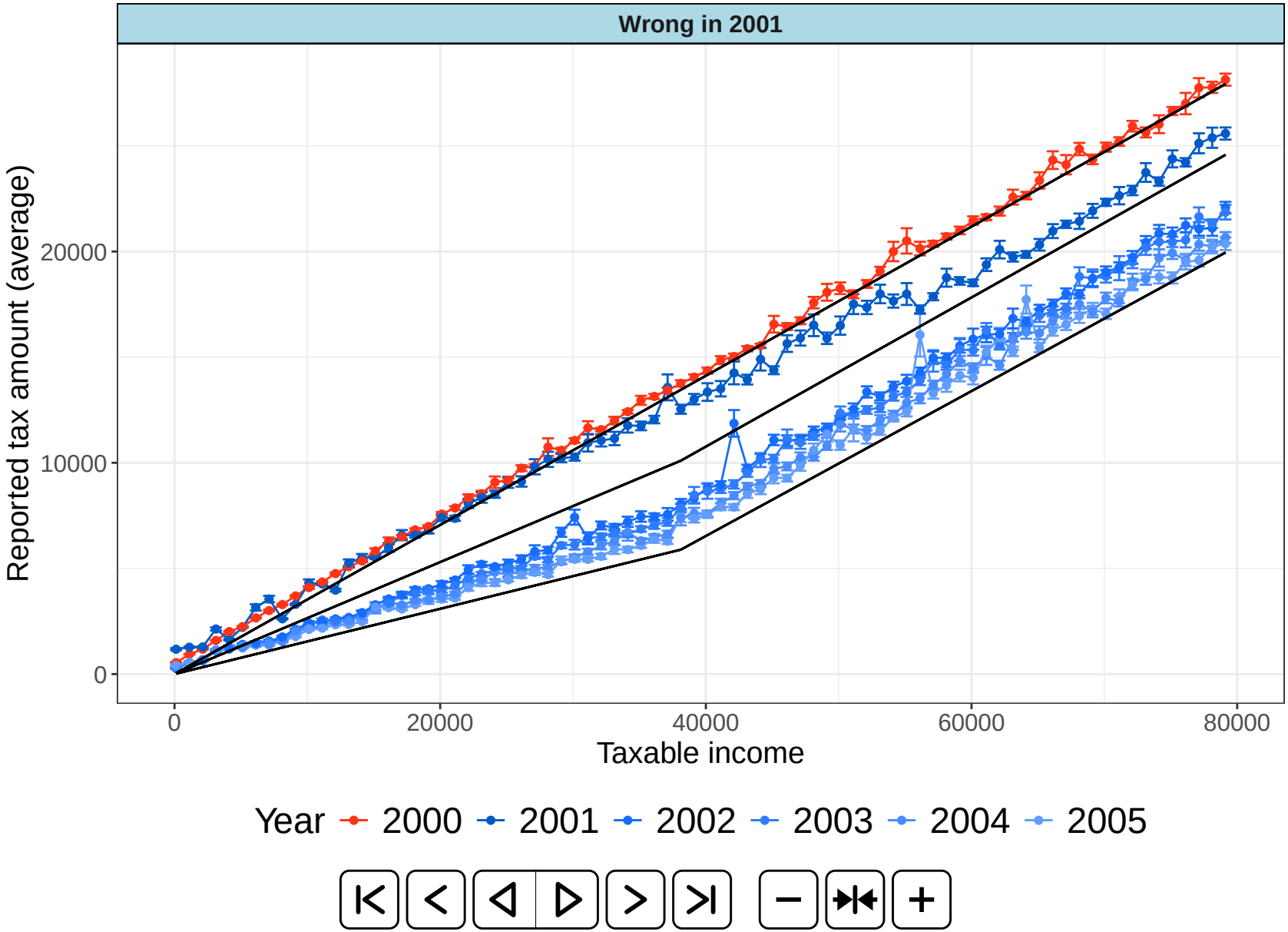
Recall the tax reform



Attentive firms report correctly



Inattentive firms take time to understand the reform



If the gif doesn't work

Probability of attention and inattention

	$\mathbb{P}\left(\widehat{\delta_{i2001}} = 1\right)$	$\mathbb{P}\left(\widehat{\delta_{i2002}} = 1\right)$
Mean	0.660	0.750
Std. Errors	(0.0011)	(0.0011)
Conf. Intervals	[0.659,0.662]	[0.748,0.751]
Pre-reform mean	0.851	0.851
	$\mathbb{P}\left(\widehat{\delta_{i2001}} = 0\right)$	$\mathbb{P}\left(\widehat{\delta_{i2002}} = 0\right)$
Mean	**0.340**	**0.250**
Corrected mean	**0.191**	**0.101**
Observations	182,771	160,643

$\Longrightarrow$ **19% of inattentive firms in 2001, 10% in 2002**

Mistake using 2000

Predicting attention with pre-reform characteristics

To understand the characteristics of the attentive firms, I regress the attention in 2001 on pre-reform controls:

$$\widehat{\delta}_{i2001} = \alpha_r + \lambda_n + X'_{i2000}\beta + \epsilon_{irn}$$

With

- $\widehat{\delta}_{i2001}$ the attention of firm i in 2001
- X_{i2000} some controls of firm i in 2000
- α_r counties fixed-effects
- λ_n industries fixed-effects

I run a LPM and a Logit

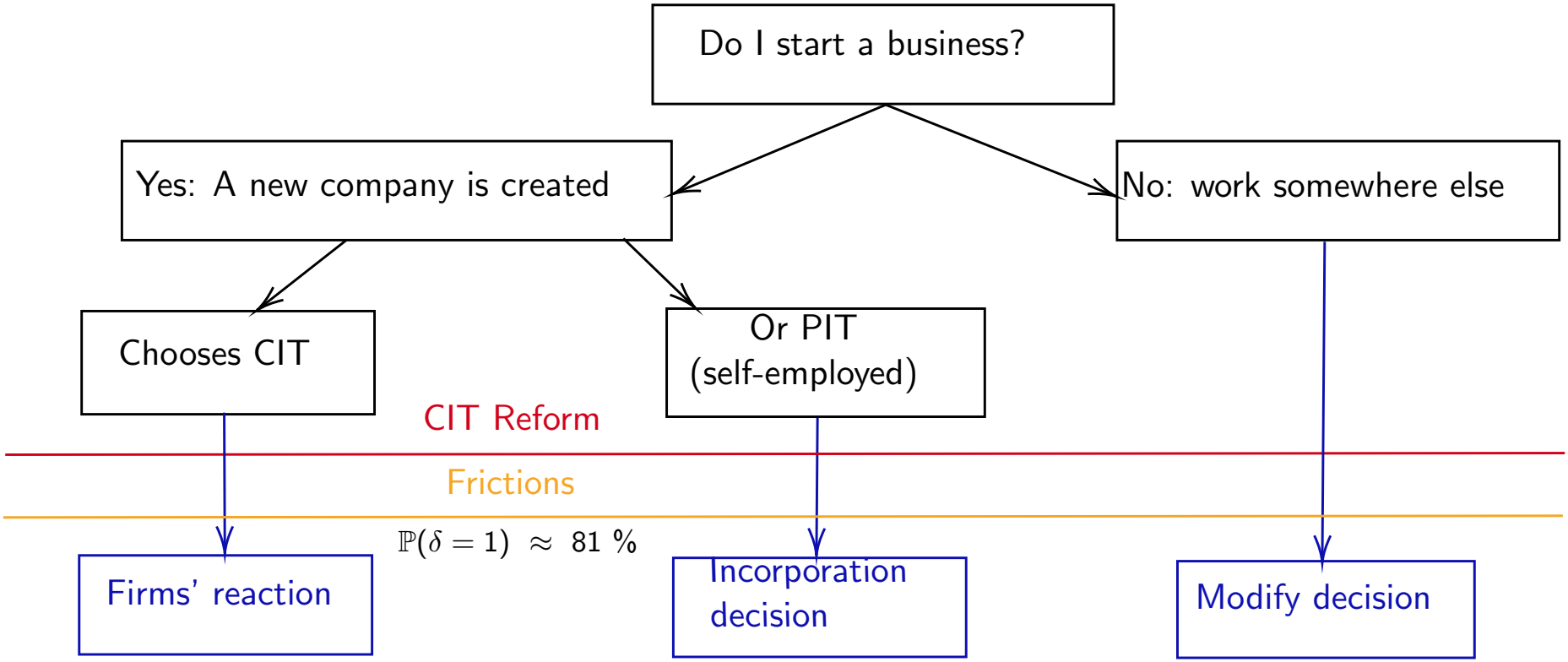
Larger, more productive and younger firms are more attentive

Predicting attention with pre-reform characteristics

	OLS						Logit
Sales	1.643***	1.652***	1.528***	1.676***	1.706***	1.580***	1.580***
	(0.067)	(0.078)	(0.057)	(0.076)	(0.069)	(0.049)	(0.049)
Sales per worker	0.492**	0.508***	0.332***	0.502***	0.252	0.320***	0.320***
	(0.189)	(0.148)	(0.069)	(0.147)	(0.162)	(0.064)	(0.064)
Age	−0.100**	−0.110***	−0.064**	−0.120***	−0.074**	−0.067***	−0.067***
	(0.041)	(0.029)	(0.030)	(0.026)	(0.031)	(0.021)	(0.021)
Liquidity	−0.381	−0.380*	−0.723***	−0.380*	−0.447***	−0.761**	−0.761**
(norm.)	(0.234)	(0.214)	(0.213)	(0.209)	(0.140)	(0.354)	(0.354)
Gains to the reform	0.156***	0.155***	0.153***	0.155***	0.154***	0.153***	0.153***
(norm.)	(0.004)	(0.009)	(0.008)	(0.007)	(0.003)	(0.006)	(0.006)
Num.Obs.	75 821	75 821	75 821	75 867	75 867	75 867	75 867
R2	0.056	0.054	0.037	0.047	0.034	0.029	0.029
FE: County	X	X	X				
FE: Industry	X	X		X			
FE: Legal status	X				X		
Std.Errors	Clustered	Clustered	Clustered	Clustered	Clustered		

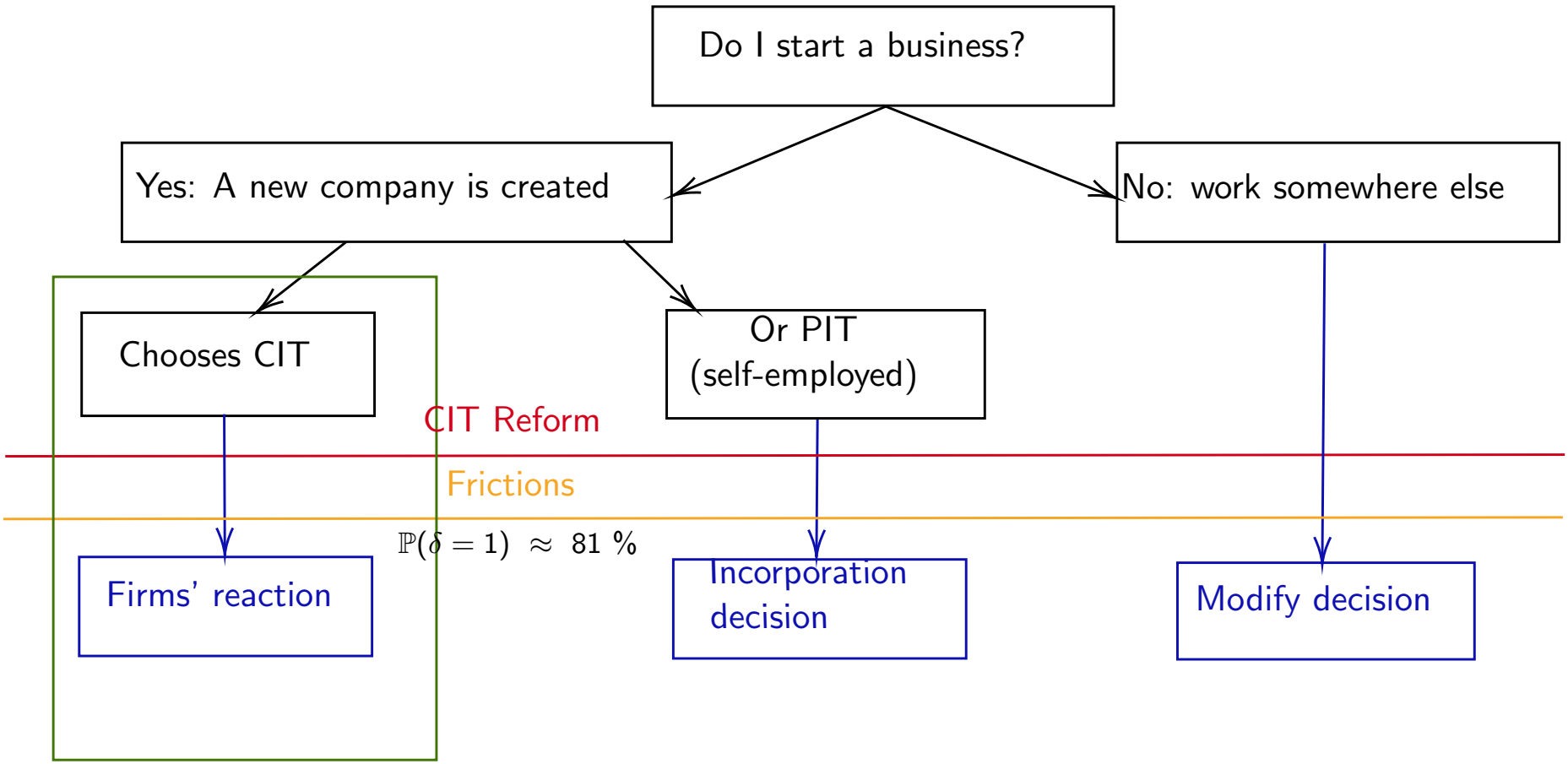
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The channels of the policy



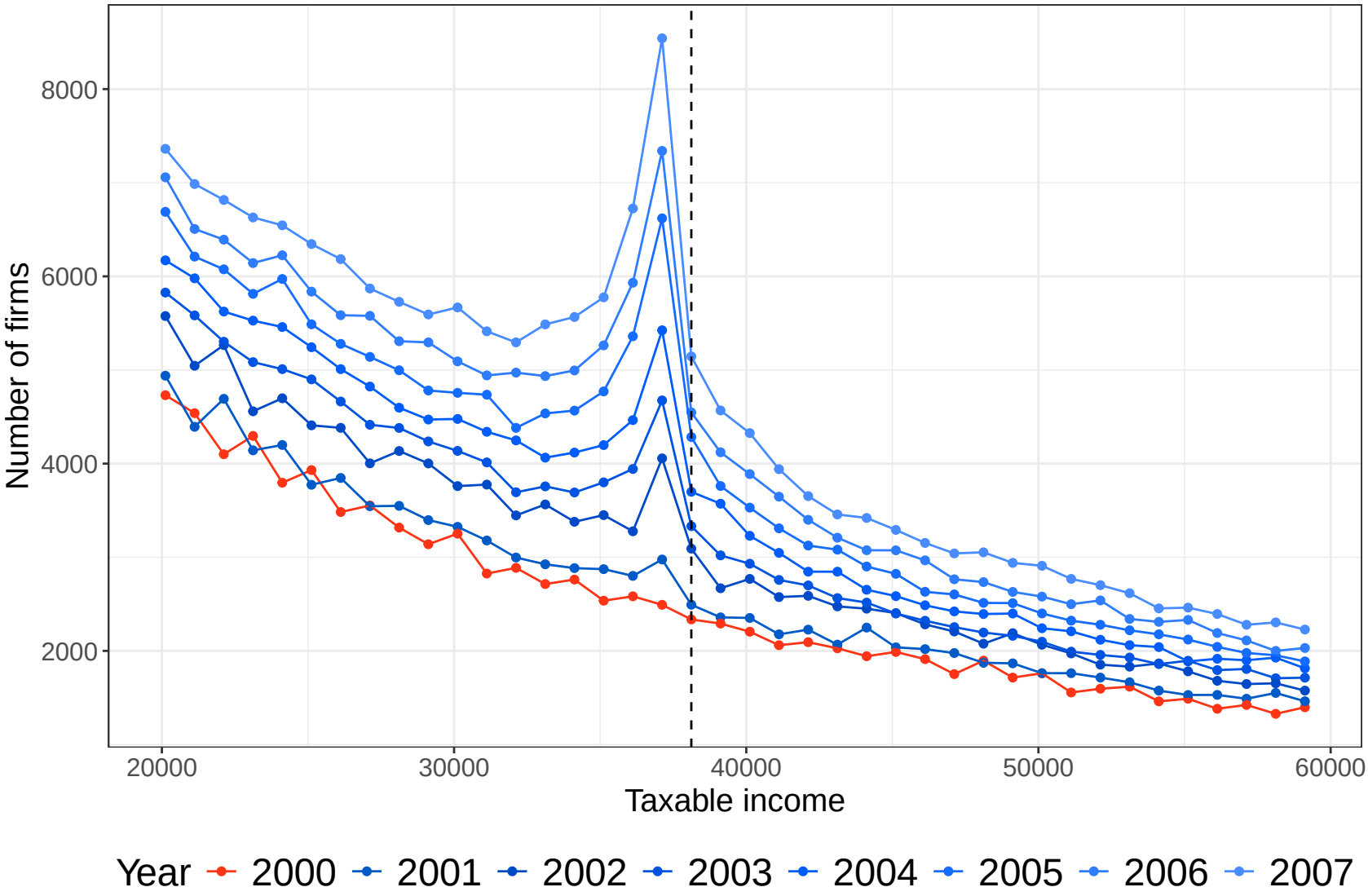
Today's talk

The channels of the policy



Excess mass of companies at the kink, increasing across years

Distribution of companies by taxable income, across years



Elasticity estimatation with the bunching method

Strategy: use the excess mass of companies at the threshold

The elasticity of corporate taxable income write, with z the taxable income of the company

$$\varepsilon = \frac{\Delta z}{\Delta \tau} \cdot \frac{1-\tau}{z}$$

Denote k the kink point, h_t^0 the counterfactual density of firms in year t, the bunching mass writes [Saez, 2010, Kleven, 2016]:

$$B_t = \int_{\varepsilon} \int_{k-\Delta z(\varepsilon)}^{k} h_t^0(z, \varepsilon) dz \approx \mathbb{E}[\Delta z(\varepsilon)] \cdot h_t^0(k)$$

Elasticity estimatation with the bunching method

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Strategy: find a good counterfactual for h_t^0

Idea: use the panel dimension [Devereux et al., 2014, Bukovina et al., 2025]

Elasticity estimatation with the bunching method

Goal: find a good counterfactual for post-reform h_t^0

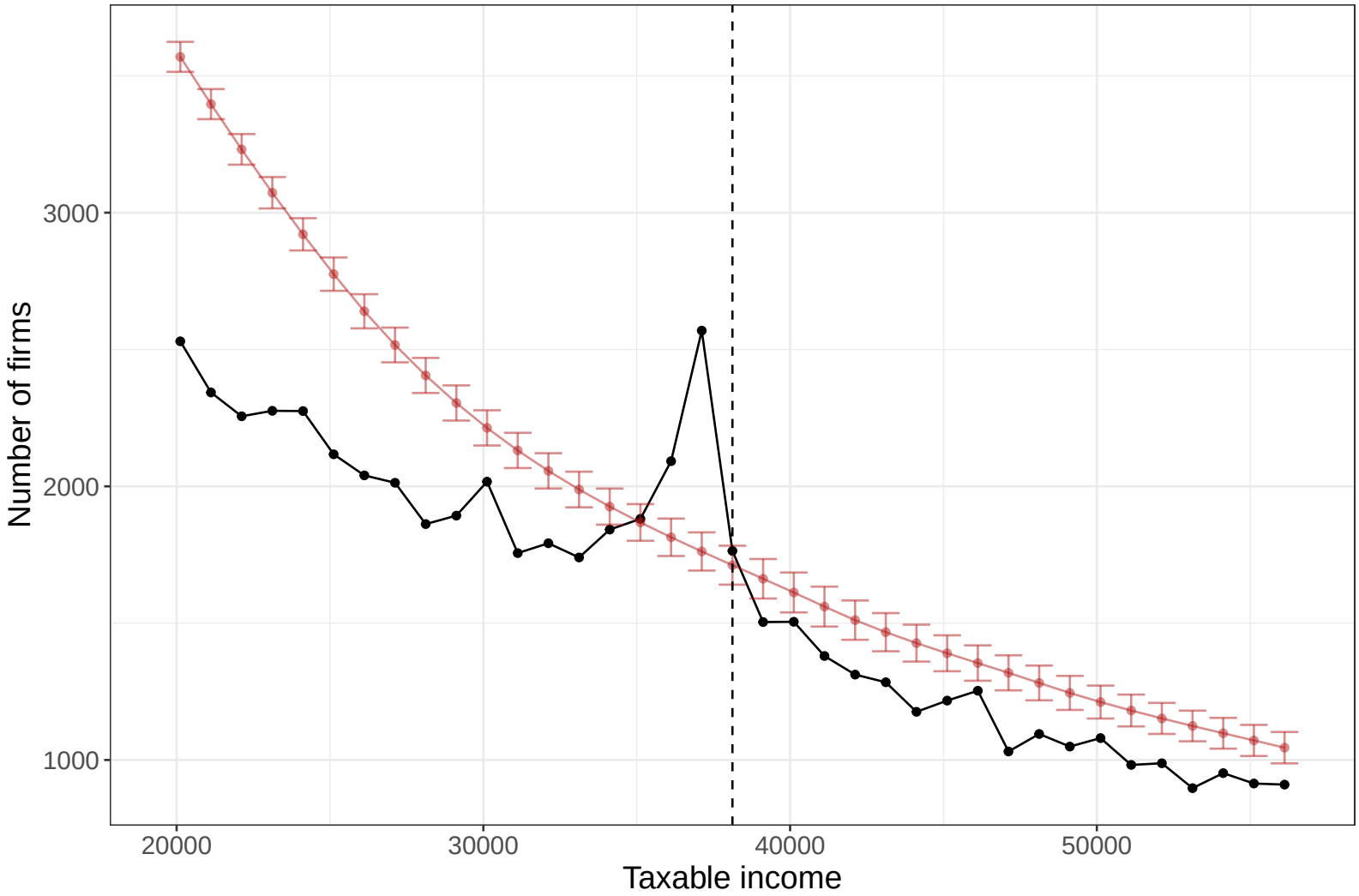
Idea:

1. Take a pre-reform counterfactual
2. Compute a scaling factor using unaffected parts of the distribution
3. Counterfactual = scaled pre-reform distribution

More on identification

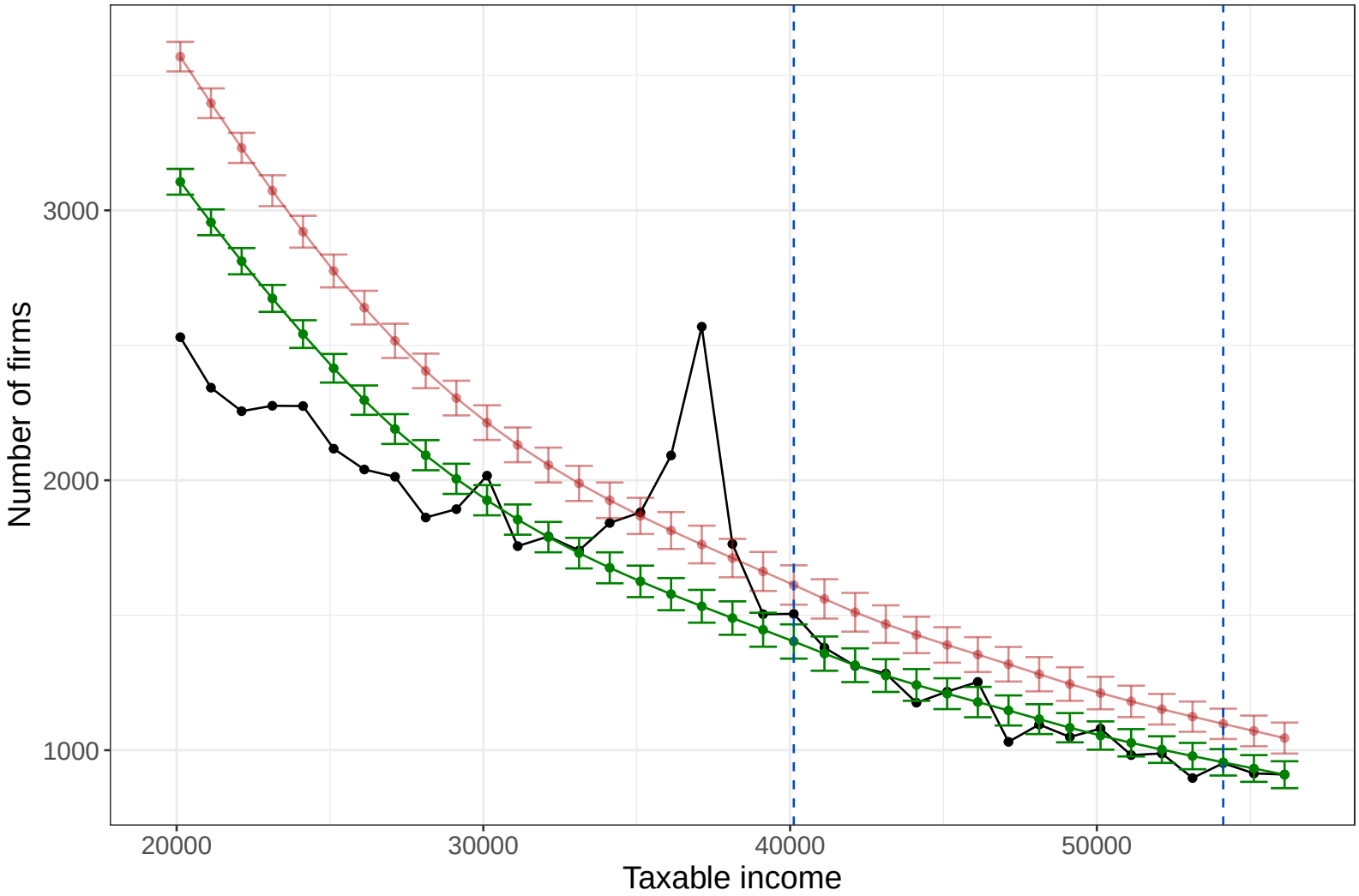
Elasticity estimatation with the bunching method

Distribution of 2006 and 2000



Elasticity estimatation with the bunching method

Distribution with scaled and unscaled counterfactual in 2006



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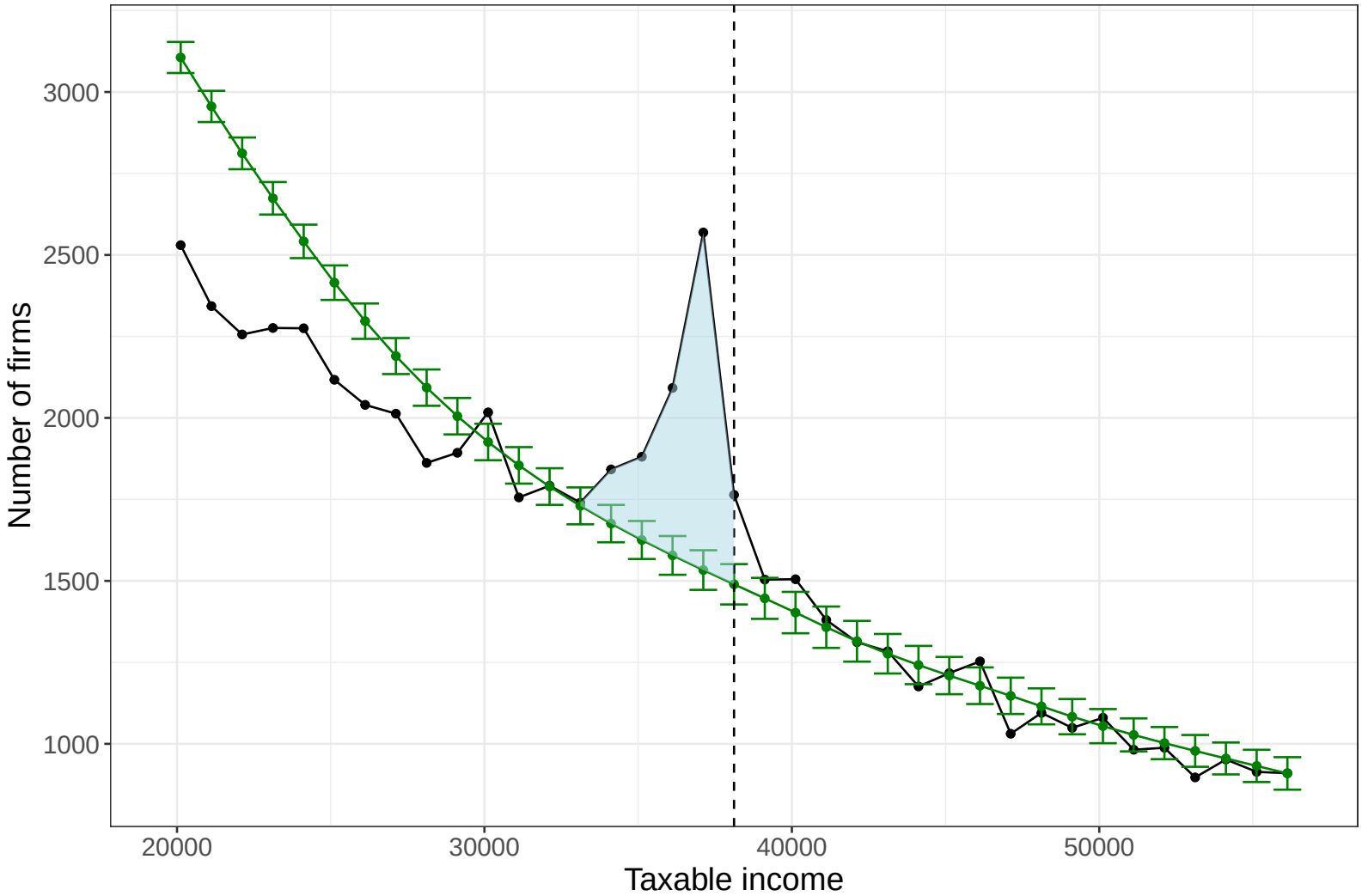
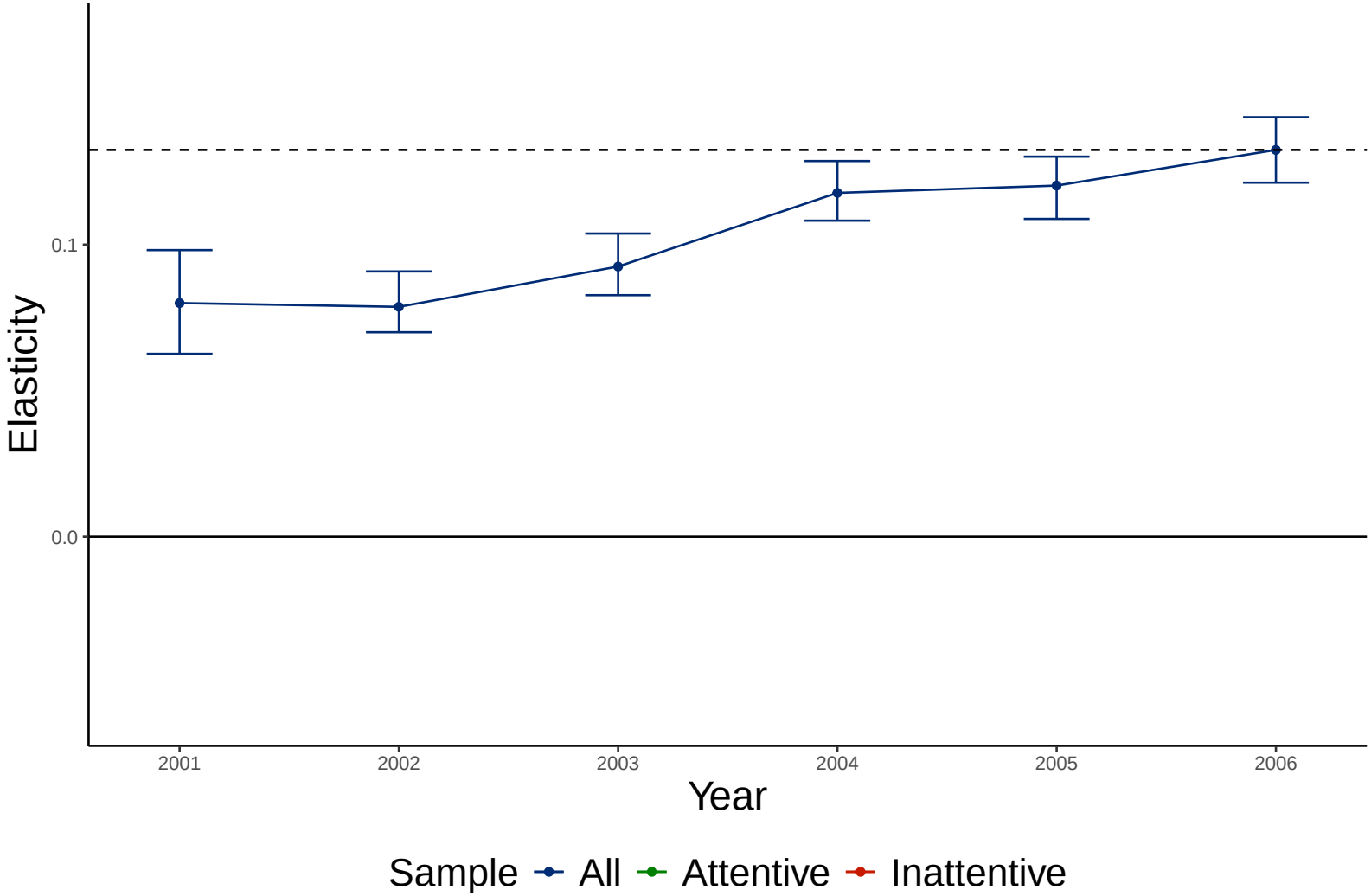


$\Longrightarrow$ **recover** B_{2006} **along with** h^0_{2006} **and thus** Δz_{2006}

The estimated elasticity increases across years $\Longrightarrow$ Frictions

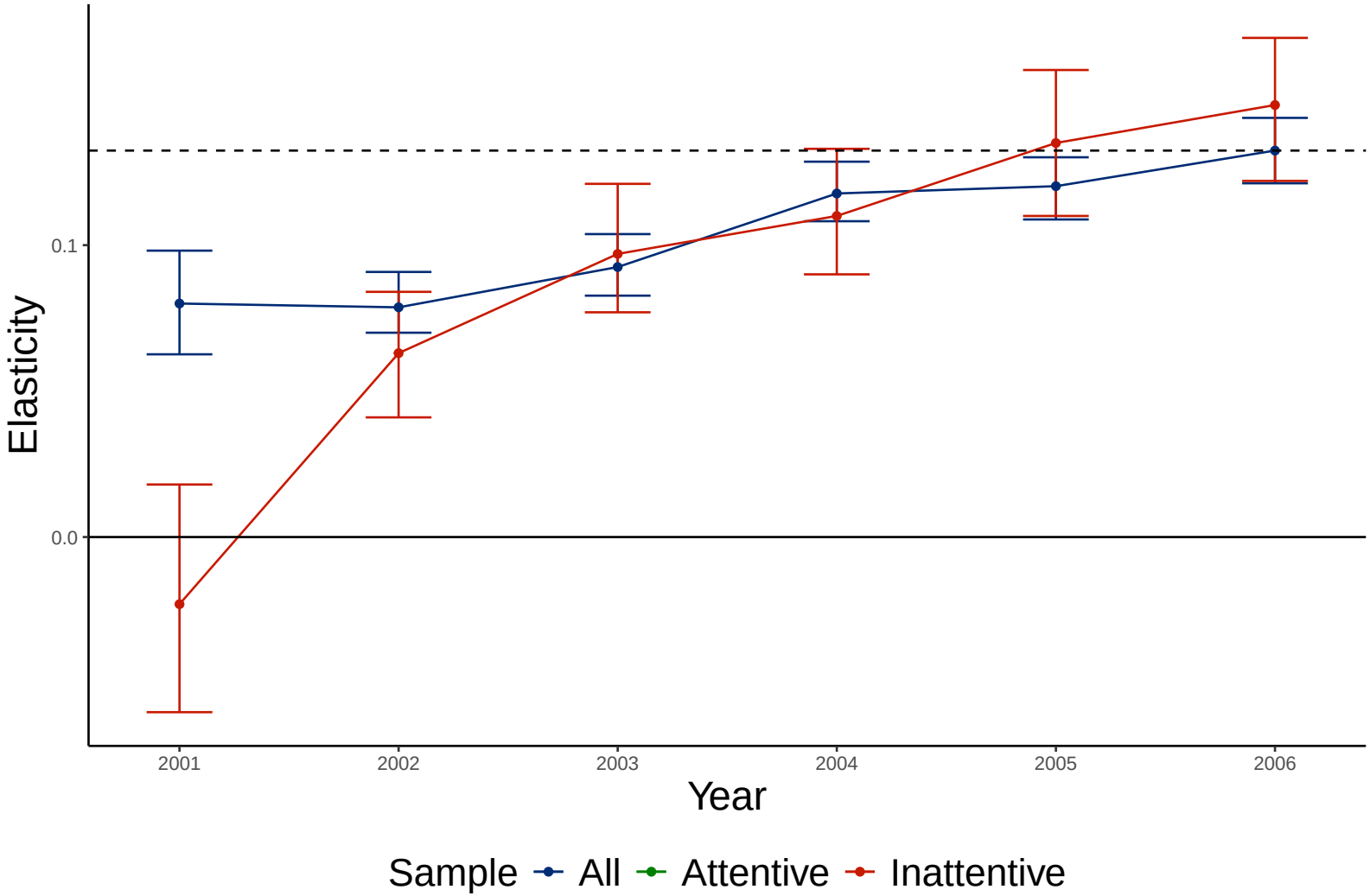
Cross-sectional elasticity estimates



$\widehat{\varepsilon} = 0.13$ **in the long-run, small but consistent with the literature**

Inattention prevents firms from reacting to the tax reform

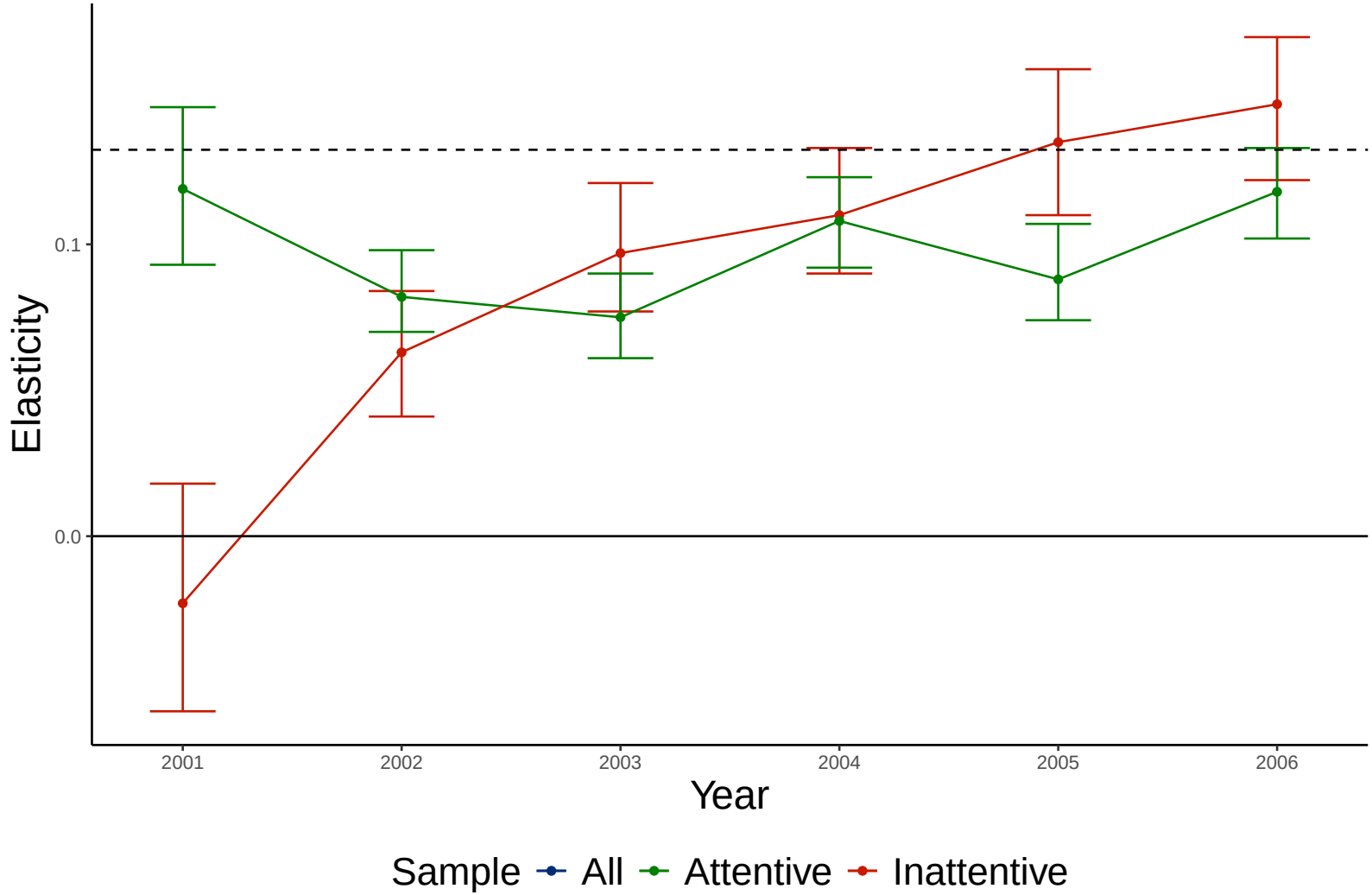
Cross-sectional elasticity estimates, by **attention in 2001**



Firms inattentive in 2001 have $\widehat{\varepsilon} \approx 0$

Inattention is the main friction in the short run

Cross-sectional elasticity estimates, by **attention in 2001**

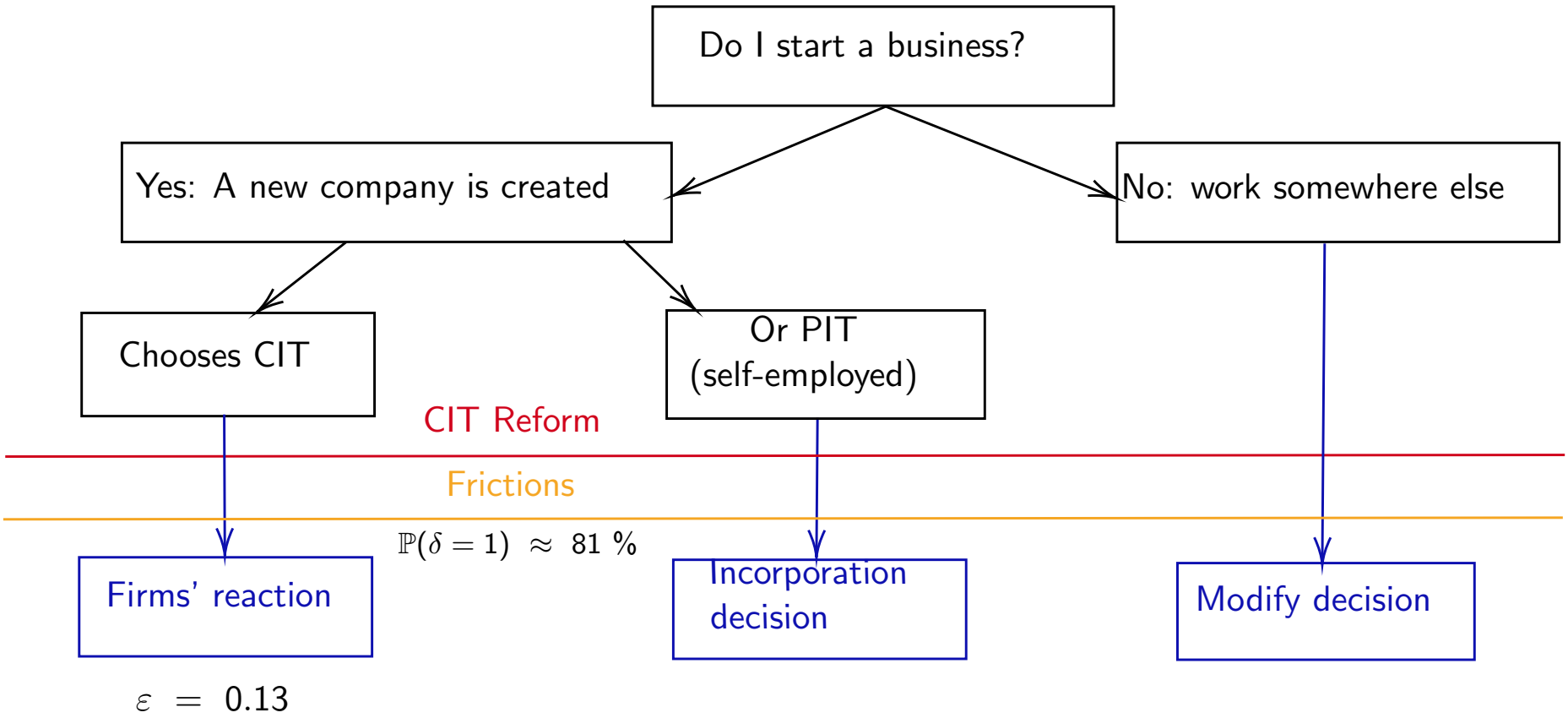


Attentive firms have $\widehat{\varepsilon} \approx$ long-run value already in 2001

Additional results

- → The total cost of inattention is ≈900 €
- → No effects on sales
- → No effects on investment (capital)
- → No effects on employment
- → No effects on wages
- → Small positive effects on dividends (intensive and extensive margin)

The channels of the policy



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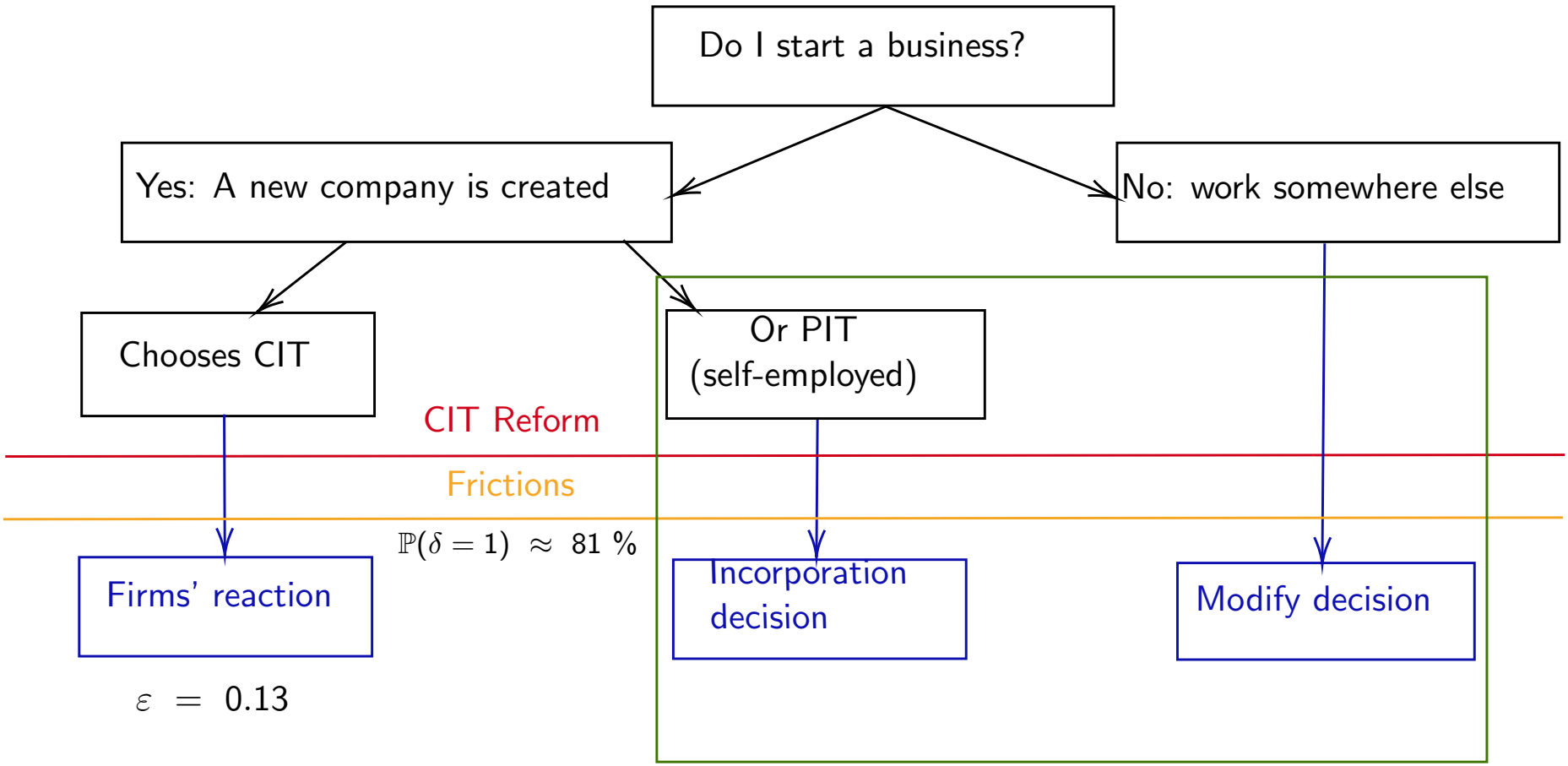
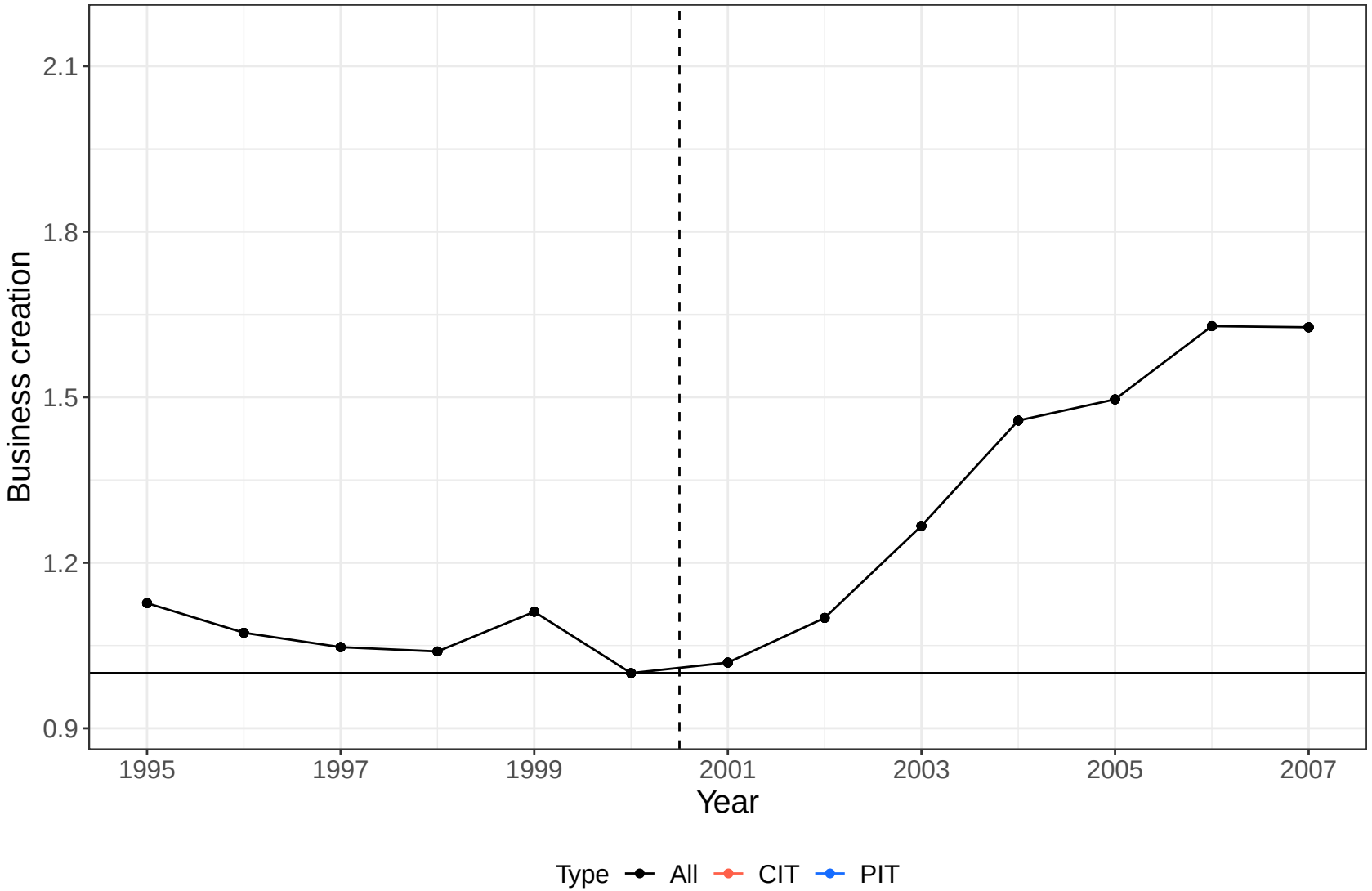


Rising business creation after the reform

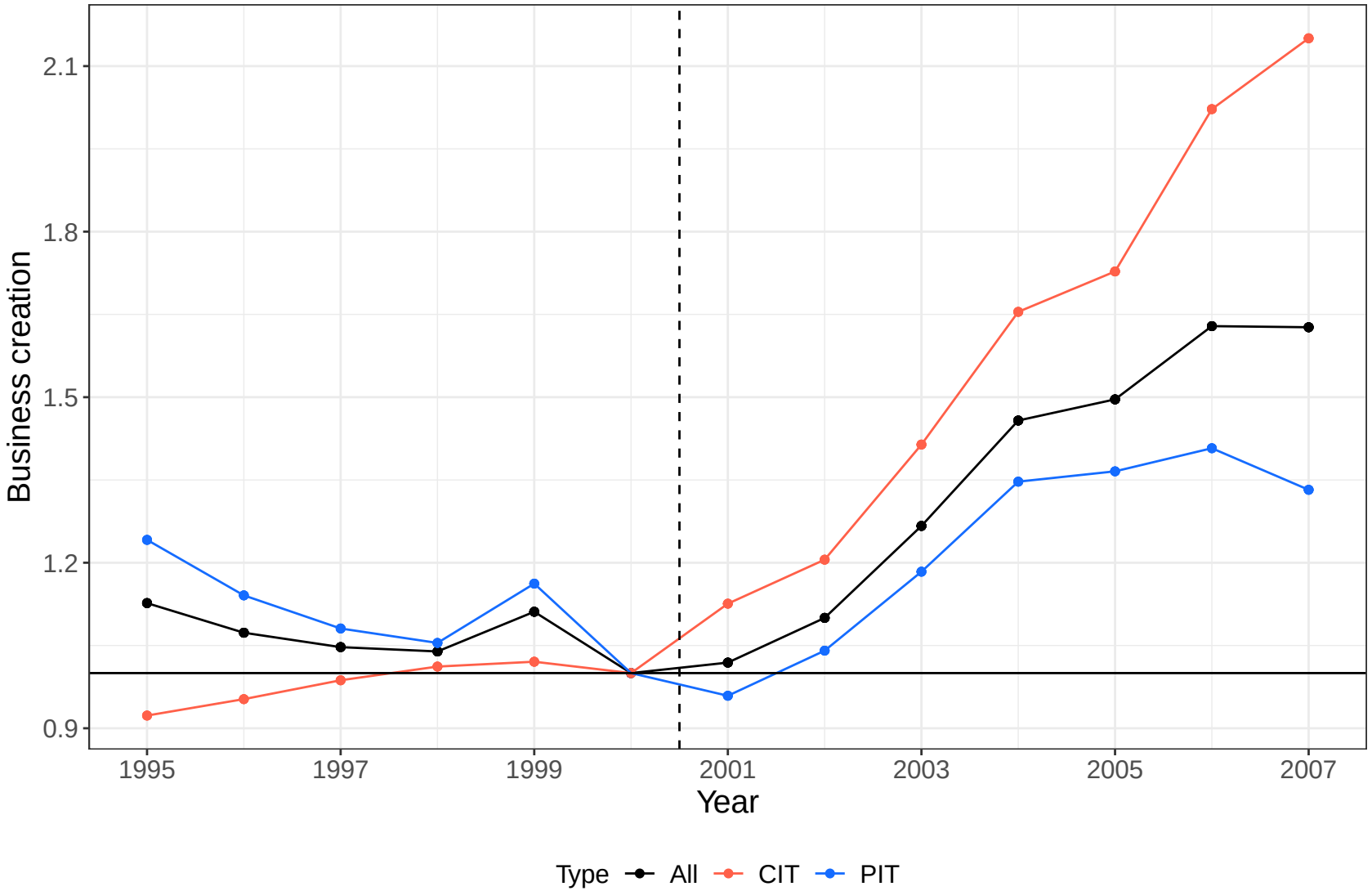
Business creation per year, normalized in 2000



Level

Rising business creation after the reform

Business creation per year, normalized in 2000, by tax schedule



in level | by bins | by taxable income

Business creation - Identification strategy

Goal: Estimate the effect of the tax cut on business creation

Challenge:

- → No good straightforward counterfactual
- → All the firms at the CIT are treated + nation-wide
- → Comparing creation at the PIT and CIT $\Longrightarrow$ SUTVA violation

Business creation - Identification strategy

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- → All the firms at the CIT are treated + nation-wide
- → Comparing creation at the PIT and CIT $\implies$ SUTVA violation

Idea:

- → Counties' preferences for CIT or PIT differ

$\iff$ Counties differ in their share of pre-reform affected firms

- → Use this as a **treatment intensity** variable

Business creation at the county-year level

→ **Treatment intensity**: pre-reform share of firms affected by the change in the marginal tax rate

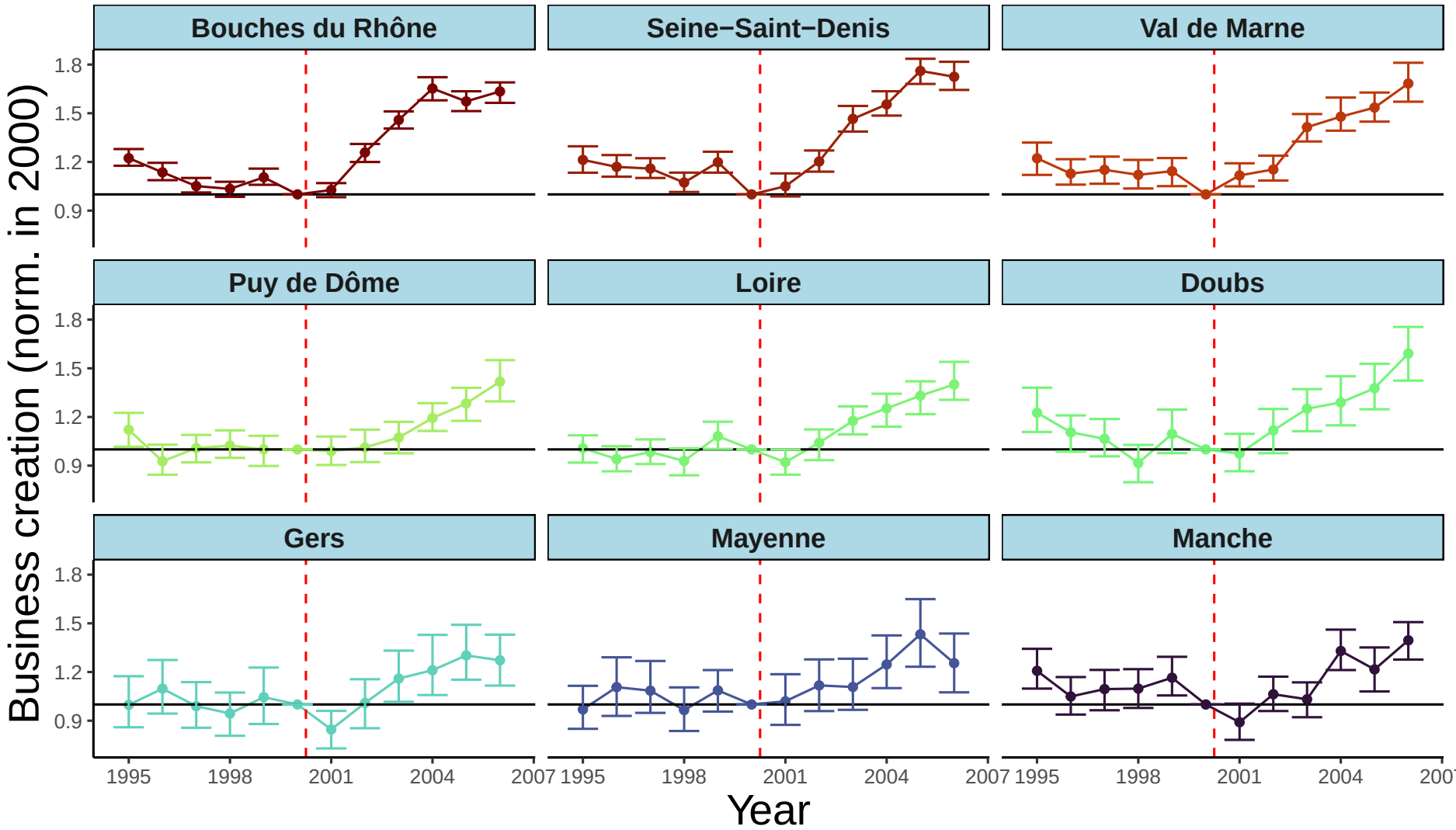
$$D_c = \frac{\text{Nb of companies at the CIT under the kink in county c}}{\text{Total number of companies in county c}}$$

→ D_c is the treatment exposure (continuous) of county c based on the pre-reform distribution of firms

Treatment intensity by county

Different trends of business creation after the reform across counties

Business creation, normalized in 2000, by counties



Business creation - PPML Regression

→ I use a TWFE PPML event-study design:

$$N_{ct} = exp\left(\gamma_c + \gamma_t + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \beta_k \times \mathbb{1}\left(t = k\right) \times D_c\right) \epsilon_{ct}$$

→ N_{ct} is business creation at the county c (French *département*) and year t

→ N_{ct} is a count variable → need to use PPML [Silva and Tenreyro, 2006, 2011]

→ (No incidental parameter problem since I only have two FEs [Weidner and Zylkin, 2021])

Business creation - PPML Regression

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$$N_{ct} = exp\left(\gamma_c + \gamma_t + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \beta_k \times \mathbb{1}\left(t = k\right) \times D_c\right) \epsilon_{ct}$$

→ The β_ks have a causal meaning **if**

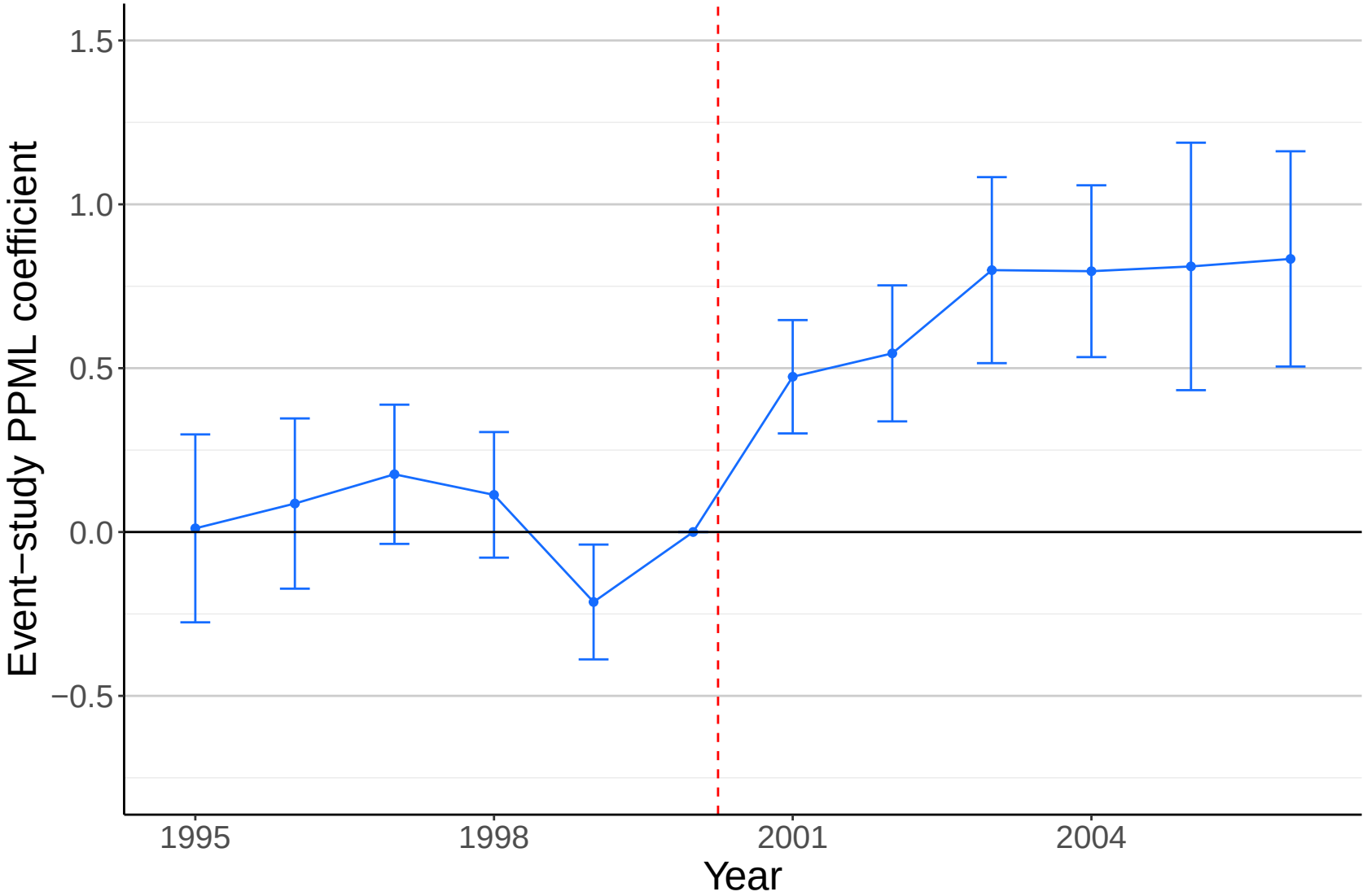
1. **(Multiplicative) Parallel trends**:

$$\forall d \in [0,1],\ \frac{\mathbb{E}\left[N_{ct}(0) \mid D_c = d\right]}{\mathbb{E}\left[N_{ct-1}(0) \mid D_c = d\right]} = \frac{\mathbb{E}\left[N_{ct}(0) \mid D_c = 0\right]}{\mathbb{E}\left[N_{ct-1}(0) \mid D_c = 0\right]}, \forall t \geq 2001$$

2. **No anticipation**: In the treated cells, there is no effect of the treatment prior to the treatment
   →The reform was announced late in 2000 during the budget bill debate

Large and positive effect after the reform

Event-study results



Multiplicative Parallel Trends | without Paris | with controls | OLS

Large and positive effect after the reform

	PPML				Log-OLS
	N_{rt}	N_{rt}	N_{rt}	N_{rt}	$\log(1+N_{rt})$
Post-treatment	0.704***	0.704***	0.703***	0.703***	0.621***
	(0.098)	(0.098)	(0.090)	(0.090)	(0.152)
Num.Obs.	1128	1128	1128	1128	1128
R2	0.973	0.945	0.486	0.458	0.989
R2 Within	0.042	0.253	0.462		0.047
Std.Errors	County	County	County	County	County
FE: County	X	X			X
FE: Year	X		X		X

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

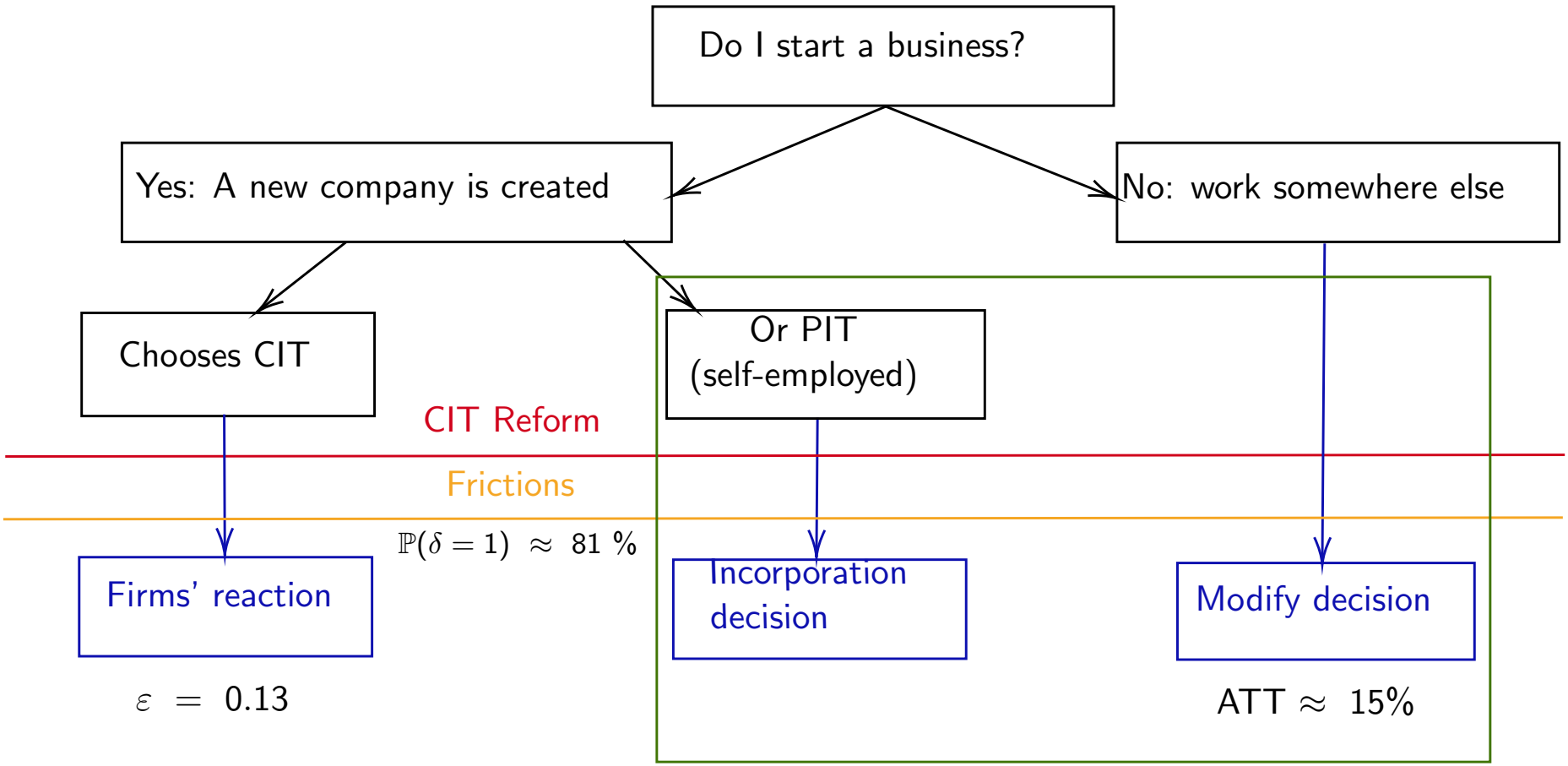
Threats to ID

$\Longrightarrow$ **15% increase wrt to no-reform counterfactual**

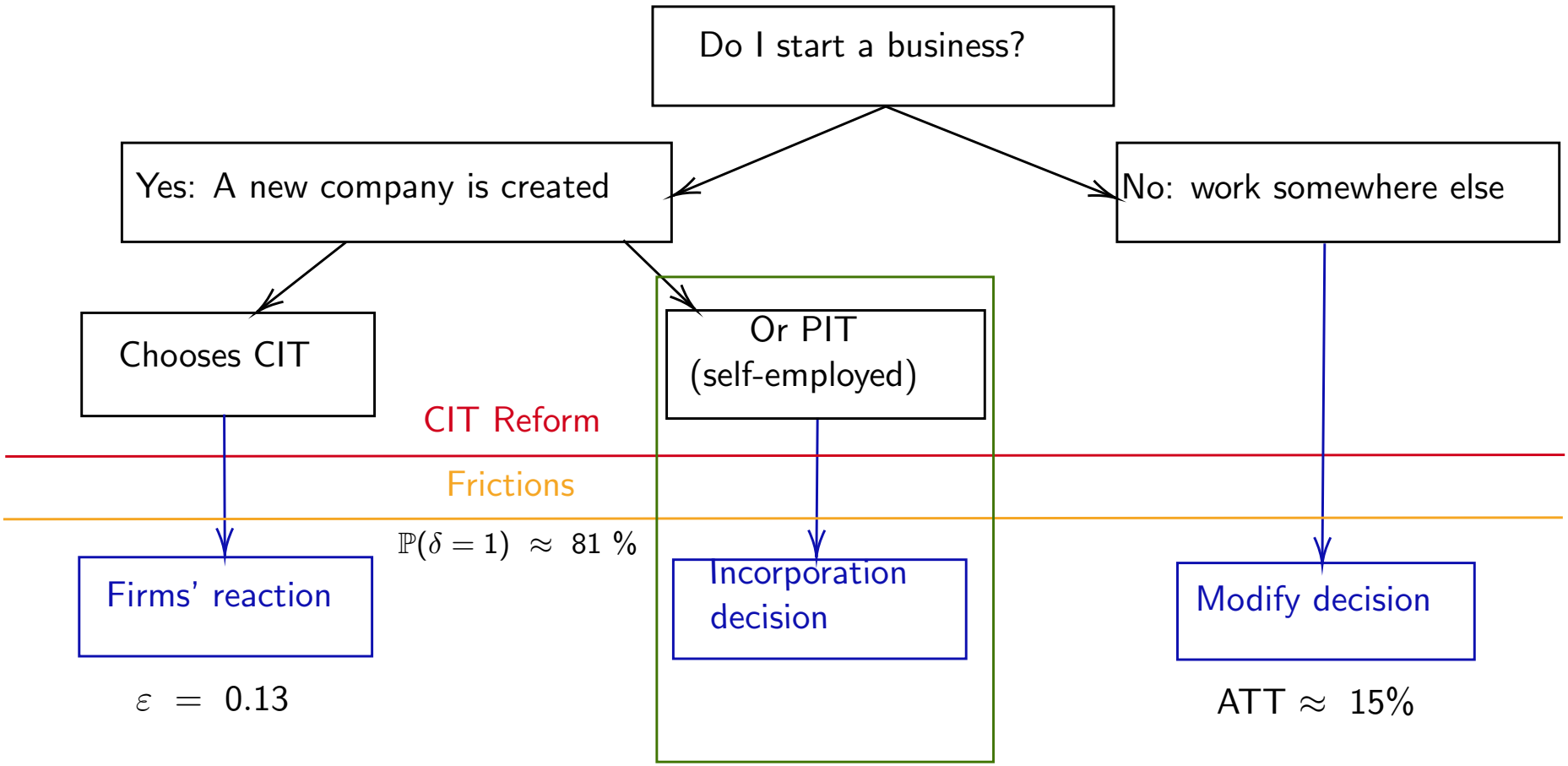
Robustness checks

- → Placebo treatment assignment: no effect ✓
- → Placebo treatment year: no effect ✓
- → Robust to adding controls:
  sales, fixed assets, taxable income, turnover ✓
- → Falsification test on entry at the PIT: no effect ✓
- → Absence of pre-trends ✓

The channels of the policy



The channels of the policy



Entity splitting

Entity splitting: an already existing firm creating a new legal structure without changing its production process, to split their revenues

Goal: estimate entity splitting

Challenge: no business-ownership data

Idea: use other data that *identify* ownership

Solution: family names and addresses

◂ Suggestive Evidence

How the data looks like & strategy

Year	Type	Name	Street name	Street nb	City
1998	Personal income tax	Ms X	av. Champs-Élysées	0	Paris
1999	Personal income tax	Ms X	av. Champs-Élysées	0	Paris
2000	Personal income tax	Ms X	av. Champs-Élysées	0	Paris
2001	Personal income tax	Ms X	av. Champs-Élysées	0	Paris
2001	Corporate income tax	LLC X & Sons	av. Champs-Élysées	0	Paris

- → Ms X has a company levied at the PIT called "Ms X"
- → in 2001 she decides to create a new entity
- → called "Limited Liability Company X & Sons
- → this time at the CIT
- → to benefit from the corporate tax cut

How the data looks like & strategy

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2001	Corporate income tax	LLC X & Sons	av. Champs-Élysées	0	Paris

Strategy:

$\rightarrow$ Match the new firms at the CIT with already existing ones at the PIT

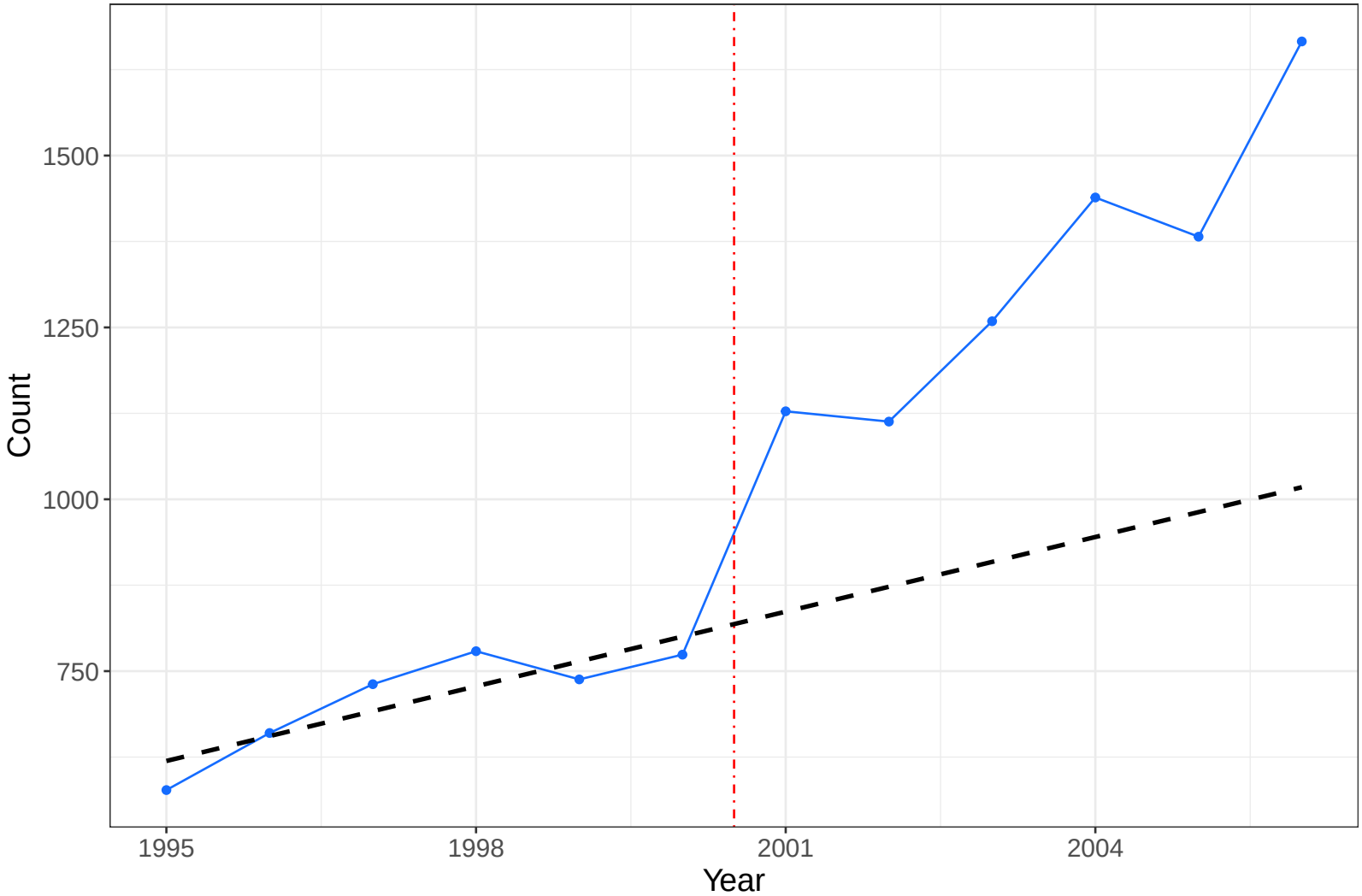
$\rightarrow$ by city, street name and number + family name

$\Longrightarrow$ Lower bound of entity splitting

$+$ (data only available for firms at the simplified regime)

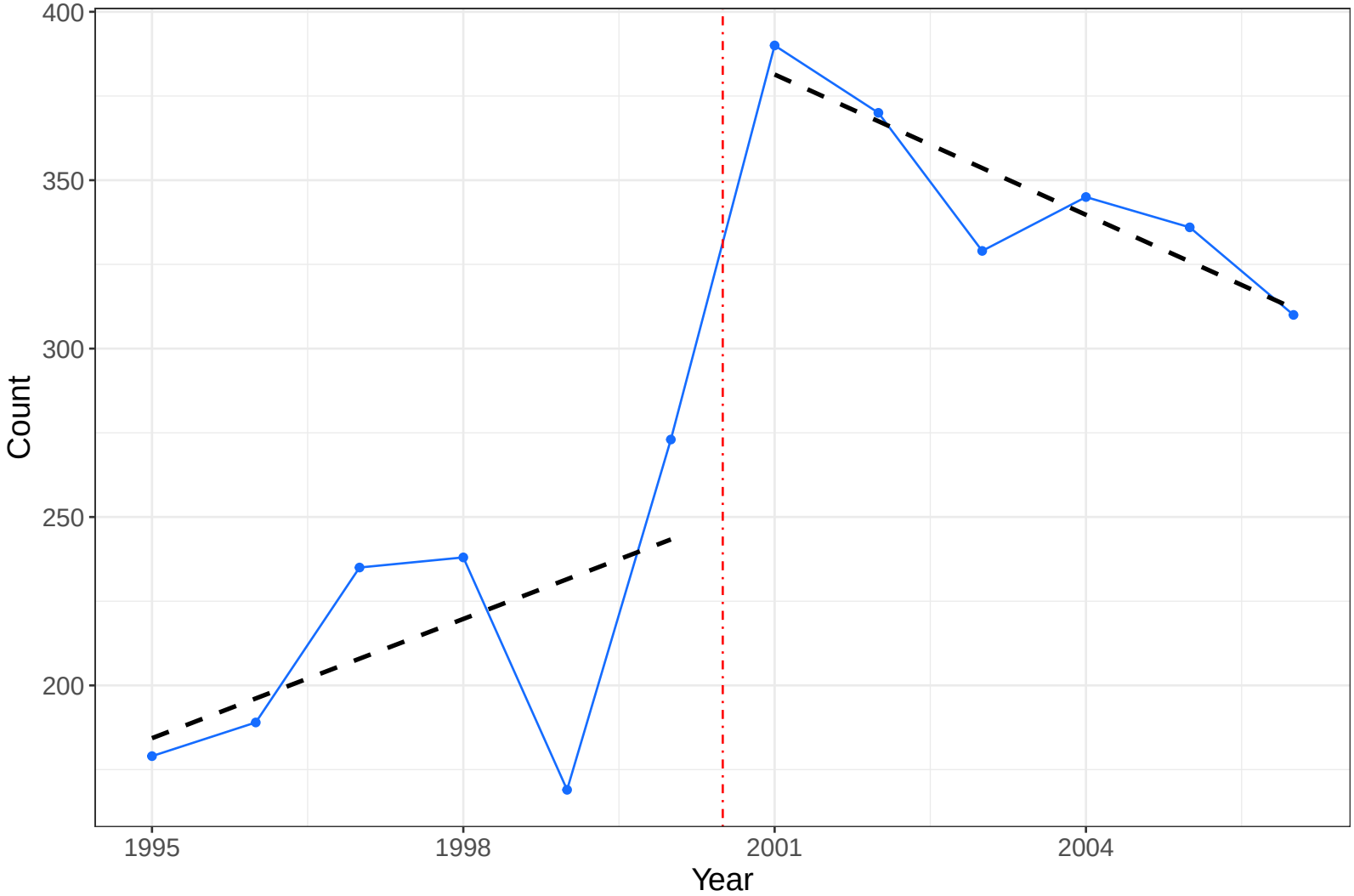
Rising number of firms at the same city, street name and number

Number of new firms at the CIT matched to existing PIT firms: city, street name and number



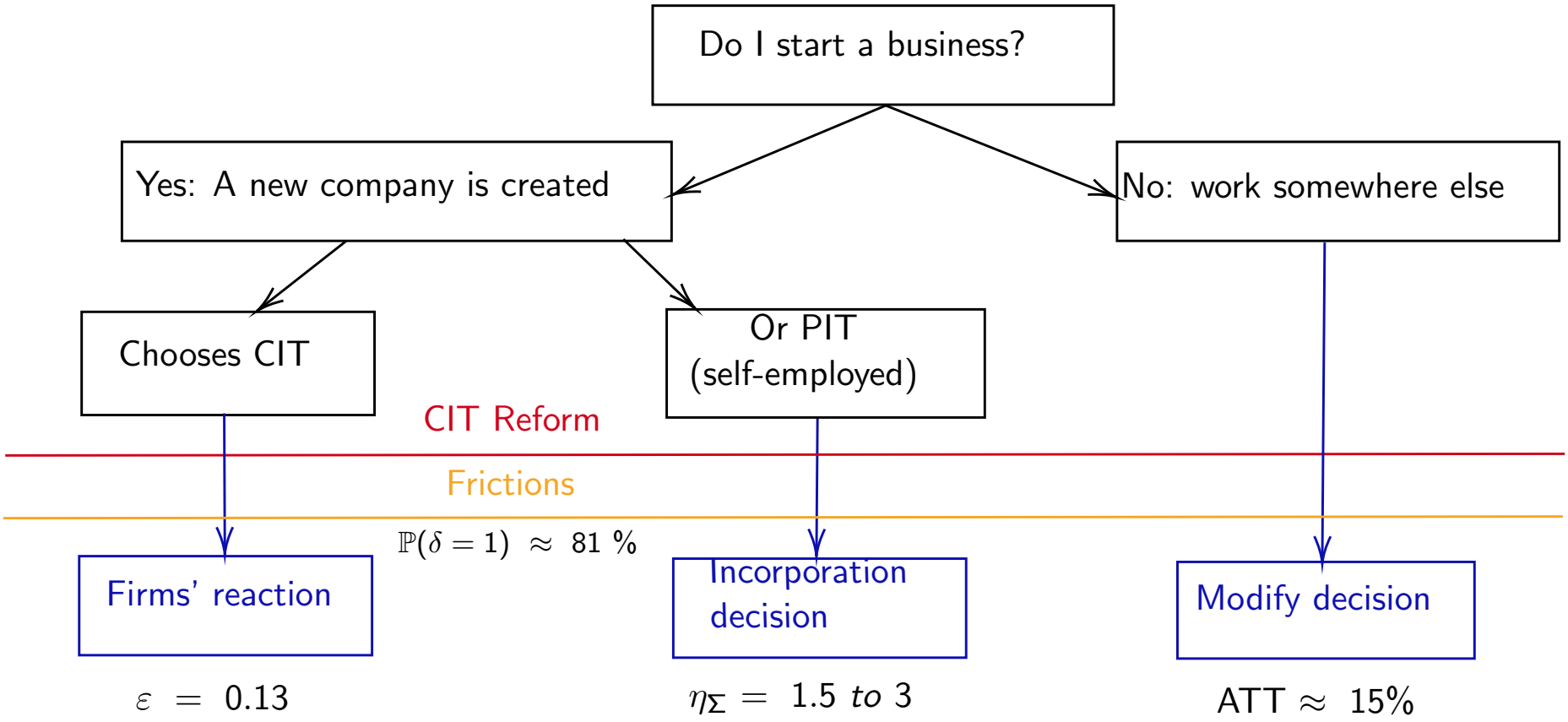
Increase in entity splitting (Lower Bound)

Number of new firms at the CIT matched to existing PIT firms: city, street name and number, family name



+40% in 2001 $\Longrightarrow$ elasticity of 1.5-3, but small in magnitude

The channels of the policy



Today's talk

1. Setting, Policy and Data
2. The intensive margin
3. Business creation and entity splitting
4. Welfare and policy implications

Extension of the standard CIT model

The standard framework

I extent the standard CIT framework of Devereux et al. [2014]:

$$\pi = y - c(y, \kappa) - Tax(z, \ )$$

- y denotes sales, c the cost, κ a productivity parameter [Scheuer, 2014, Bachas and Soto, 2021, Lobel et al., 2024]
- z is the taxable income
- Tax is a given tax function

Extension of the standard CIT model

The attention parameter

I extent the standard CIT framework of Devereux et al. [2014]:

$$\pi = y - c(y, \kappa) - Tax(z, \delta)$$

- → y denotes sales, c the cost, κ a productivity parameter [Scheuer, 2014, Bachas and Soto, 2021, Lobel et al., 2024]
- → z is the taxable income
- → Tax is a given tax function
- → δ the attention parameter [Farhi and Gabaix, 2020, Kostøl and Myhre, 2021, Boccanfuso and Ferey, 2023]
- → going to affect the reaction to a tax reform

Extension of the standard CIT model

The extensive margin

I extent the standard CIT framework of Devereux et al. [2014]:

$$\pi = y - c(y, \kappa) - Tax(z, \delta)$$

There exists some $\kappa(Tax)$

- → under which no firms enter, $\kappa < \kappa(Tax)$ (not productive enough)
- → above which they all enter, $\kappa > \kappa(Tax)$ (productive enough)
- → A tax reform will affect entry

Extension of the standard CIT model

Choice of tax schedule and splitting decision

- Firms can opt for
  1. $Tax = T$ for the CIT (benefit Γ)
  2. $Tax = \widetilde{T}$ for the PIT
- if at the PIT, they can decide to split and shift income
- $\widetilde{z}$ the shifted income [Selin and Simula, 2020]
- Σ is the cost of creating a new entity a the CIT
- $[\widetilde{T}(z - \widetilde{z}) - T(\widetilde{z}, 1)] - \widetilde{T}(z)$ is the gain from splitting

Graphs Back to the reform

Welfare

Overall welfare is the sum of the two sets of companies:

$$W = W^{CIT} + W^{PIT}$$

$$W^{CIT} = \int_{\kappa_i > \kappa(\tau)} \Big(\sum_{k=0}^{1} \overbrace{\mathbb{P}(\delta = k)}^{Attention} [\quad \overbrace{\pi_i + \mu \cdot T_i}^{\text{Value of one company}} \quad] \Big) dF_\kappa$$

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$$W^{PIT} = \int_{\kappa_i > \kappa(\tau)} \Big(\underbrace{\int_{\Sigma_i < \Sigma(\tau)} [\pi_i + \mu \cdot \widetilde{T}_i] dF_\Sigma}_{\text{Low cost of splitting}} + \underbrace{\int_{\Sigma_i > \Sigma(\tau)} [\pi_i + \mu \cdot \widetilde{T}_i] dF_\Sigma}_{\text{High cost}} \Big) dF_\kappa$$

Welfare

Overall welfare is the sum of the two sets of companies:

$$W = W^{CIT} + W^{PIT}$$

$$W^{CIT} = \int_{\kappa_i > \kappa(\tau)} \Big(\sum_{k=0}^{1} \overbrace{\mathbb{P}(\delta = k)}^{\textit{Attention}} [\quad \overbrace{\pi_i + \mu \cdot T_i}^{\text{Value of one company}} \quad] \Big) dF_\kappa$$

$$W^{PIT} = \int_{\kappa_i > \kappa(\tau)} \Big(\underbrace{\int_{\Sigma_i < \Sigma(\tau)} [\pi_i + \mu \cdot \widetilde{T}_i] dF_\Sigma}_{\text{Low cost of splitting}} + \underbrace{\int_{\Sigma_i > \Sigma(\tau)} [\pi_i + \mu \cdot \widetilde{T}_i] dF_\Sigma}_{\text{High cost}} \Big) dF_\kappa$$

How much does the welfare change after a change dM of the tax revenues?

Welfare

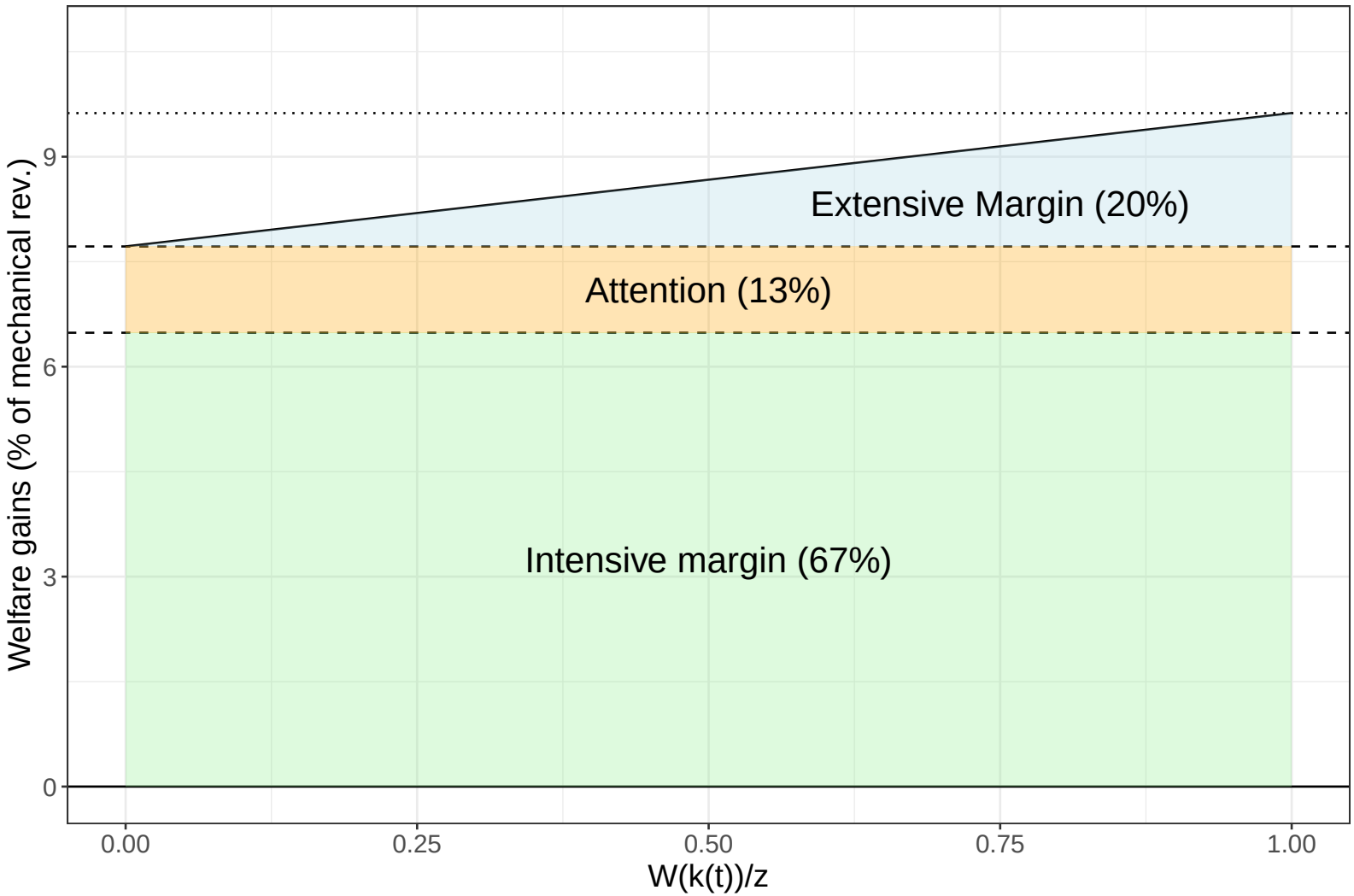
$$\frac{dW}{\mu \cdot dM}\Big|_{\mu=1} = \overbrace{\frac{(\tau - \widetilde{\tau})}{1-\tau} \cdot \widetilde{\epsilon} - \frac{\tau}{1-\tau} \cdot \underbrace{\mathbb{P}(\delta = 1)}_{\text{Attention/Learning}} \cdot \epsilon}^{\text{Intensive margin}}$$
$$\underbrace{- \frac{W(\kappa(\tau))}{\overline{z}} \cdot \eta_\kappa \cdot (1 - F_\kappa(\kappa(\tau)))}_{\text{Extensive margin}}$$

Welfare

$$\left.\frac{dW}{\mu \cdot dM}\right|_{\mu=1} = -0.18 \times 0.07 - 0.5 \times 0.81 \times 0.13 - \frac{W(\kappa(\tau))}{\overline{z}} \times 0.15 \times 0.13$$

1. $\mathbb{P}(\delta = 1) = 0.81$
2. $\bar{\varepsilon} = 0.13$
3. $\eta_\kappa = ATT = 0.15$
4. $\bar{\widetilde{\varepsilon}} = 0.07$ [Tazhitdinova, 2020]
5. $1 - F_\kappa(\kappa(\tau)) = 0.13$ Entrepreneurs over workforce [Insee, 2025]

Decomposition of the welfare gains



Welfare gains = 9.6% of the mechanical revenue

Optimal corporate tax rate

Conclusion

1. **Inattention among firms is real**
   - 19% of firms affected by tax variation are inattentive (upper bound)
   - inattention is the largest source of friction in the short-run
   - can reduce welfare gains by 13%

2. **Business entry responses are postive & large after a tax cut**
   - +15% of business entry
   - but mitigated by entity splitting

3. **Extended the standard sufficient statistic approach to include these channels**

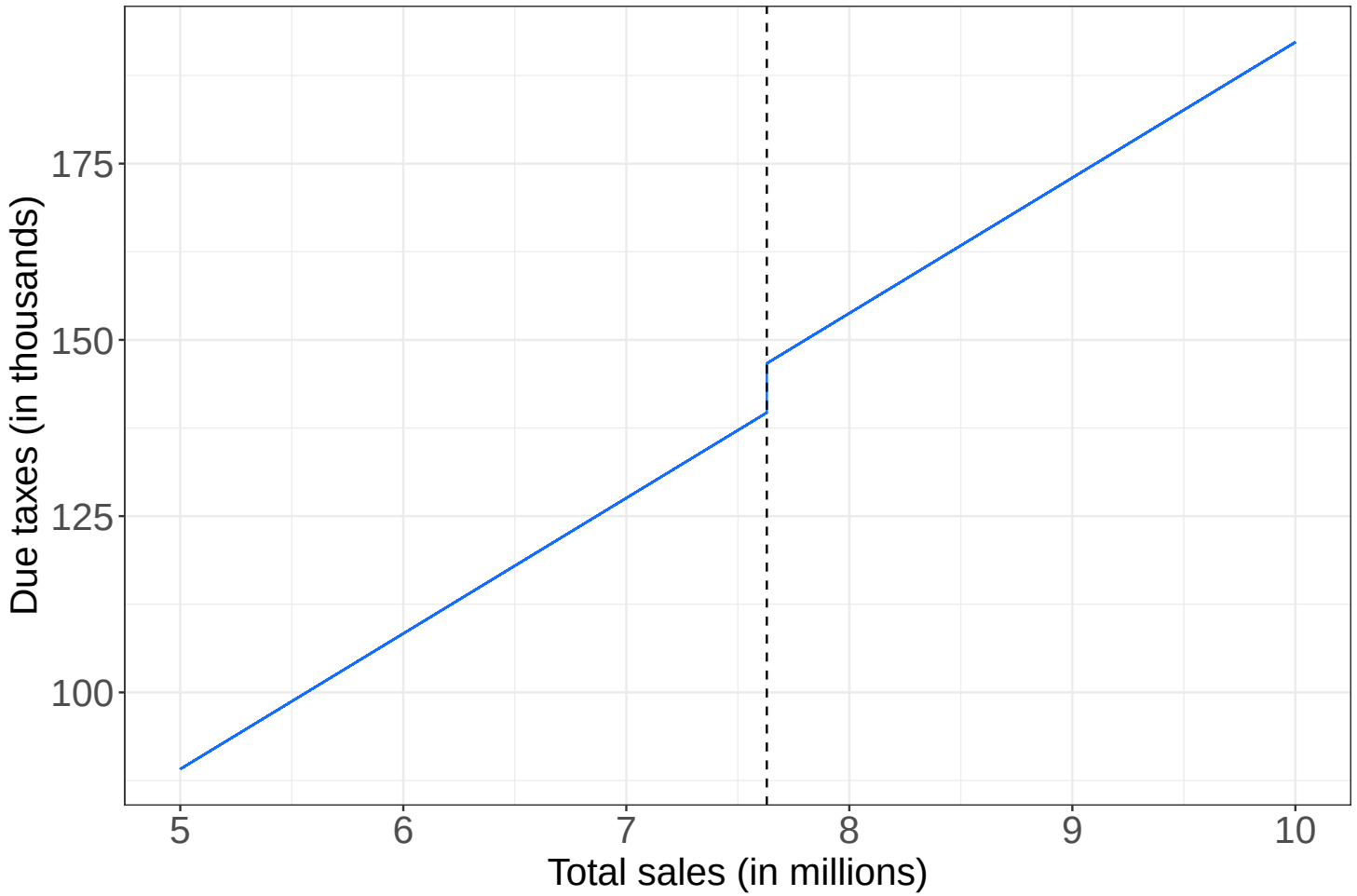
Thank you!

Non-linear Corporate Income Tax: Learning, intensive and extensive margins

Théo Valentin

CREST - ENSAE

Website: valentintheo.github.io
Mail: theo.valentin@ensae.fr



$$\tilde{T}(x) = T(x) \cdot \mathbb{1}(Sales \leq 7.63m) + 0.33 \cdot x \cdot \mathbb{1}(Sales > 7.63m)$$

◂ Return

Setting - The reduced CIT rate in France

Exposé des motifs :

Il est proposé d'instituer un dispositif réduisant progressivement à 15 % le taux d'impôt sur les sociétés pour les petites entreprises afin d'améliorer leurs fonds propres.

Proposition to introduce a phased-in decrease of the corporate income tax rate for small companies to 15% to raise their equity capital

Source: 2001 Budget bill, Explanatory statement

◂ Go back

Setting - The reduced CIT rate in France

- la **suppression du taux réduit de 15 % applicable aux premiers 38 120 € de bénéfices des petites et moyennes entreprises**, dont le coût est évalué à 2,64 Md€ pour 2016[165] alors que sa justification économique est loin d'être évidente (cf. III-B-1-b). Si ce taux était aligné sur un taux normal de 25 %, le surcroît de recette serait de l'ordre de 1,47 Md€. Toutefois, cet alignement nécessiterait sans doute un étalement dans le temps, si bien que le surcroît de recettes ne serait constaté que de façon progressive.

Proposition to remove the reduced tax rate, as its economic efficiency grounds are far from straightforward.

Source: Report on the CIT, Tax and Social Charges Board (Conseil des prélèvements obligatoires), 2016

◂ Go back

Setting - The reduced CIT rate in France

L'article 18 de la loi n° 2020-1721 du 29 décembre 2020 de finances pour 2021 modifie le plafond de chiffre d'affaires ouvrant droit au bénéfice du taux réduit d'impôt sur les sociétés prévu au b du I de l'article 219 du code général des impôts.

Pour les exercices ouverts à compter du 1er janvier 2021, le bénéfice du taux réduit d'imposition de 15 % est ouvert aux entreprises qui réalisent un chiffre d'affaires n'excédant pas 10 000 000 € (contre 7 630 000 € antérieurement). Les autres conditions d'application de ce régime ne sont pas modifiées.

› **Article 37**

Le I de l'article 219 du code général des impôts est ainsi modifié :
1° Au premier alinéa du b, le montant : « 38 120 € » est remplacé par le montant : « 42 500 € » ;
2° A la dernière phrase du premier alinéa du f, le montant : « 38 120 € » est remplacé par le montant : « 42 500 € ».

→ Double expansion of the reduced rate in 2021 and 2023

Source: 2021 & 2023 Budget bills

Go back

More descriptive statistics

Structure of the dataset

	Total	Simplified	Incorporated	Sales below notch
Fraction (%)	100	56.98	47.71	94.5
Number	1,807,501	1,029,868	822,324	1,708,120
	Negative Tax. Inc.	**Zero Tax. Inc.**	**Tax. Inc. below kink**	**Tax. Inc. below 100k**
Fraction (%)	13.41	13.15	78.49	89.52
Number	242,329	237,646	1,418,701	1,617,988

Return

More descriptive statistics

Descriptive statistics of the affected firms (below the notch)

	Tax. Inc.	Sales	Nb of employees	Sales per employee
Average	26,298	630,912	6	89,864
Median	3,772	238,000	3	58,049
Std. Errors	5,269	1,374	0	339
Number	728,029	728,029	728,029	728,029
	Current assets	**Fixed assets**	**Dividends**	**Debts**
Average	323,625	346,737	6,253	362,479
Median	62,555	86,072	0	130,290
Std. Errors	44,422	157,906	3,799	123,159
Number	728,029	728,029	728,029	728,029

Return

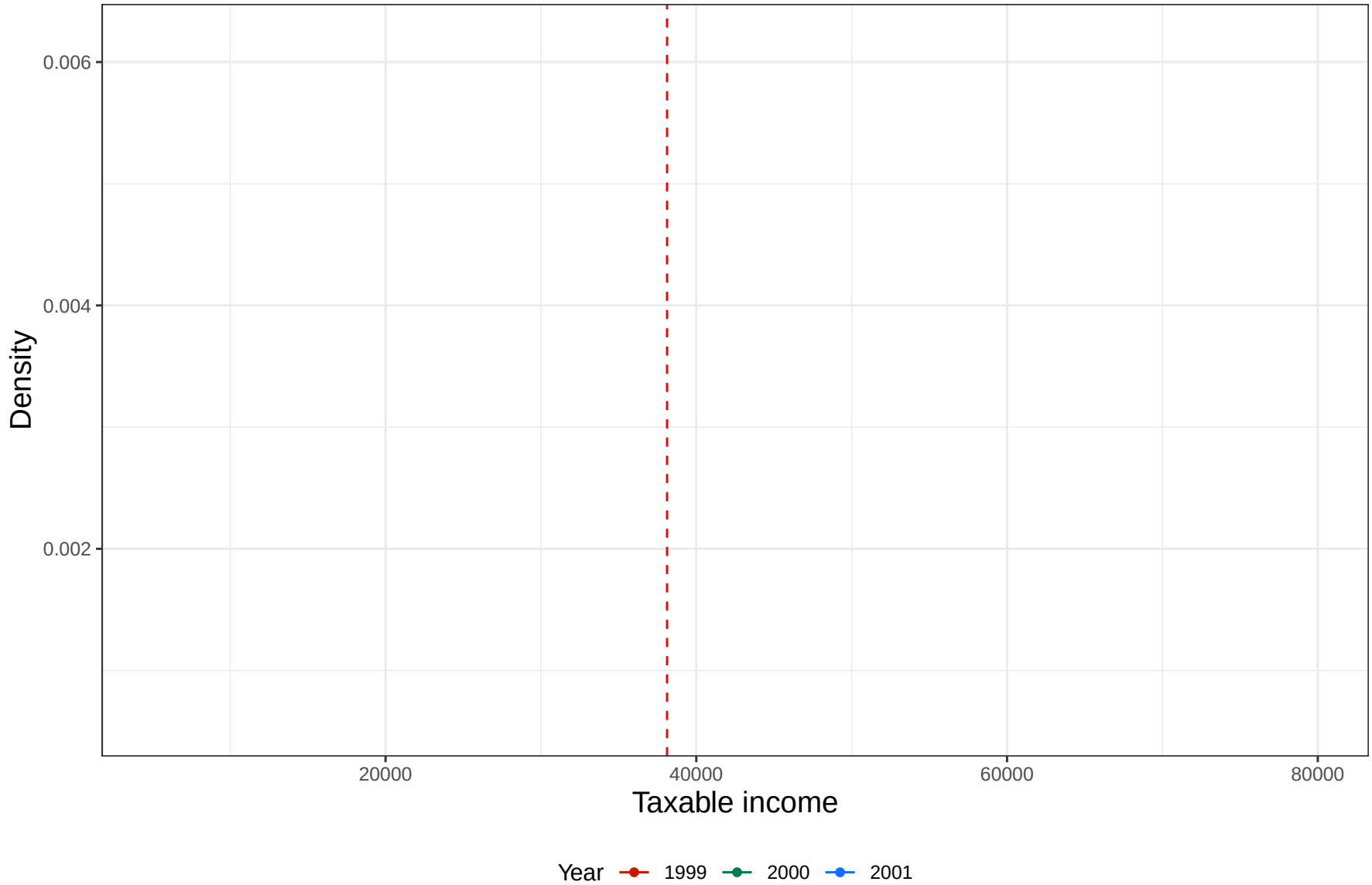
More descriptive statistics

Descriptive statistics of the affected firms (below the kink)

	Tax. Inc.	Sales	Nb of employees	Sales per employee
Average	12,217	389,751	4	77,000
Median	9,756	220,000	3	56,907
Std. Errors	19	1,301	0	346
Number	283,005	283,005	283,005	283,005
	Current assets	**Fixed assets**	**Dividends**	**Debts**
Average	136,852	151,862	1,659	169,455
Median	45,189	70,140	0	92,780
Std. Errors	7,201	5,762	103	8,355
Number	283,005	283,005	283,005	283,005

Return

Bunching evidence - Taxable income distribution



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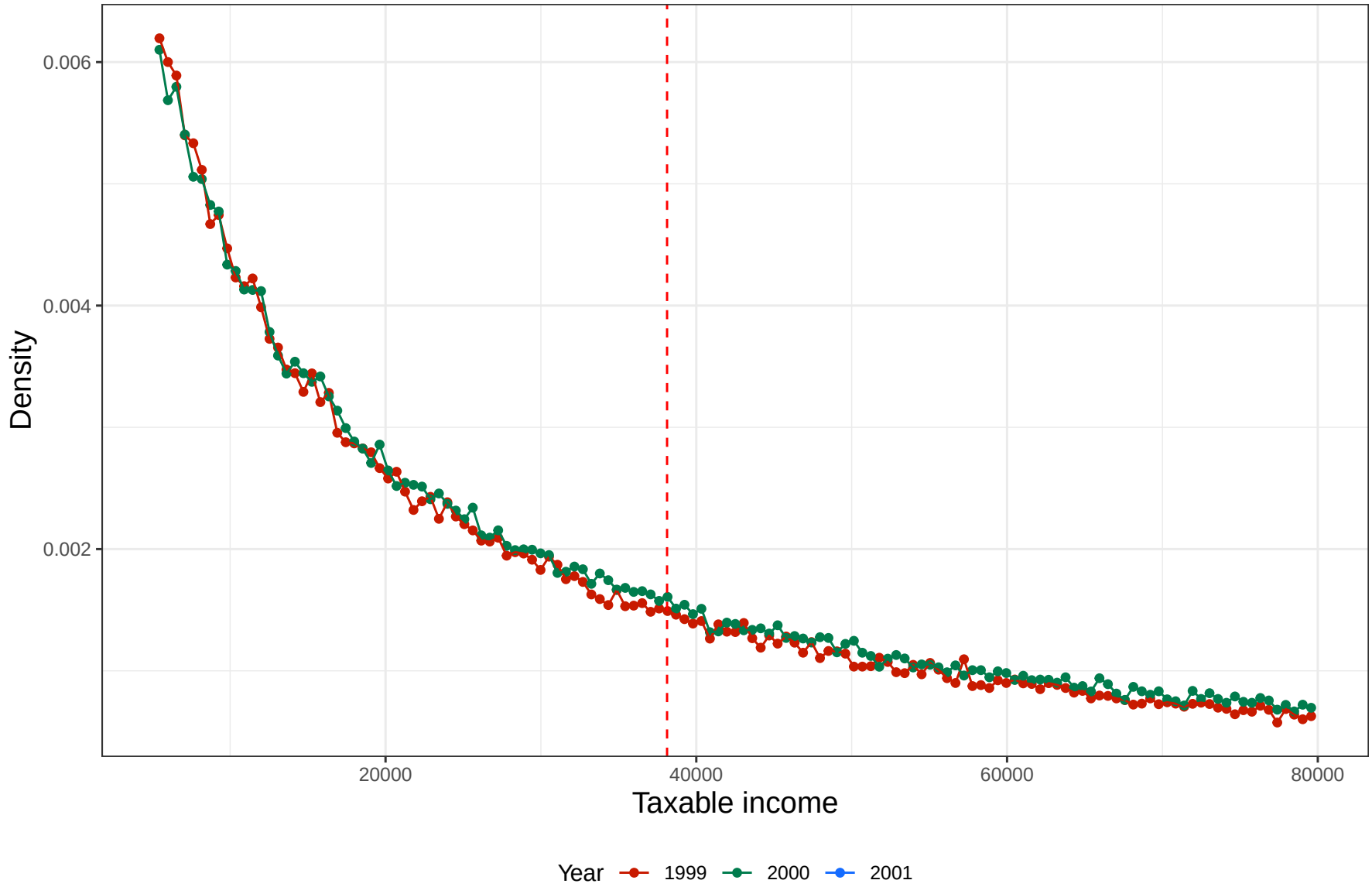

◂ Return

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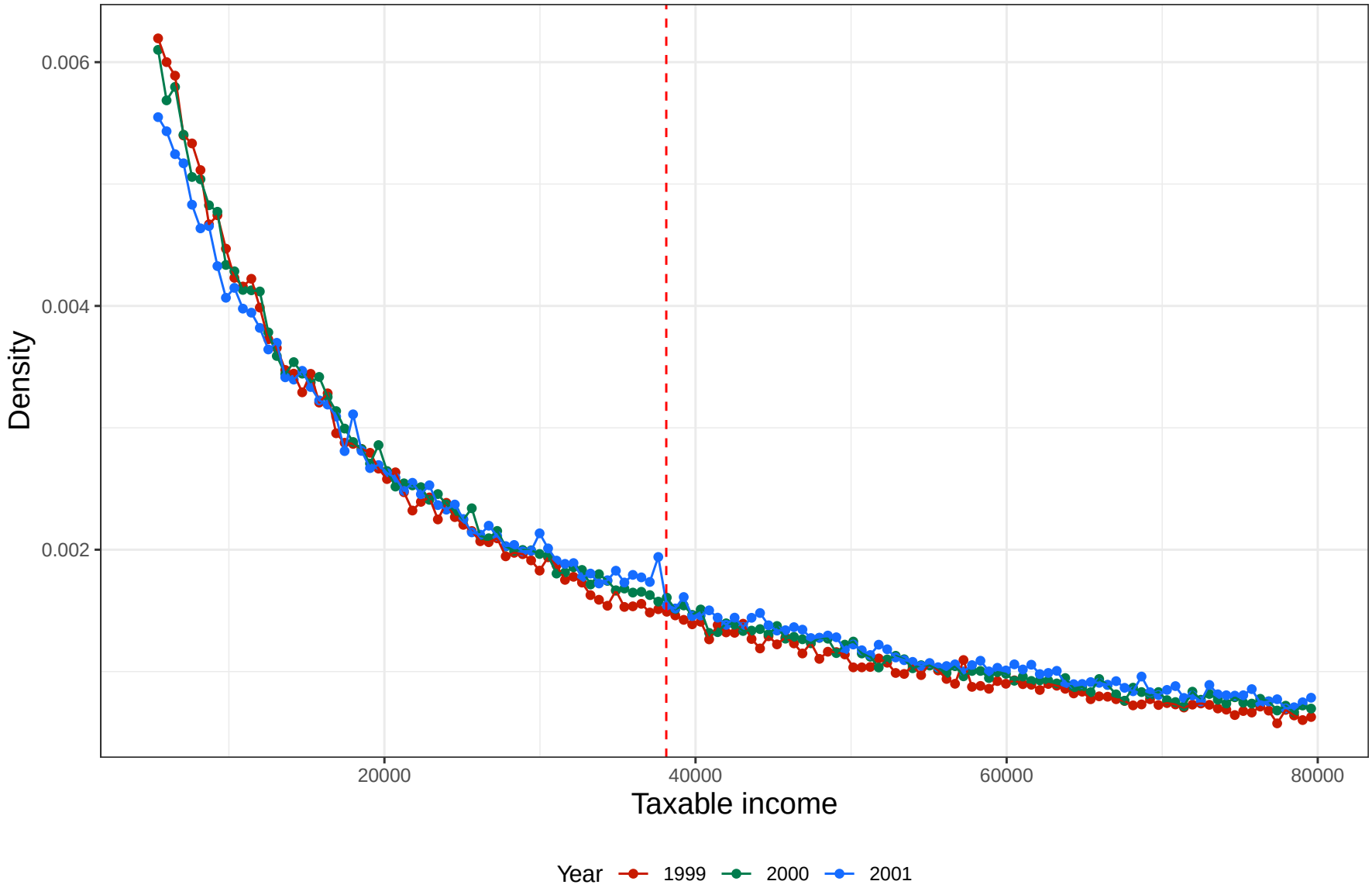

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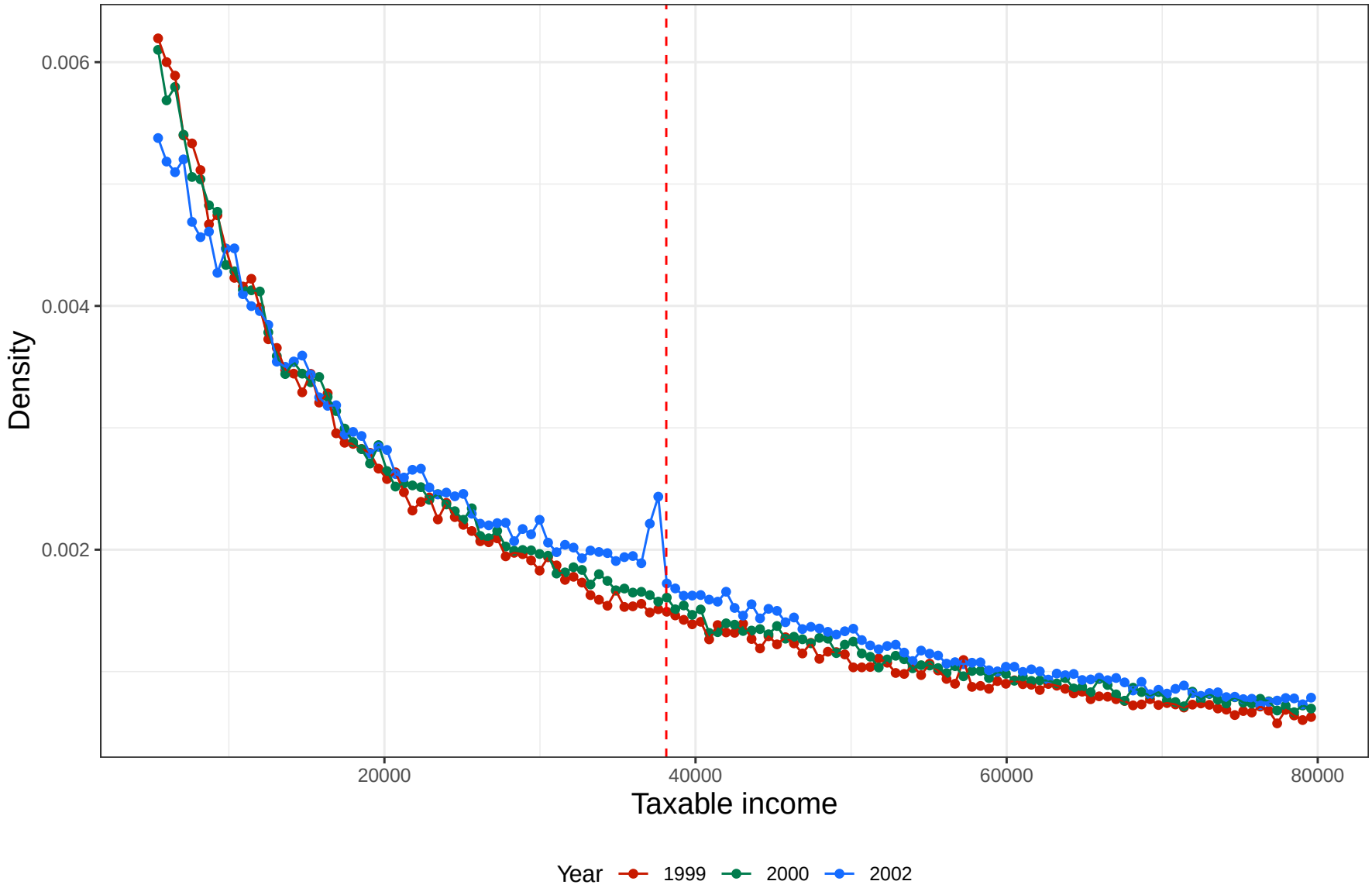

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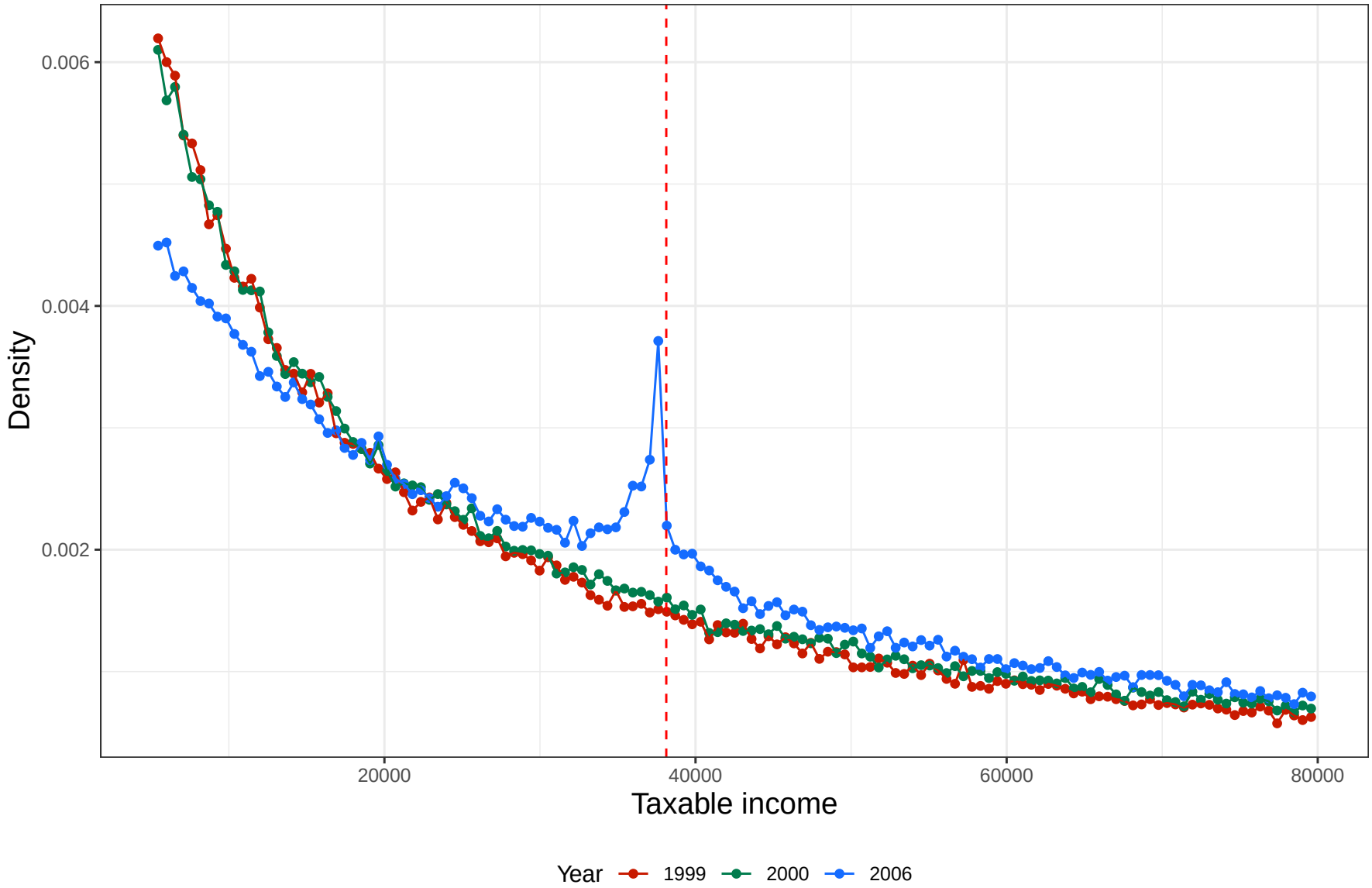
Bunching evidence - Taxable income distribution



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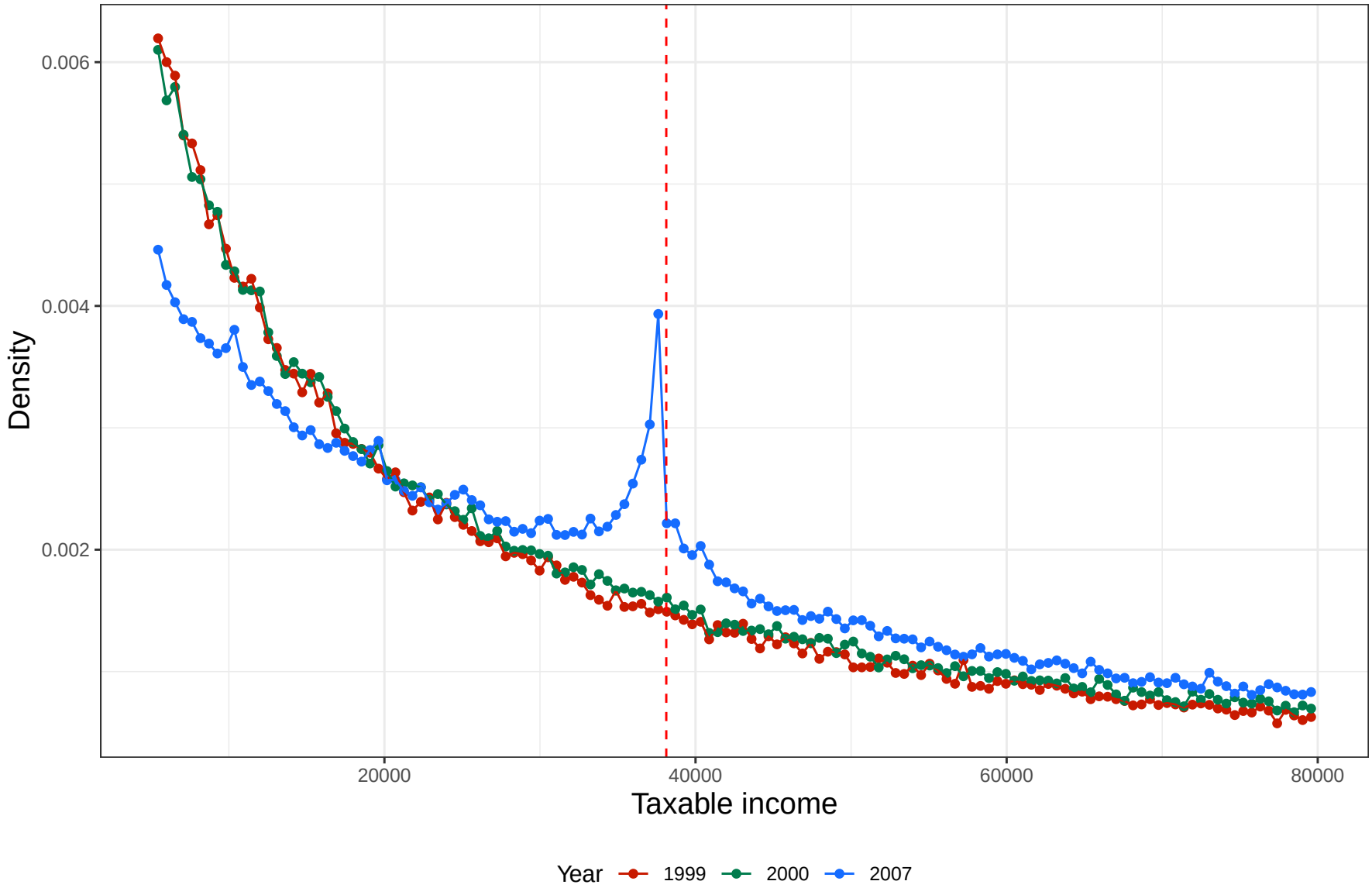

◂ Return

Identification of the elasticity

Goal: find a good counterfactual for post-reform h_t^0

Assumption

Denote h_t the observed distribution in year t, h_t^0 the counterfactual one,

1. *before the reform, $h_t(z) = h_t^0(z)$, $\forall z$;*
2. *after the reform, given some $\eta > 0$ and $j \in \mathbb{N}$, there exists $\alpha_j \in \mathbb{R}$ such that $h_t^0(z) = \alpha_j \cdot h_{t-j}(z)$ for all $z \in [z - \eta, z + \eta]$.*

Under this assumption:

→ possible to recover a scale factor (α_j) to link pre-reform distribution ($t - j$) to post-reform counterfactuals (t)

→ using the part of the distribution unaffected by the reform ($z > k$)

Identification of the elasticity

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I define

$$\widehat{\alpha}_j = \frac{\sum_{z=k^+}^{z_{max}} h_t(z)}{\sum_{z=k^+}^{z_{max}} h_{2000}(z)}$$

Learning - Timing of tax downpayments

Firms pay tax downpayments quarterly, based on the previous year's due taxes

In May of each year, they have to fill in accounting documents (the *liasses fiscales*) and send them to the tax administration

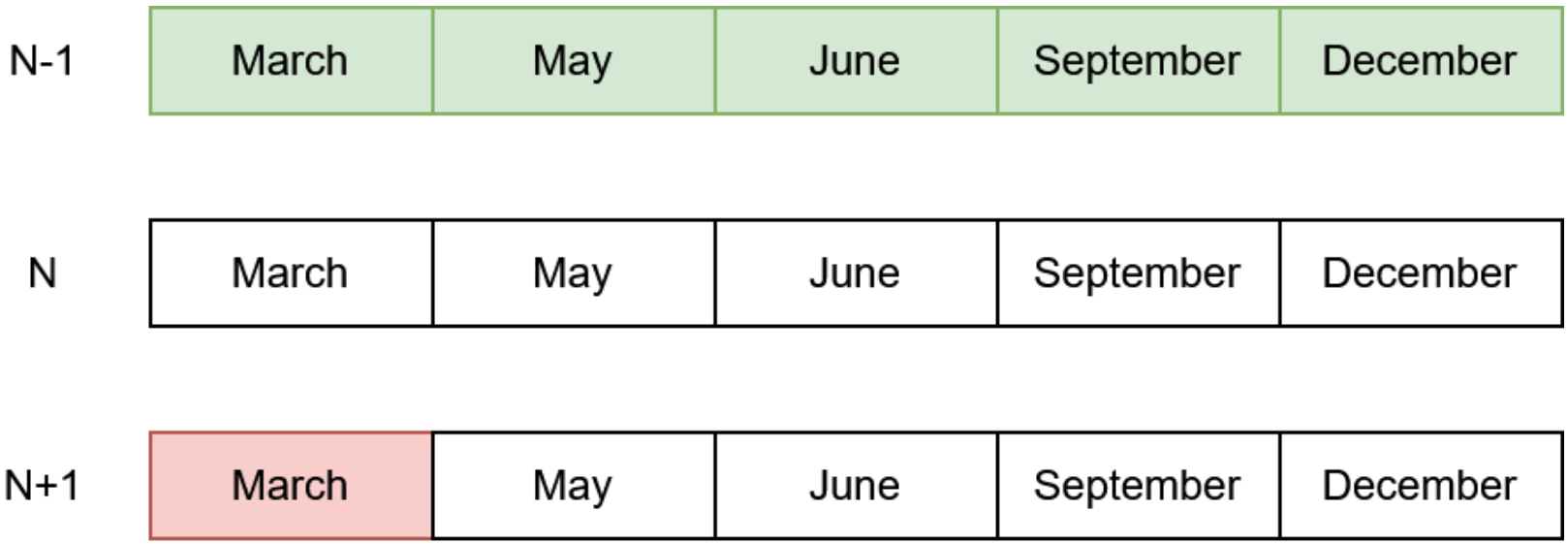
◂ Go back

Learning - Timing of tax downpayments

N-1	March	May	June	September	December
N	March	May	June	September	December
N+1	March	May	June	September	December

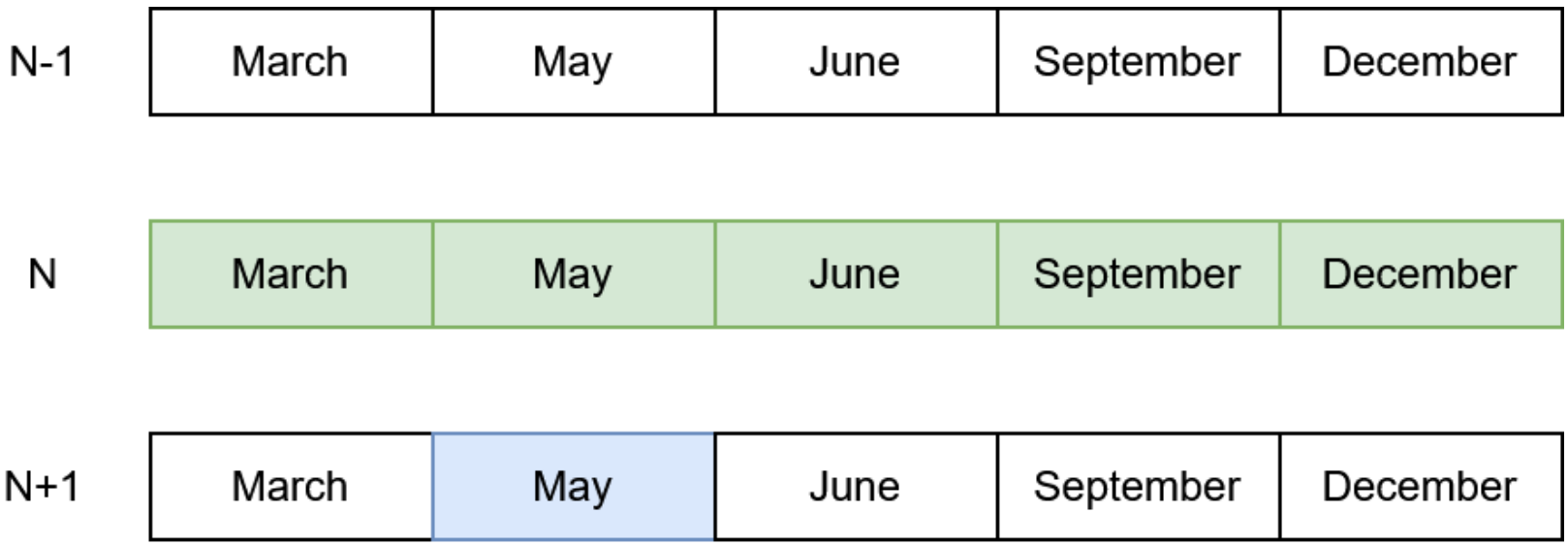
◂ Go back

Learning - Timing of tax downpayments



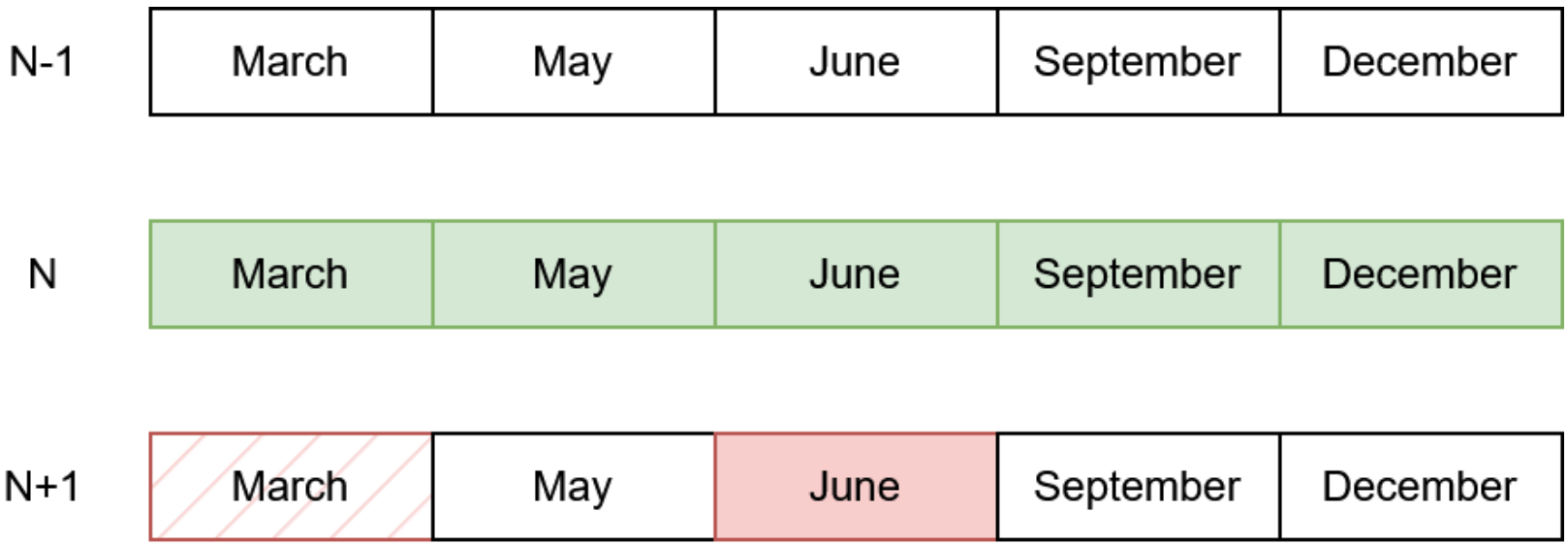
Go back

Learning - Timing of tax downpayments



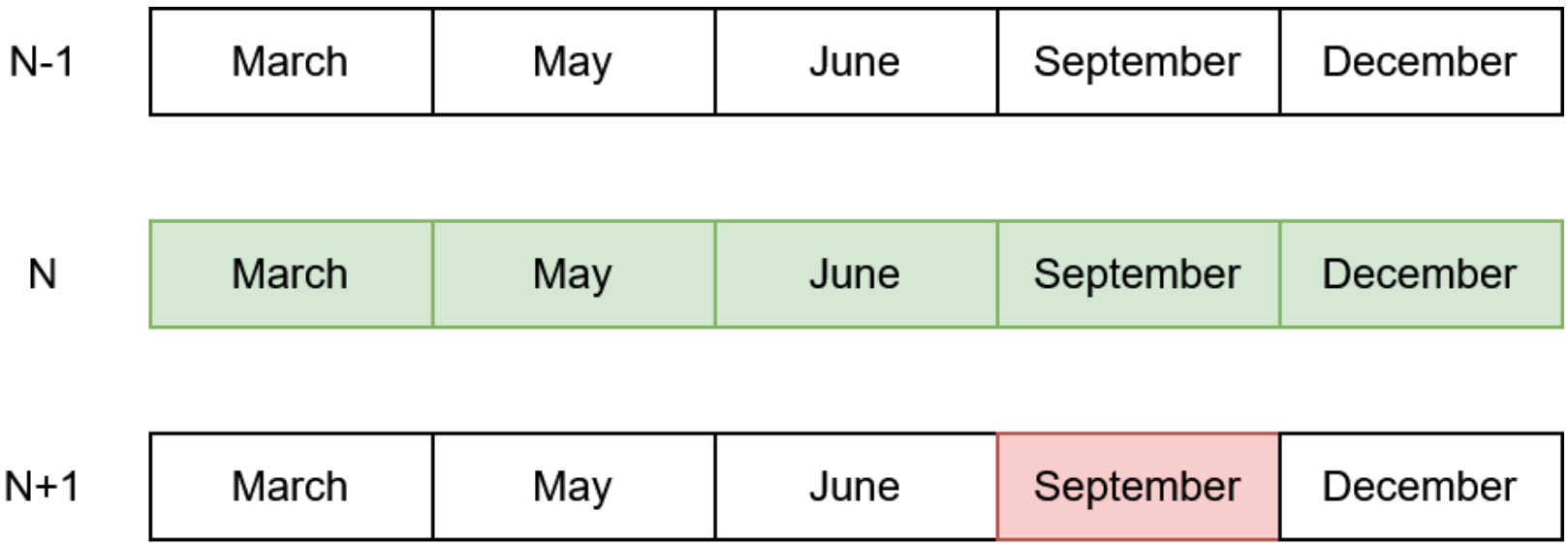
Go back

Learning - Timing of tax downpayments



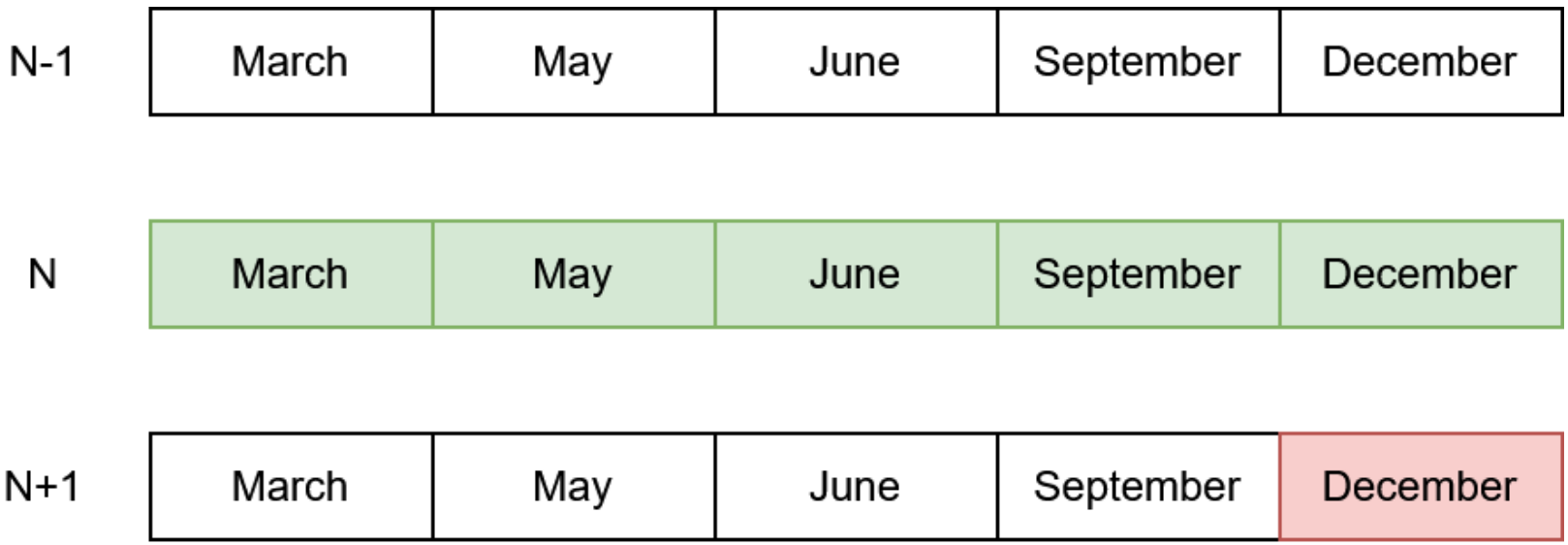
Go back

Learning - Timing of tax downpayments



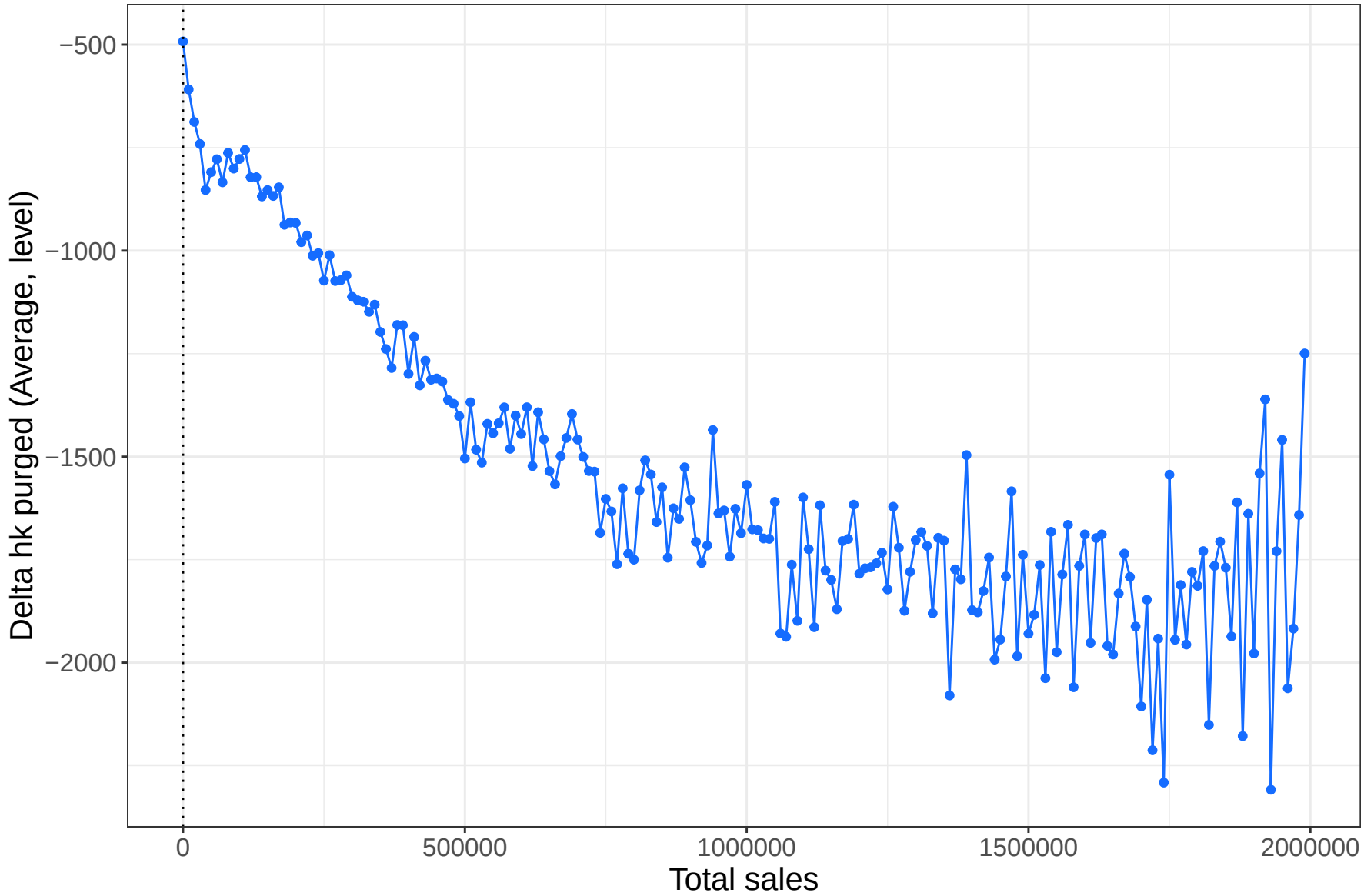
Go back

Learning - Timing of tax downpayments



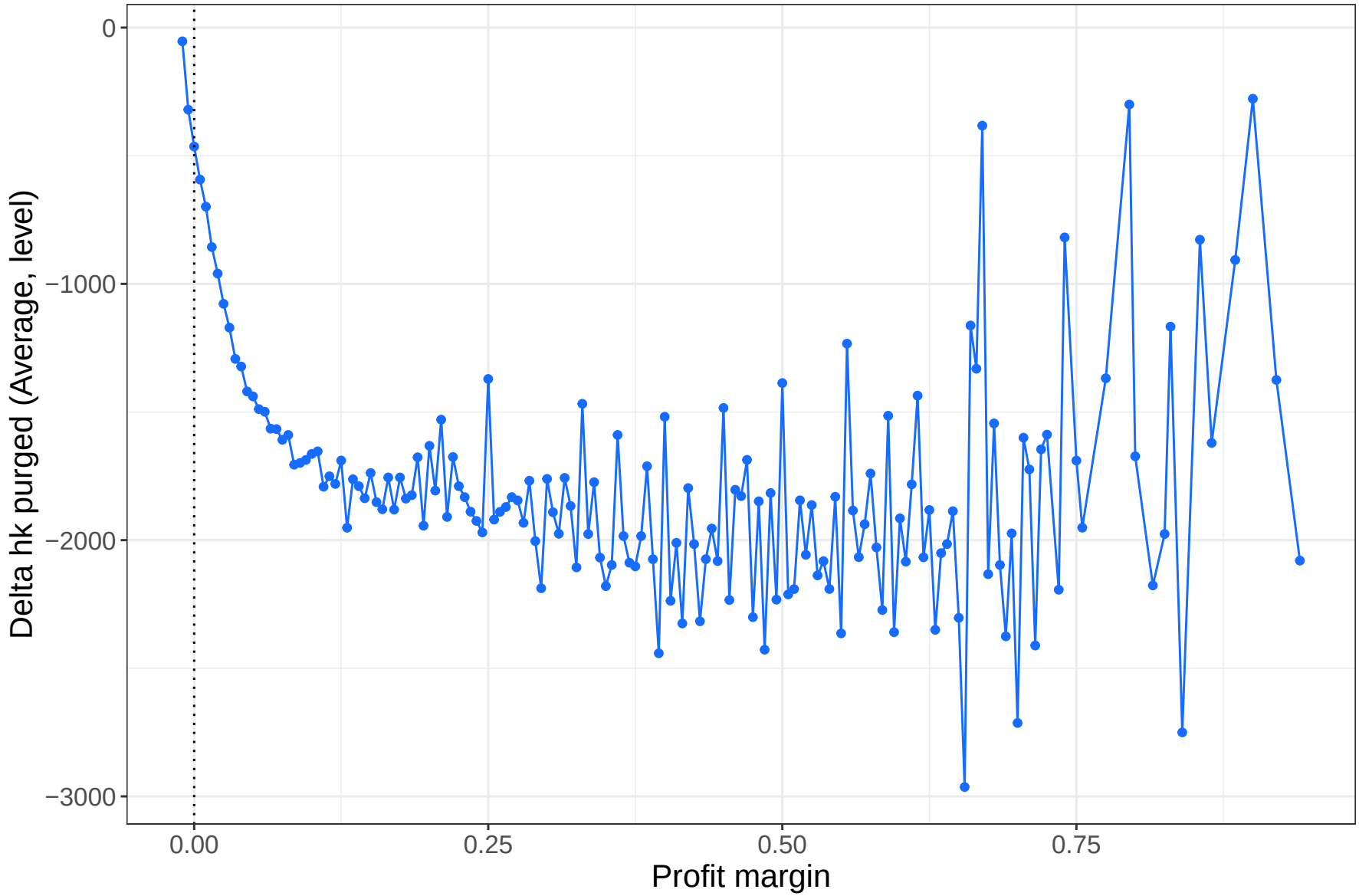
Go back

Learning - by sales in 2001 (contemporaneous)



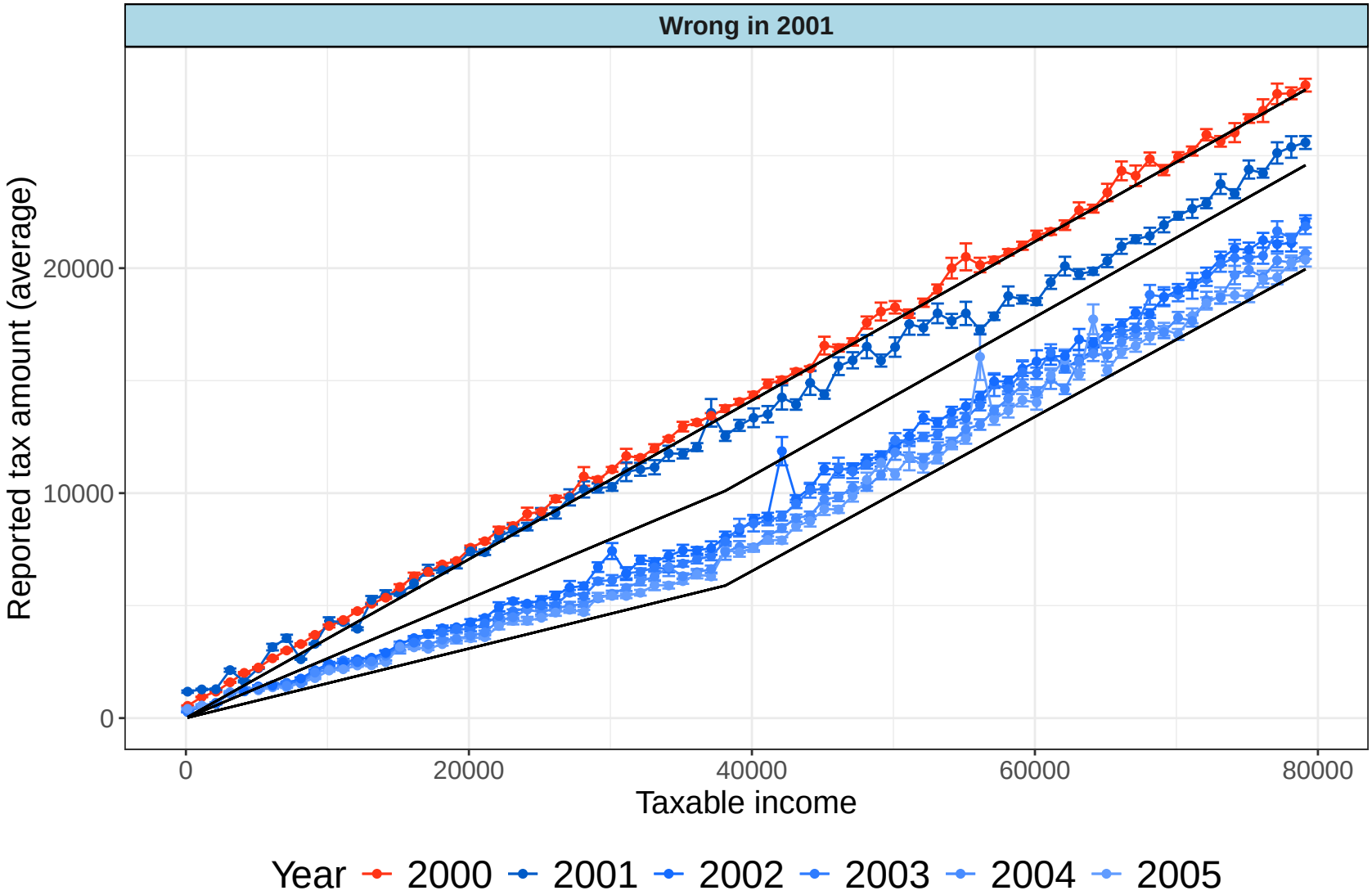
◂ Return

Learning - by profit margin in 2001 (contemporaneous)



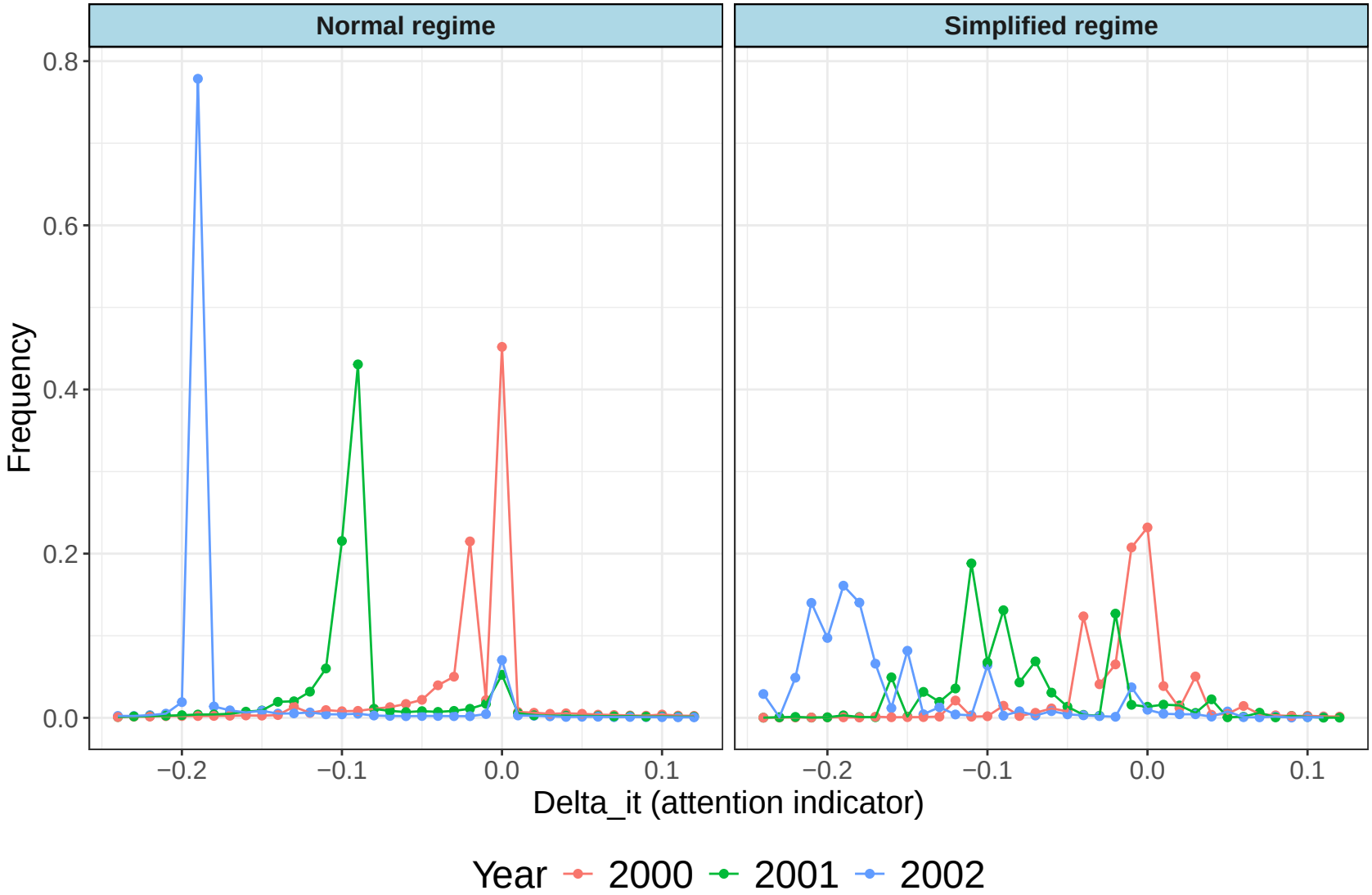
◂ Return

Learning



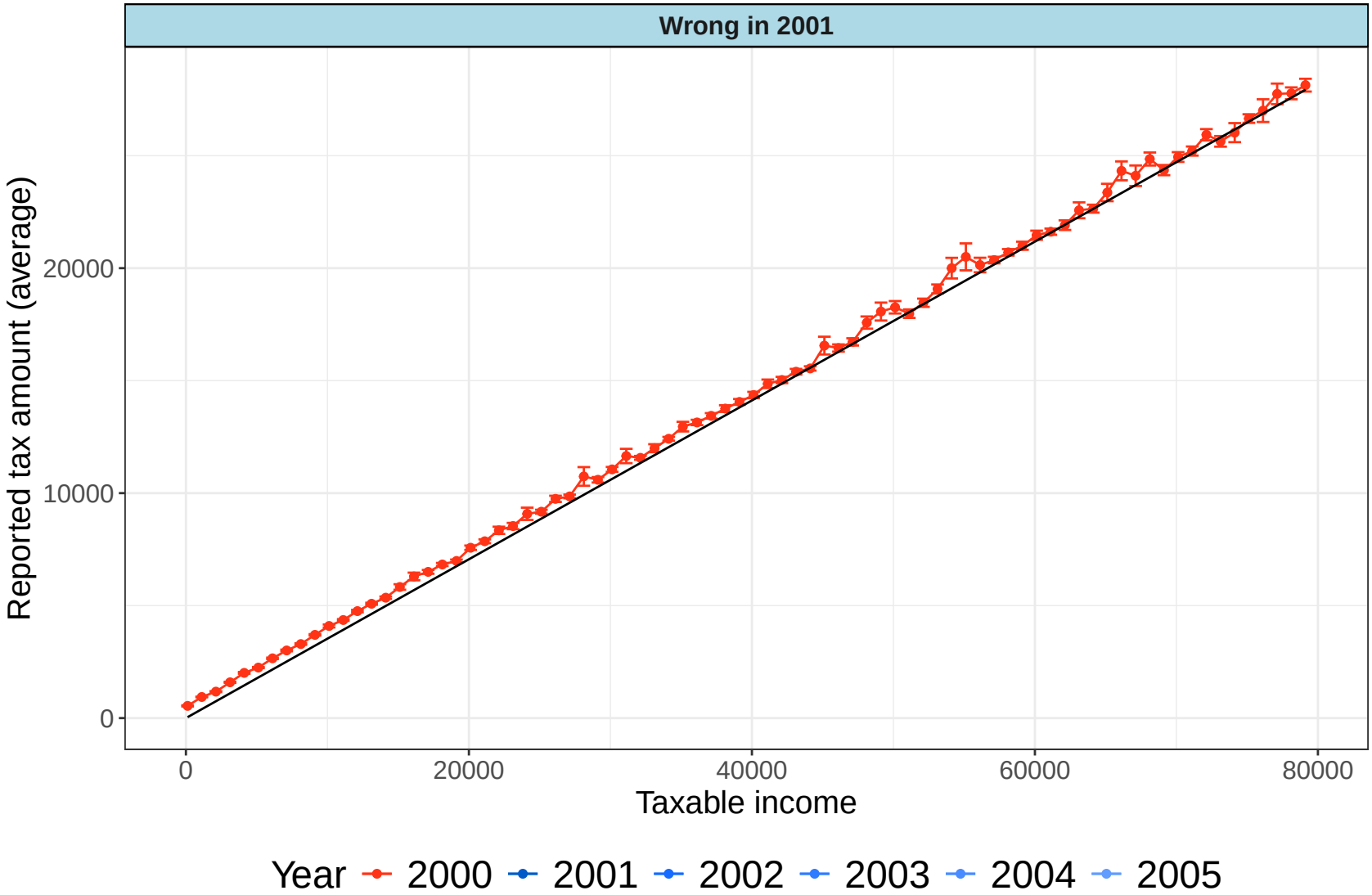
◂ Return

Distribution of attention for normal and simplified regime



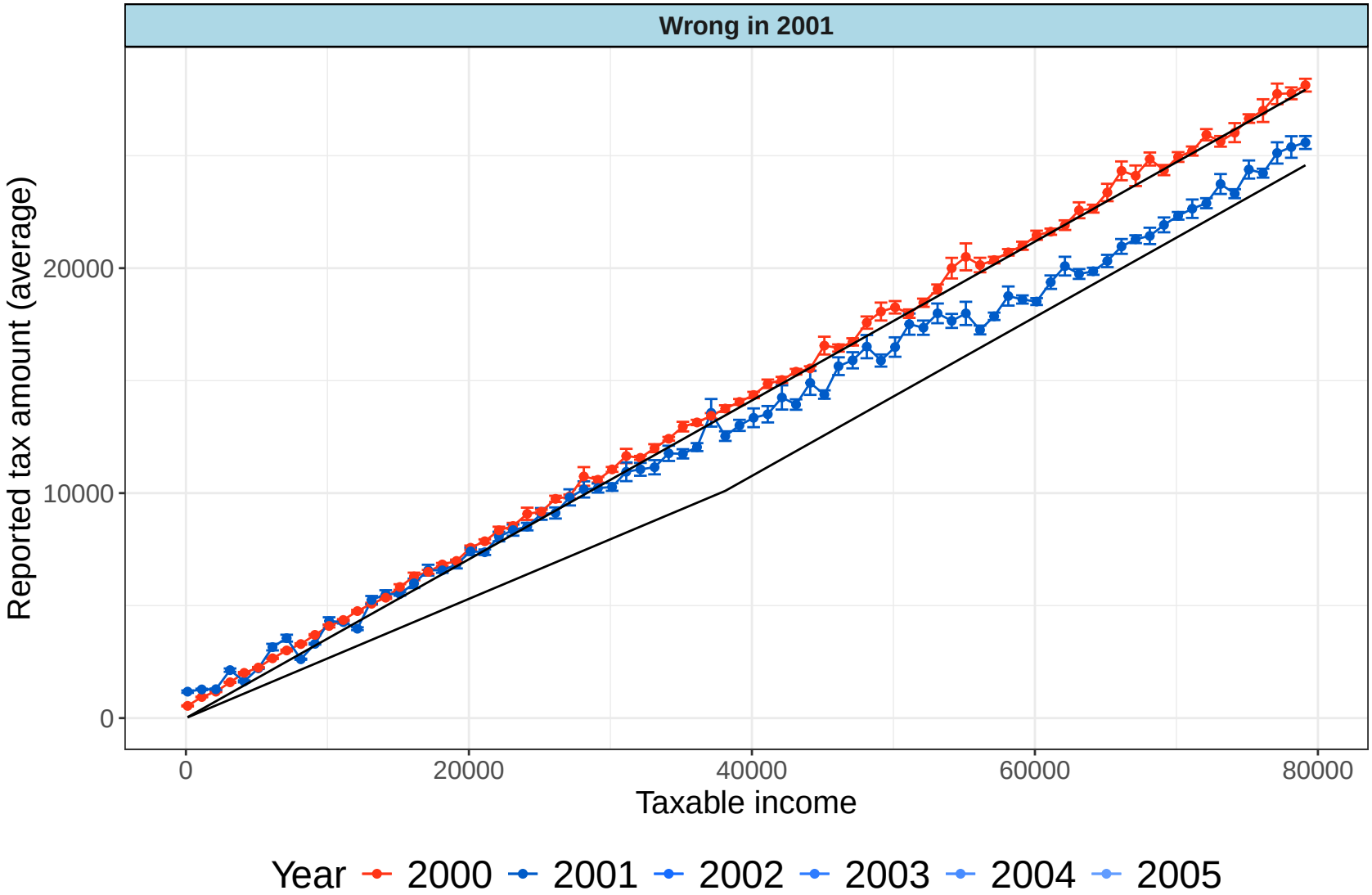
◂ Return

Inattentive firms take time to understand the reform



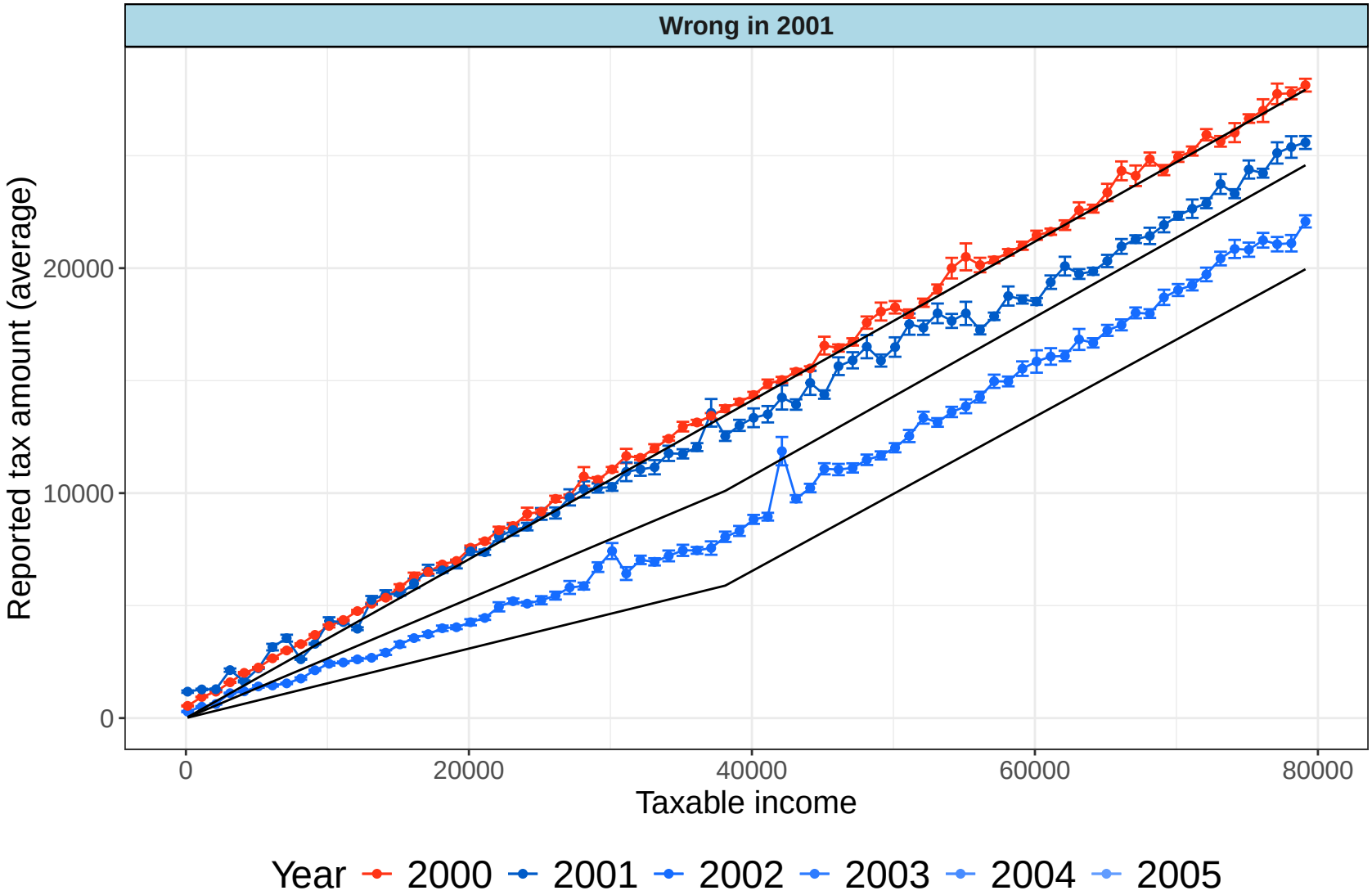
◂ Go back

Inattentive firms take time to understand the reform



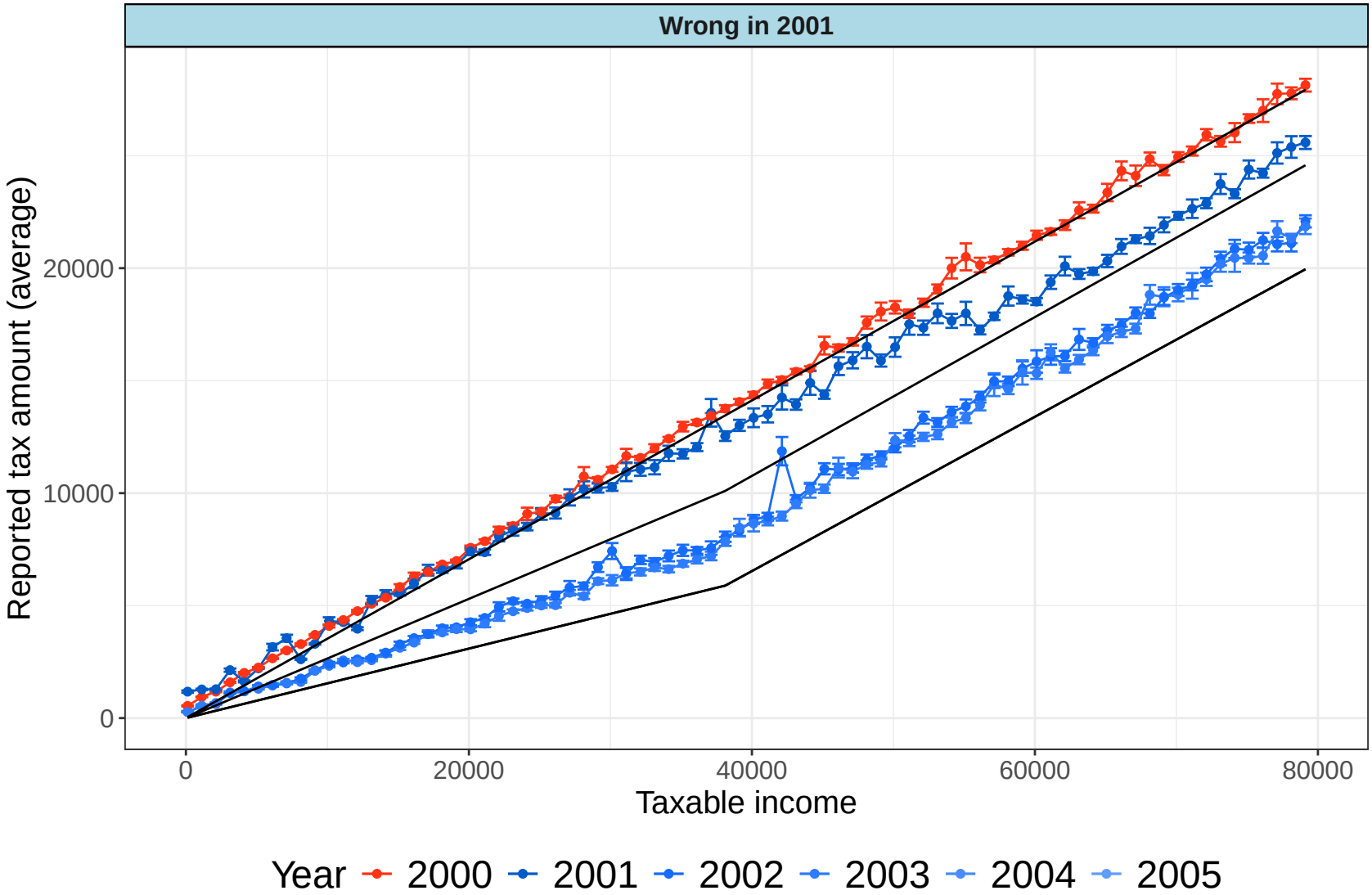
◂ Go back

Inattentive firms take time to understand the reform



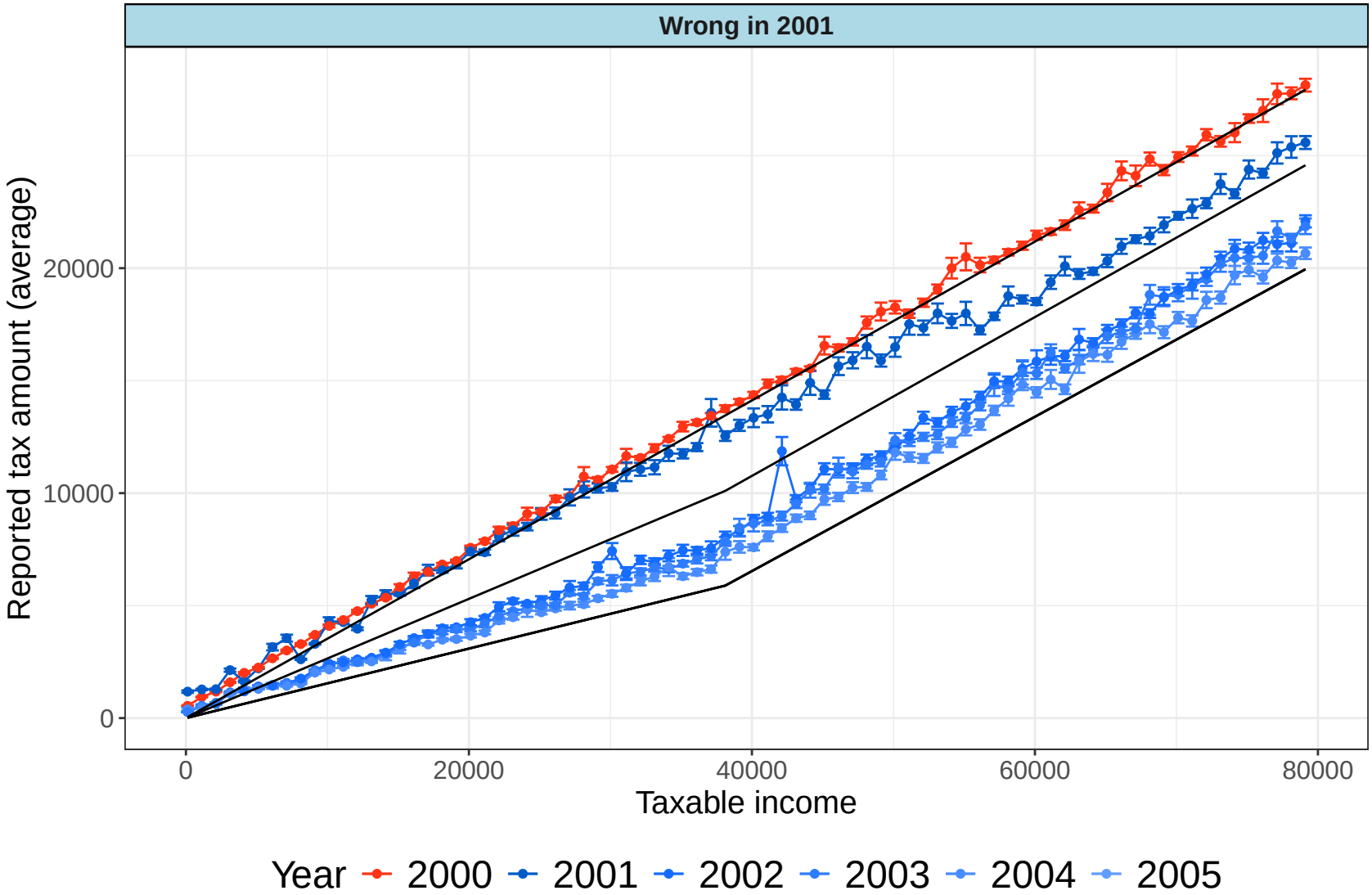
◂ Go back

Inattentive firms take time to understand the reform



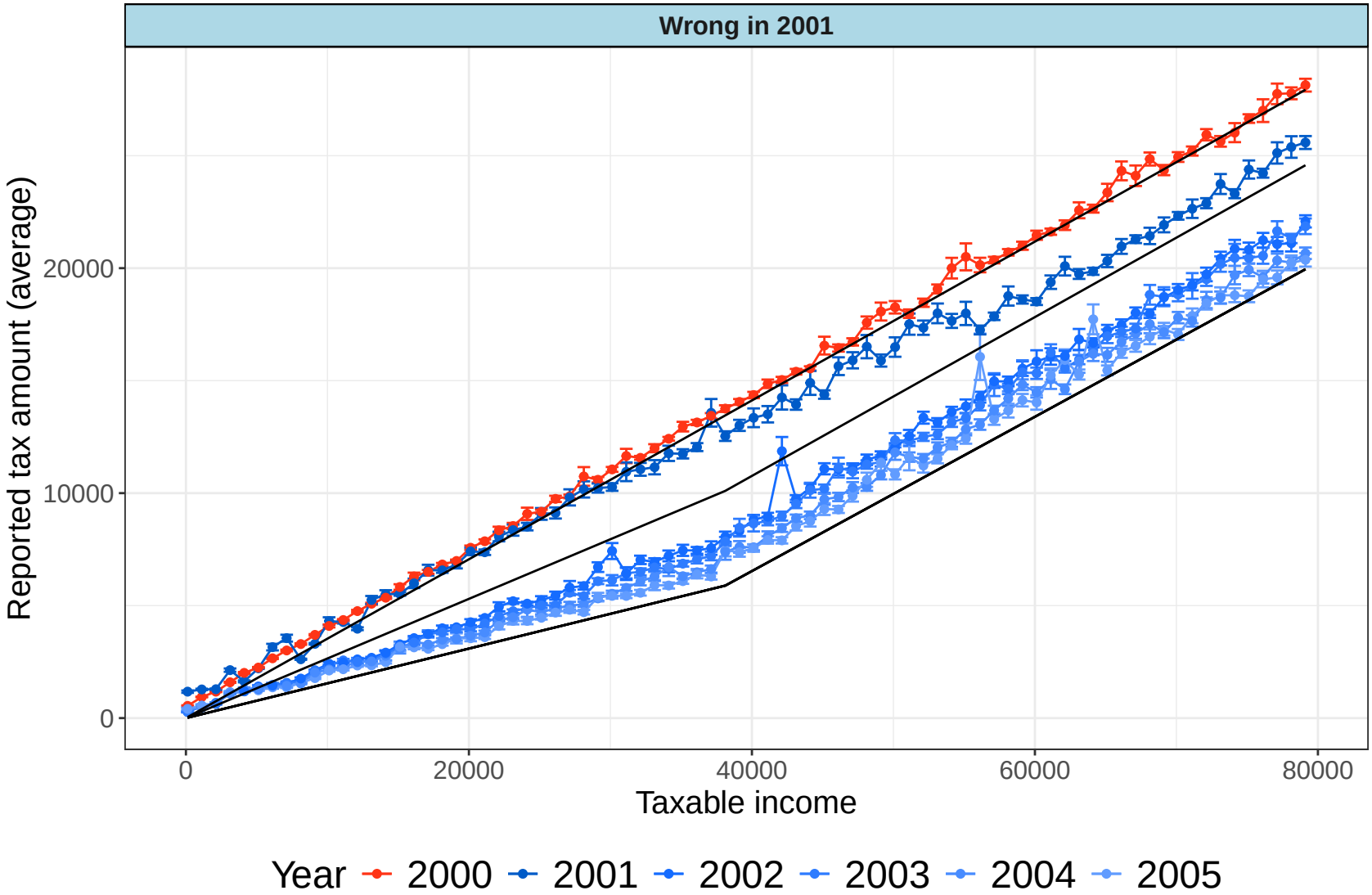
◂ Go back

Inattentive firms take time to understand the reform



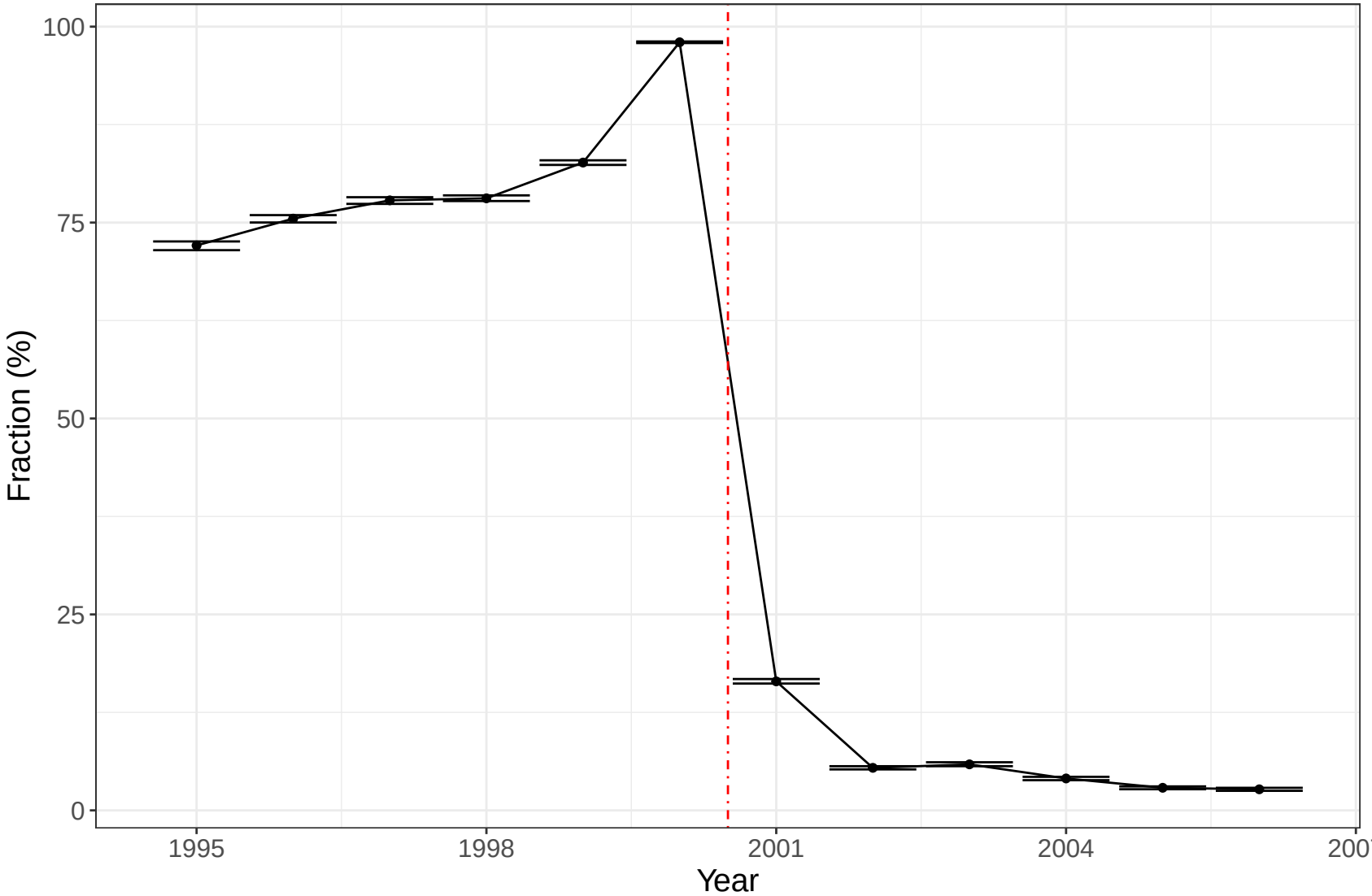
◂ Go back

Inattentive firms take time to understand the reform



◂ Go back

Fraction of firms using the tax system of 2000 across years



◂ Return

The economic cost of inattention

- → Inattentive firms do not bunch the first year but do the one after
- → suboptimal decision due to friction
- → the cost of inattention is the money left on the table due to inattention → precisely the Δz we estimated for ε

	Cost of inattention
Average	686.4 €
Bounds	[674.5 €,744.5 €]
% of tax. inc.	1.80%
Num.Obs.	72 942

◂ Return

The economic cost of inattention

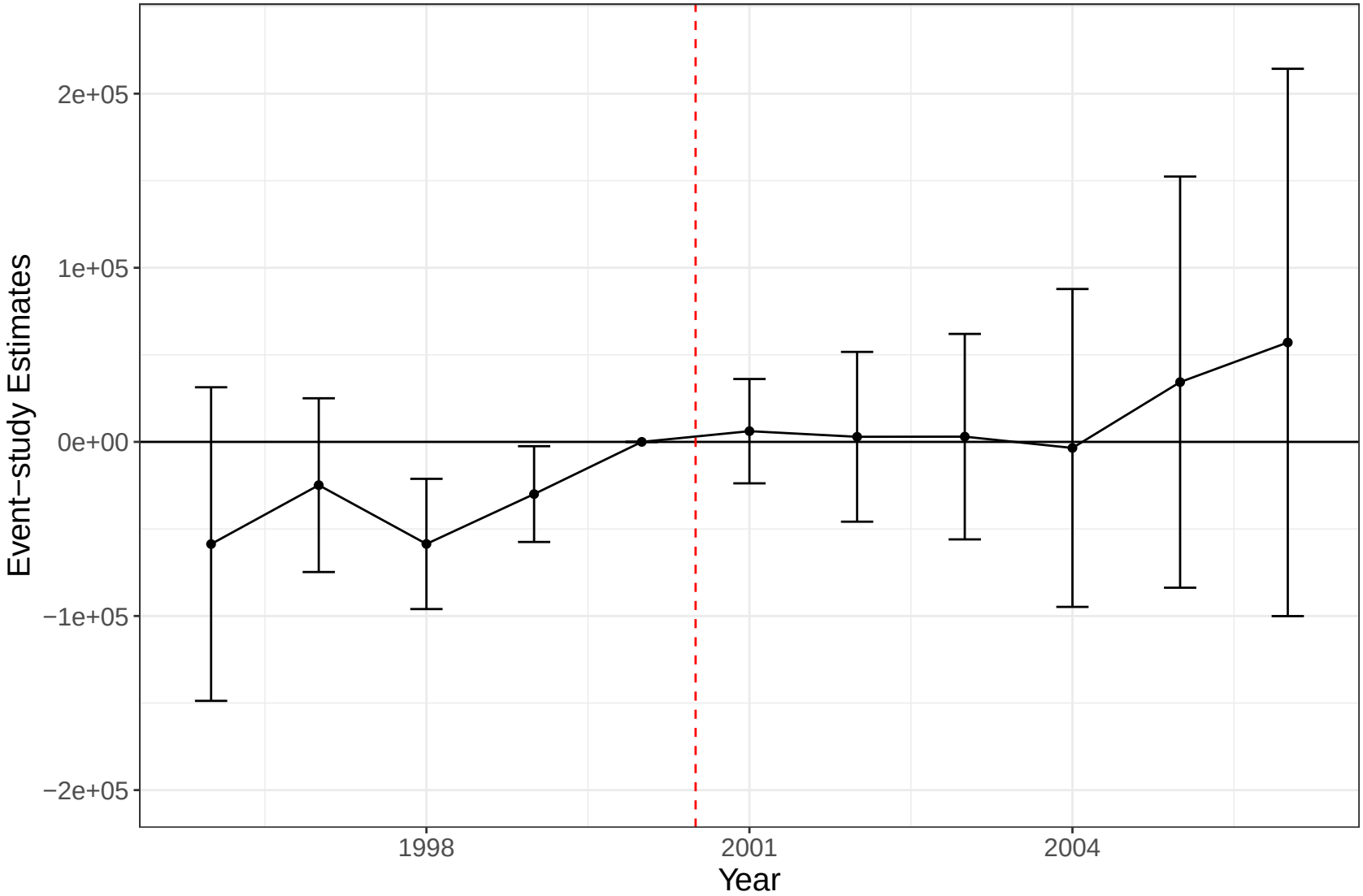
- At the kink, inattention $\Longrightarrow$ overpayment by $\approx$7000 € (yearly)
- The discount rate associated with each the tax downpayments is $(3+6+9+12)/12$
- Assume an interest rate of $\approx$5%
- The accounting cost is $\approx$219 €

$$\frac{3+6+9+12}{12} \times \frac{7000}{4} \times 5\% = 220$$

$$\Longrightarrow \text{ economic + accounting cost } = 220+680 = 900\,€$$

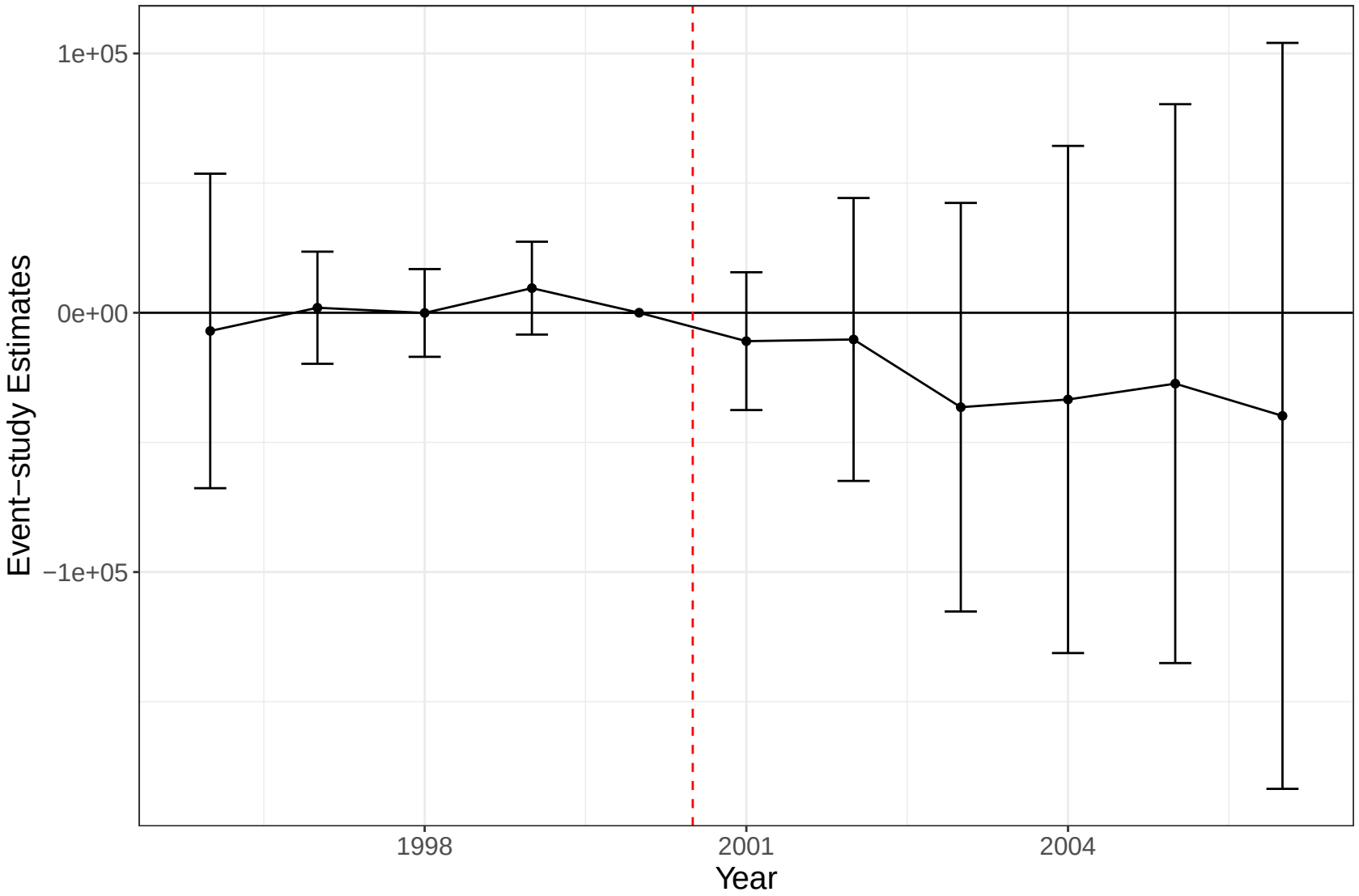
◂ Return

Event-study: Sales



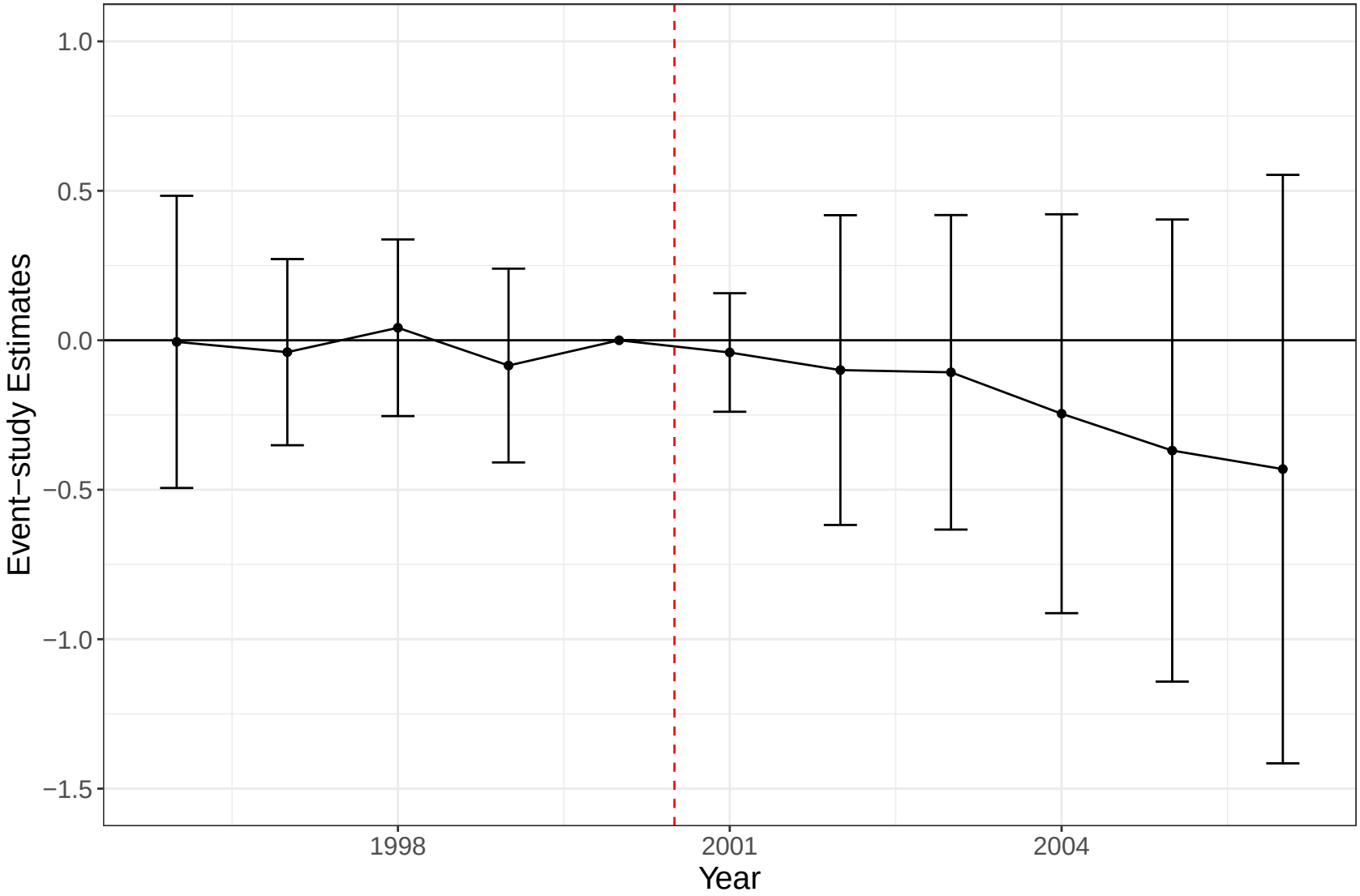
◂ Return

Event-study: Investment



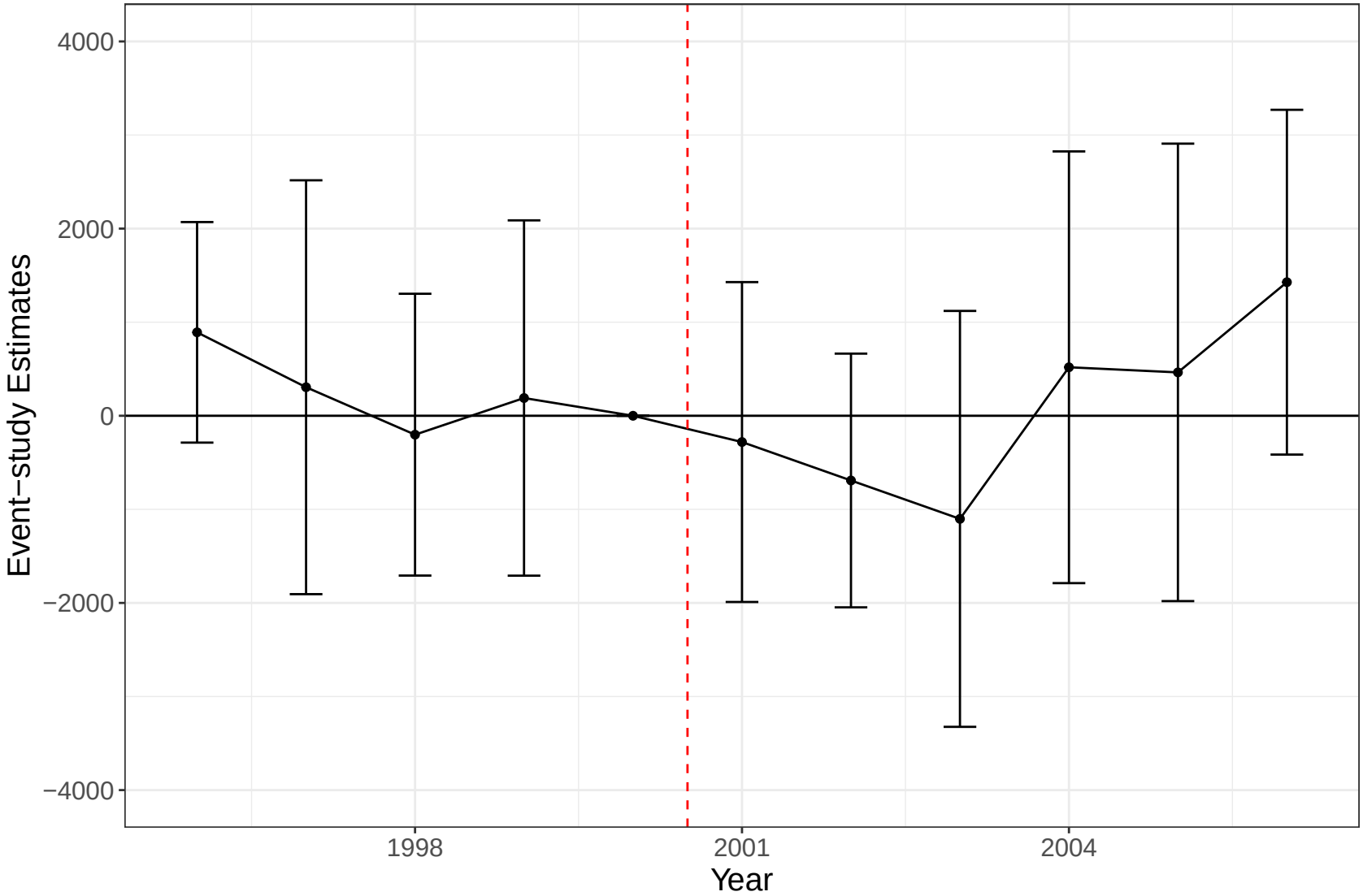
◂ Return

Event-study: Employment



◂ Return

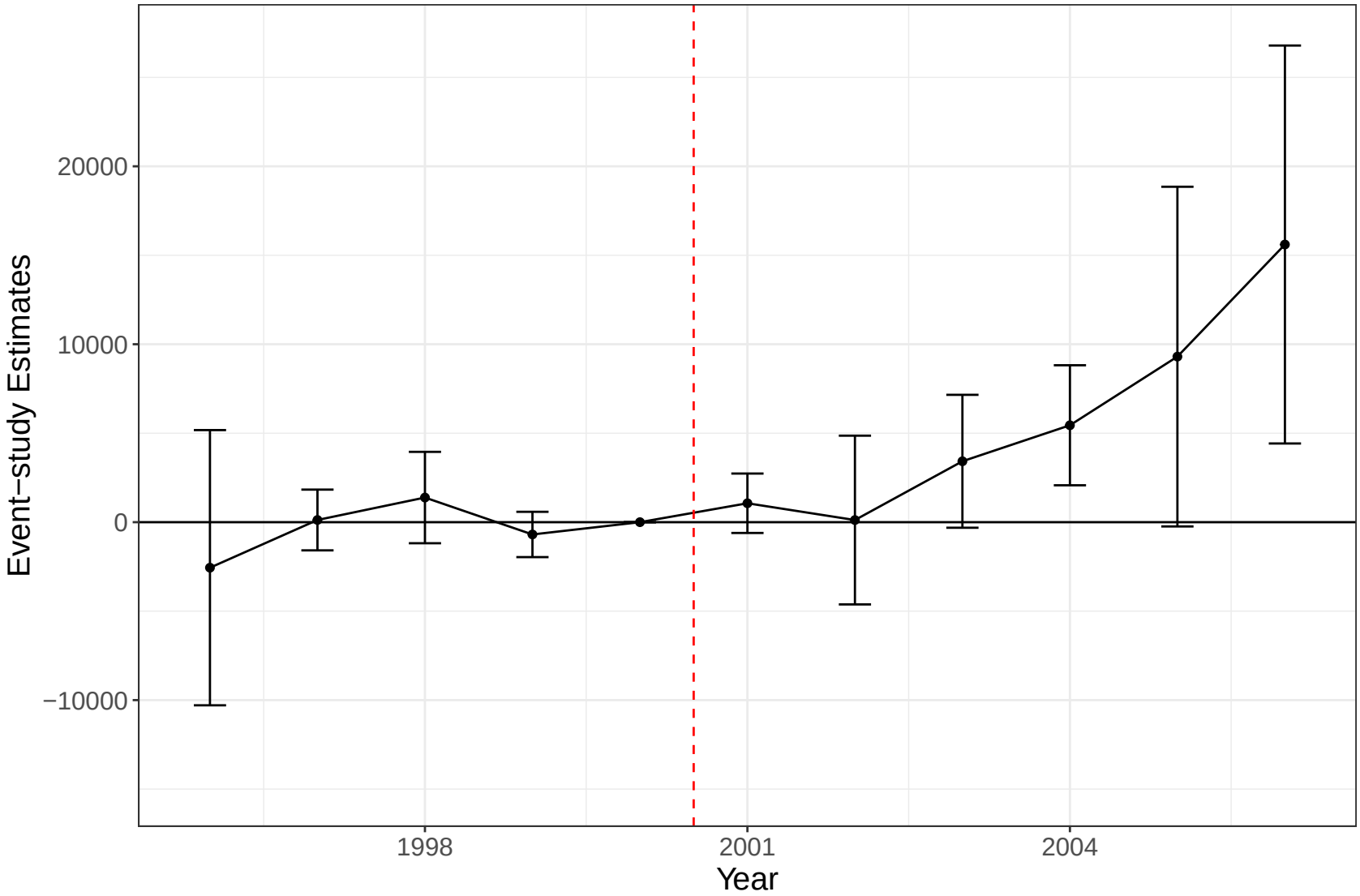
Event-study: Wages



◂ Return

Event-study: Dividends

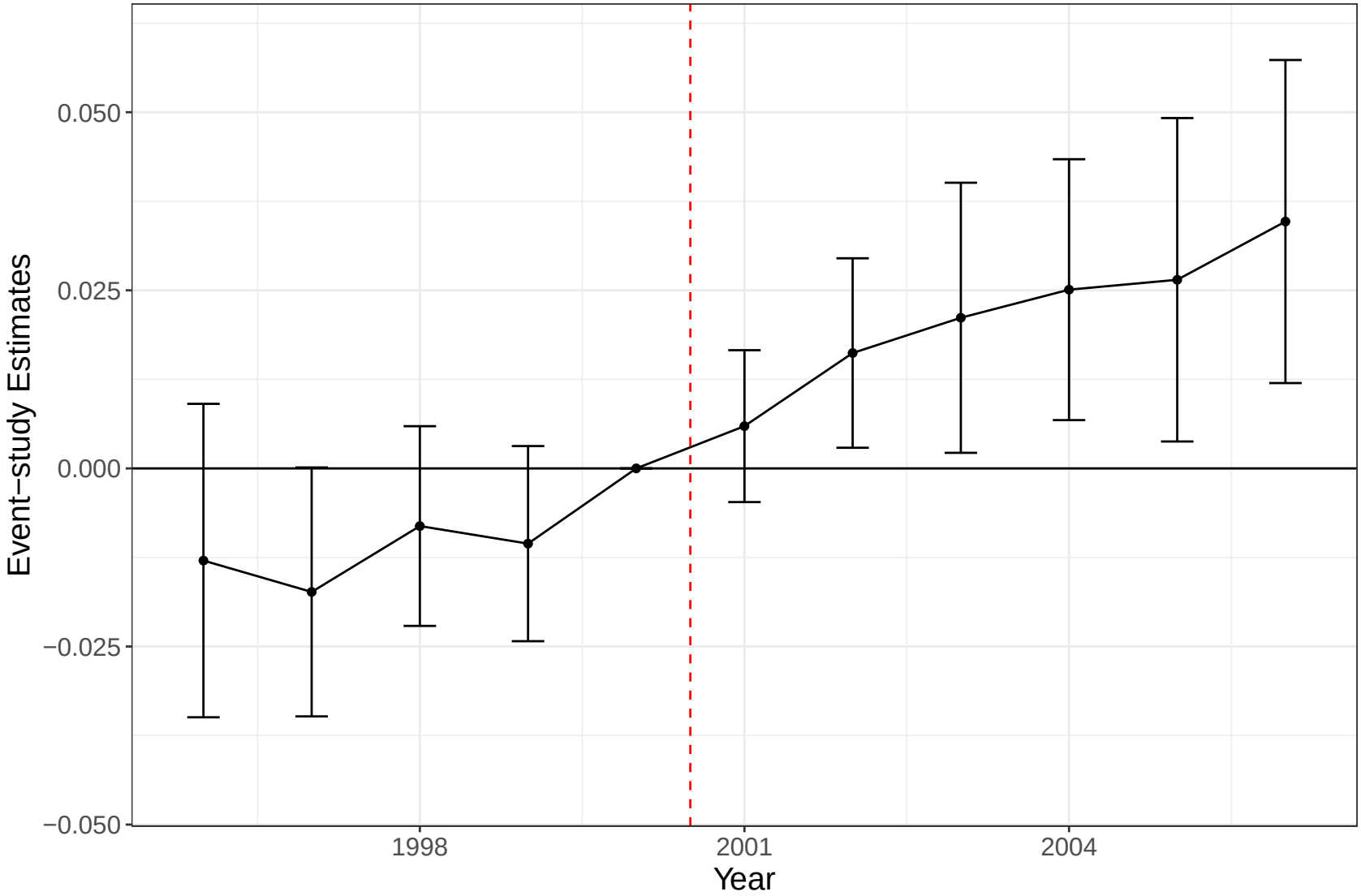
Intensive margin



Return

Event-study: Dividends

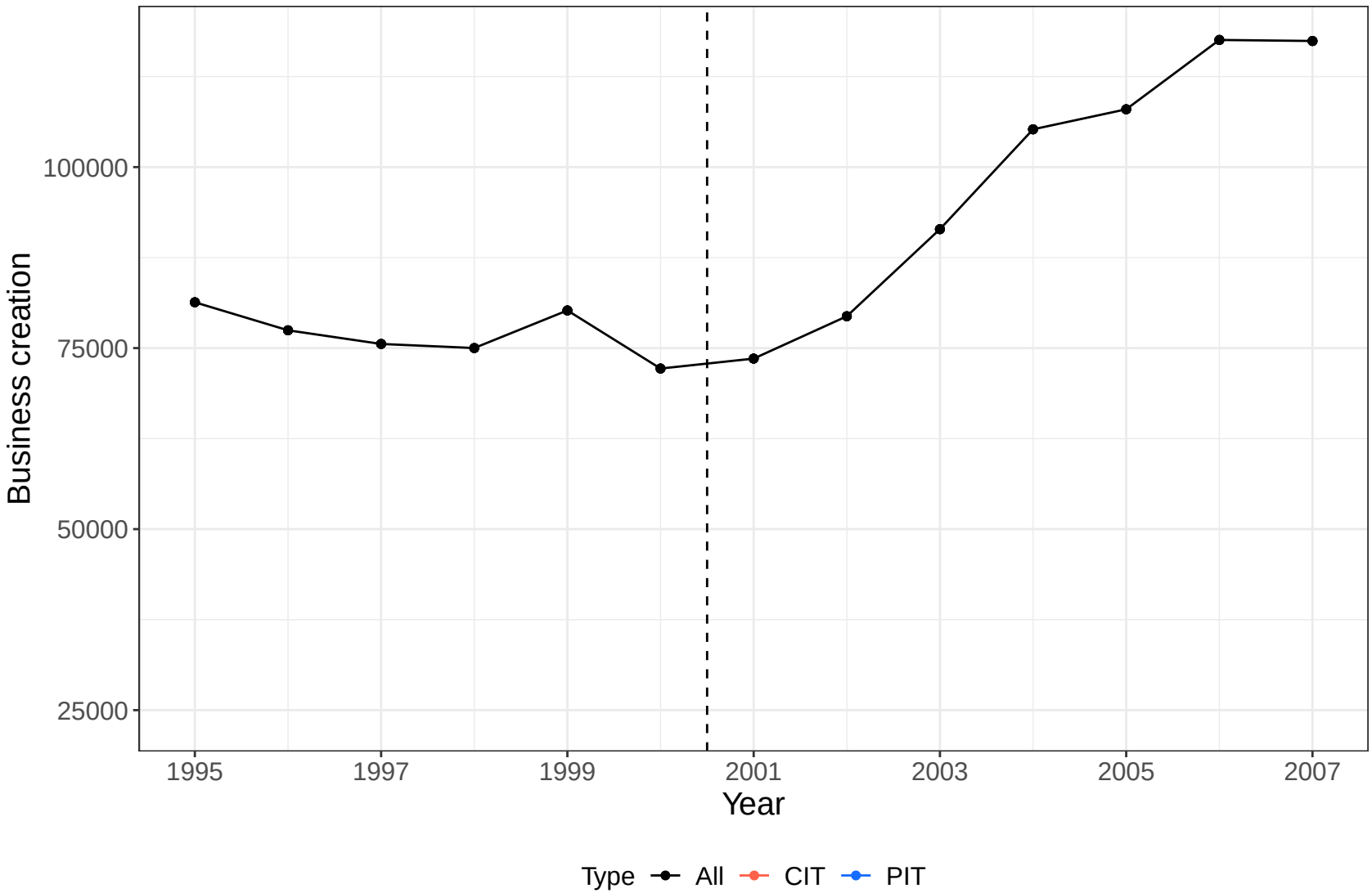
Extensive margin



Return

Rising business creation after the reform

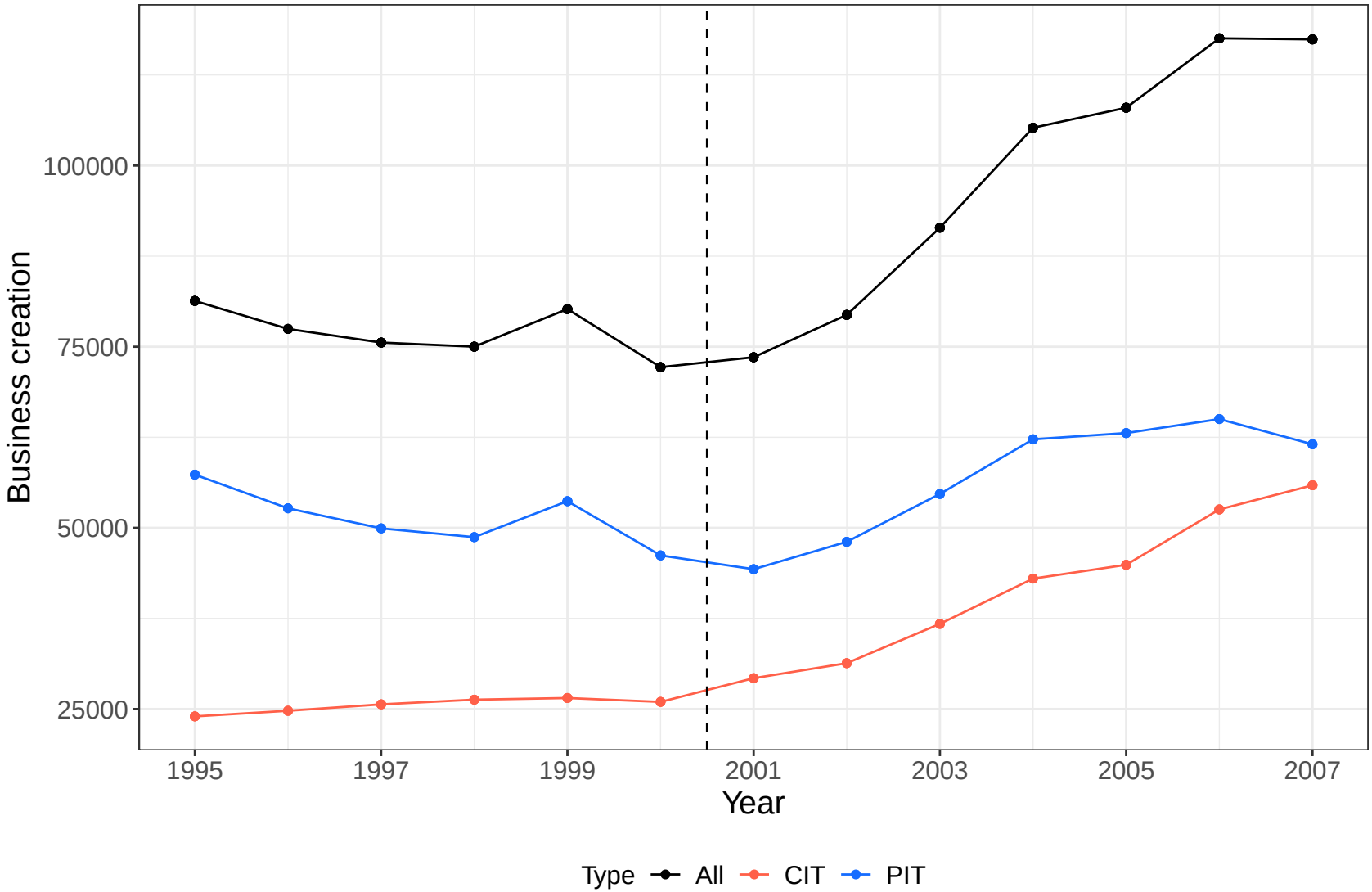
Business creation per year, in level



Return

Rising business creation after the reform

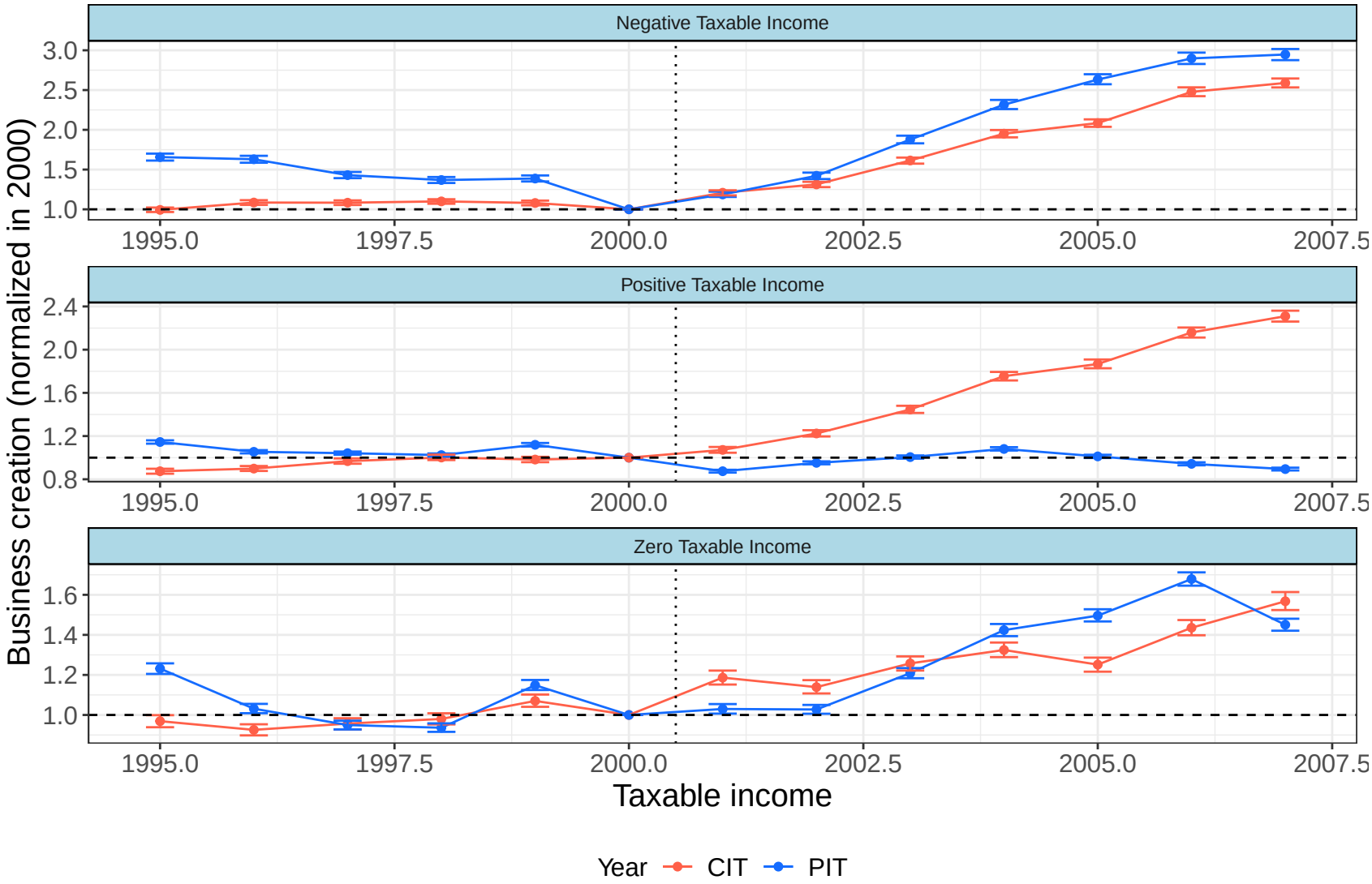
Business creation per year, in level



Return

Rising business creation after the reform

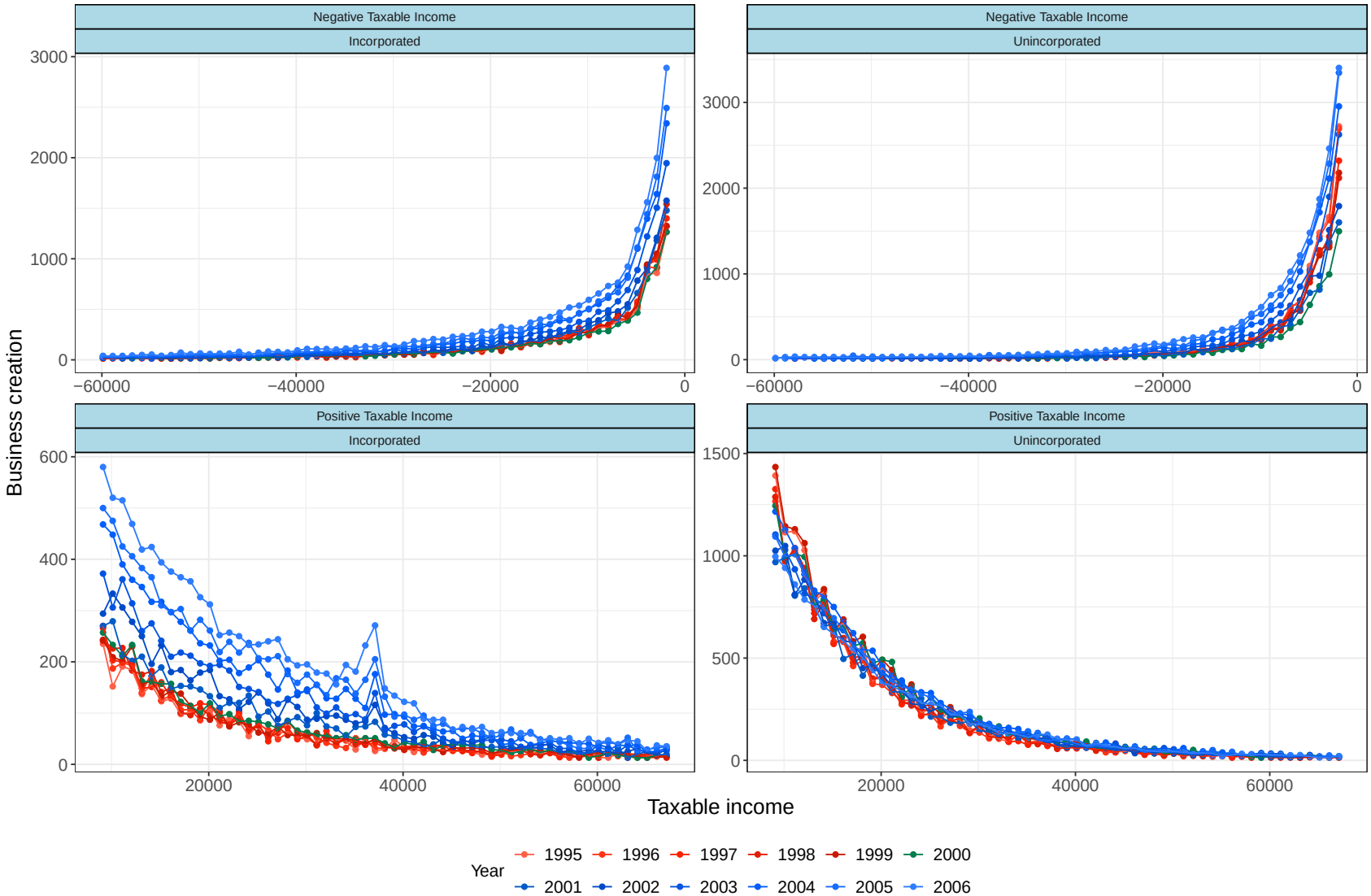
Business creation per year, by taxable income



Return

Rising business creation after the reform

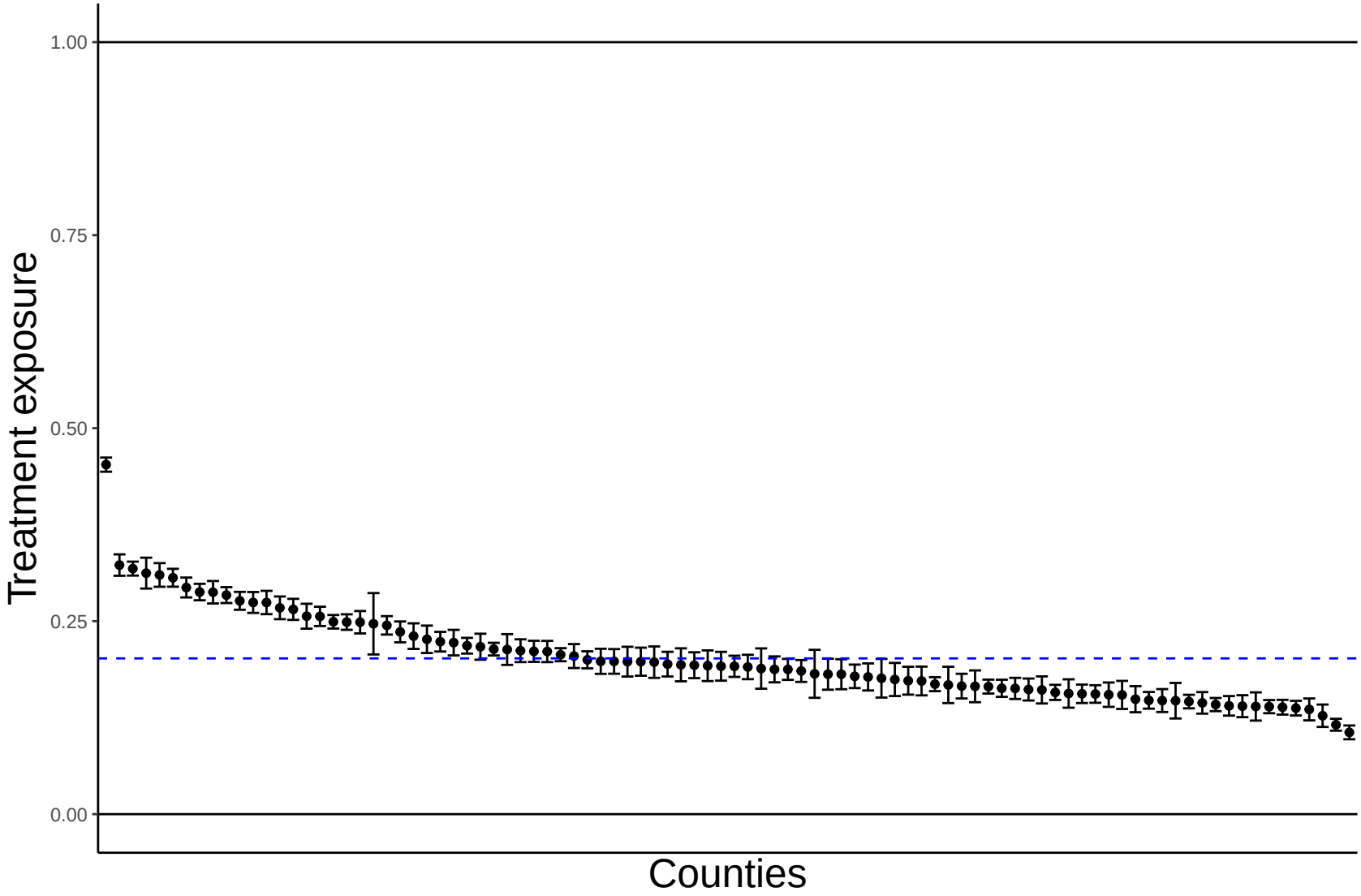
Business creation per year, by bins of taxable income



◂ Return

Heterogeneous treatment intensity across counties

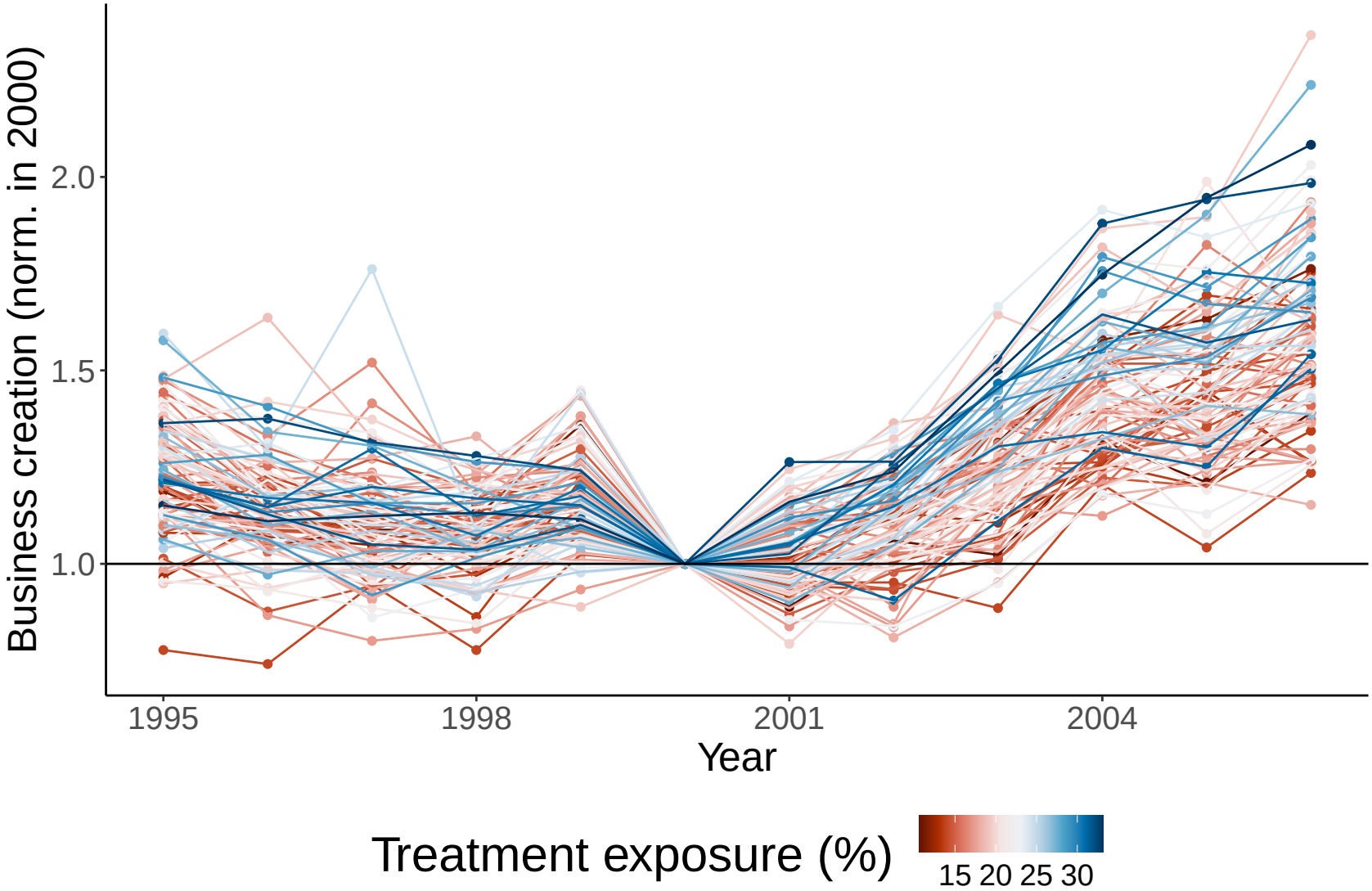
Treatment intensity by counties in 2000



Return

Higher business creation in counties with larger share of affected firms

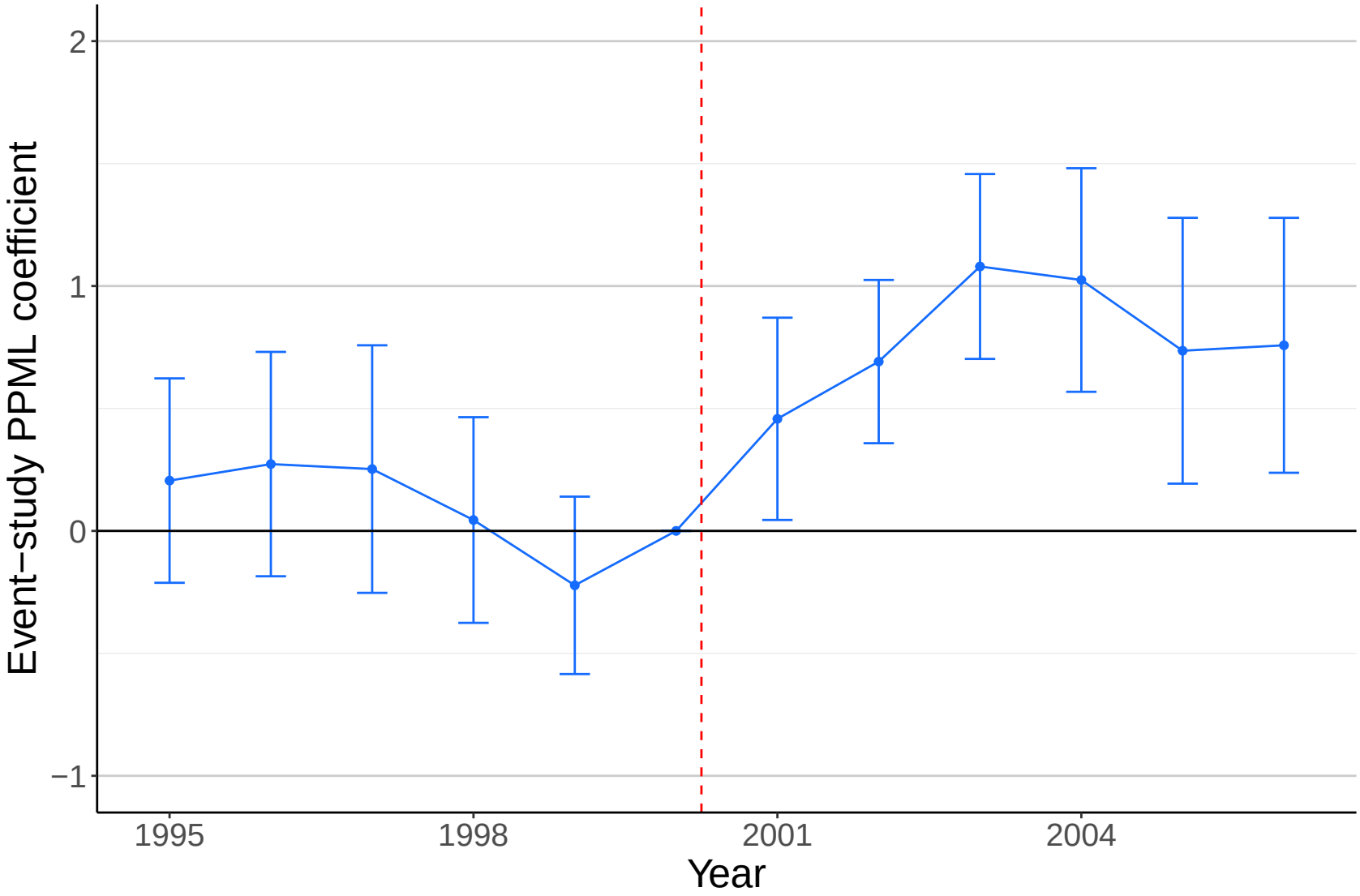
Normalized business creation (2000) by treatment intensity



Return

Cleaner pre-trends check without Paris, same results post-reform

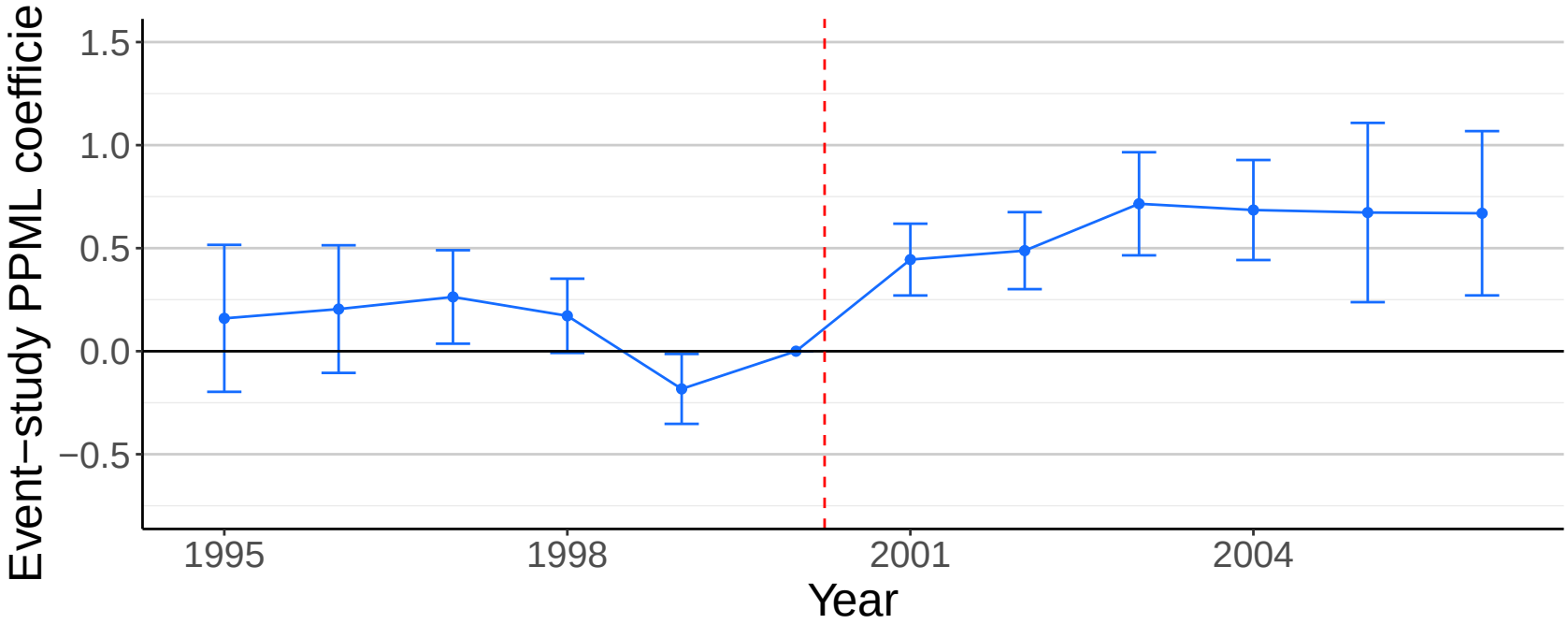
Event-study without Paris



Return

Same pattern when adding controls

Event-study with controls: Sales in 2000

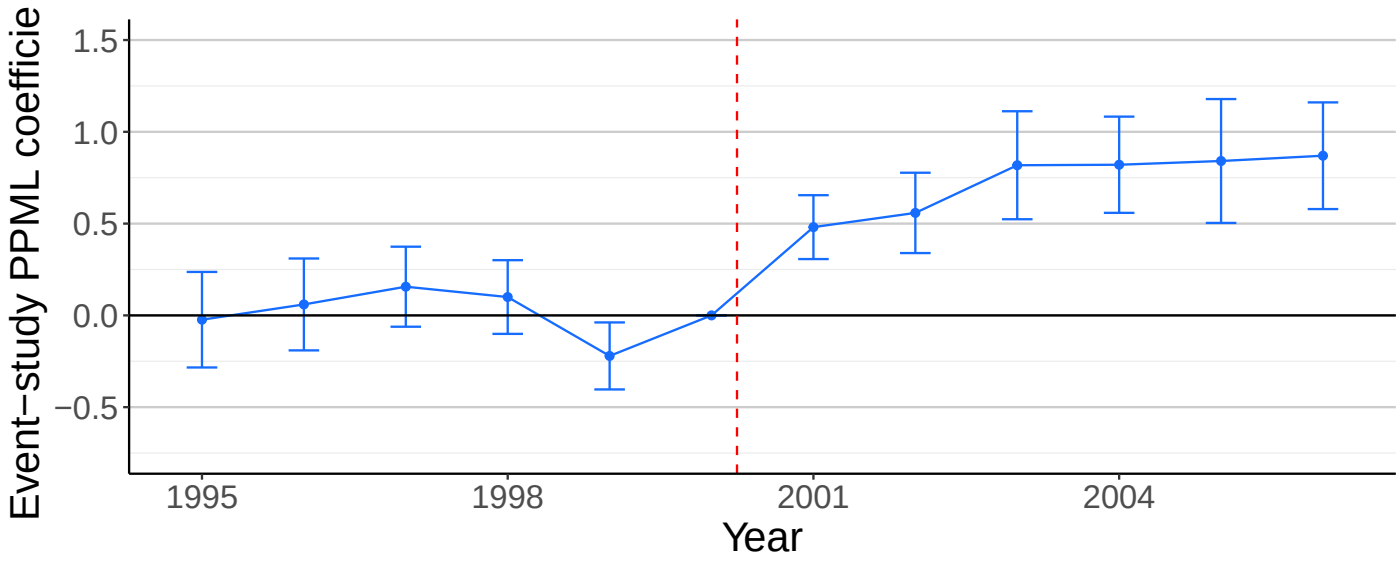


$$N_{ct} = exp\left(\gamma_c + \gamma_t + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \beta_k \times \mathbb{1}\left(t = k\right) \times D_c + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \alpha_k \times \mathbb{1}\left(t = k\right) \times \text{Sales}_{2000}\right) \epsilon_{ct}$$

◂ Return

Same pattern when adding controls

Event-study with controls: Fixed assets in 2000

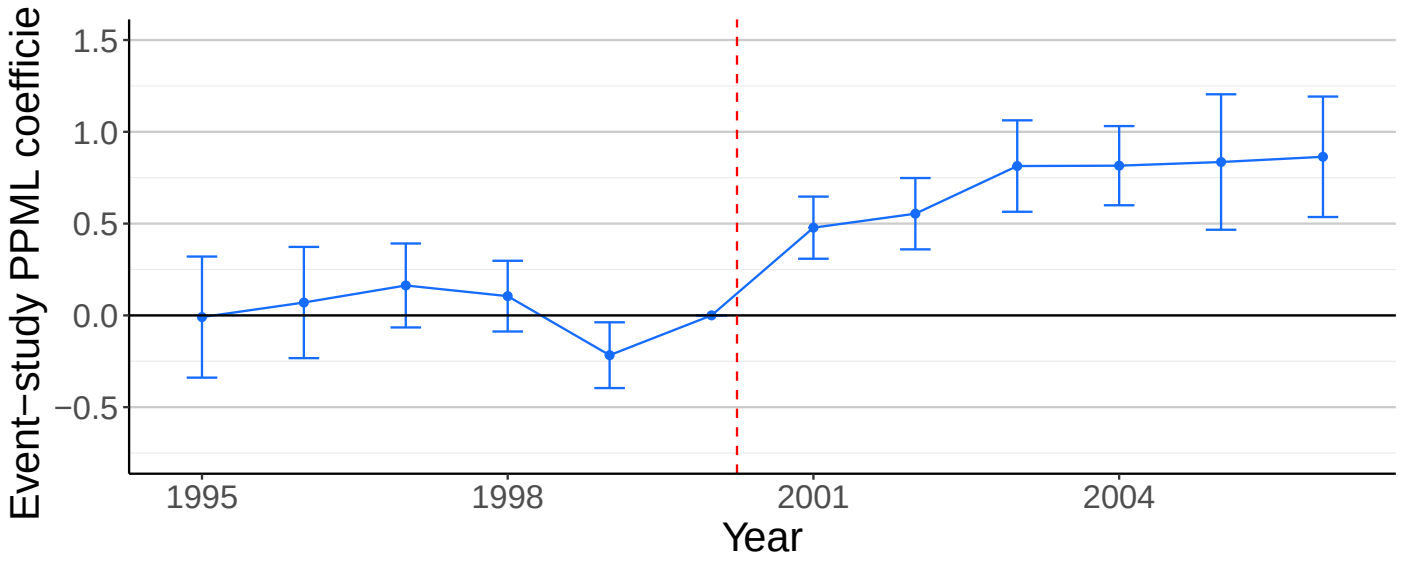


$$N_{ct} = exp\left(\gamma_c + \gamma_t + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \beta_k \times \mathbb{1}(t = k) \times D_c + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \alpha_k \times \mathbb{1}(t = k) \times \text{FixedAssets}_{2000}\right) \epsilon$$

◂ Return

Same pattern when adding controls

Event-study with controls: Employment in 2000

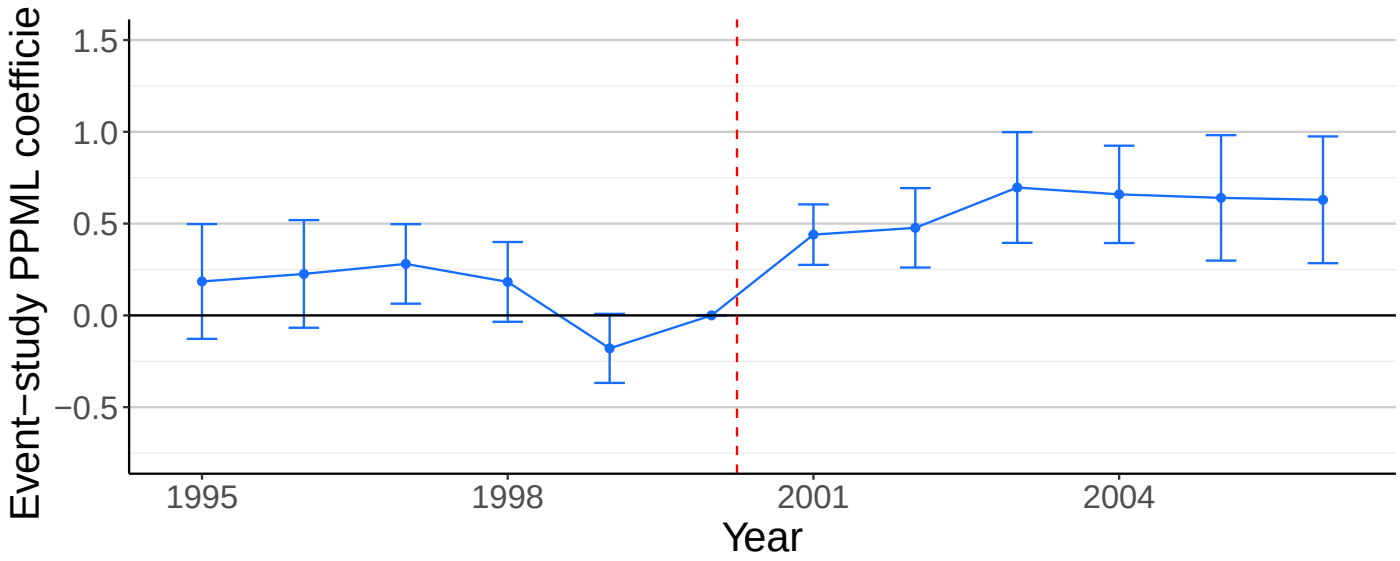


$$N_{ct} = exp\left(\gamma_c + \gamma_t + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \beta_k \times \mathbb{1}\left(t = k\right) \times D_c + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \alpha_k \times \mathbb{1}\left(t = k\right) \times \text{Empl}_{2000}\right) \epsilon_{ct}$$

◂ Return

Same pattern when adding controls

Event-study with controls: all of them in 2000

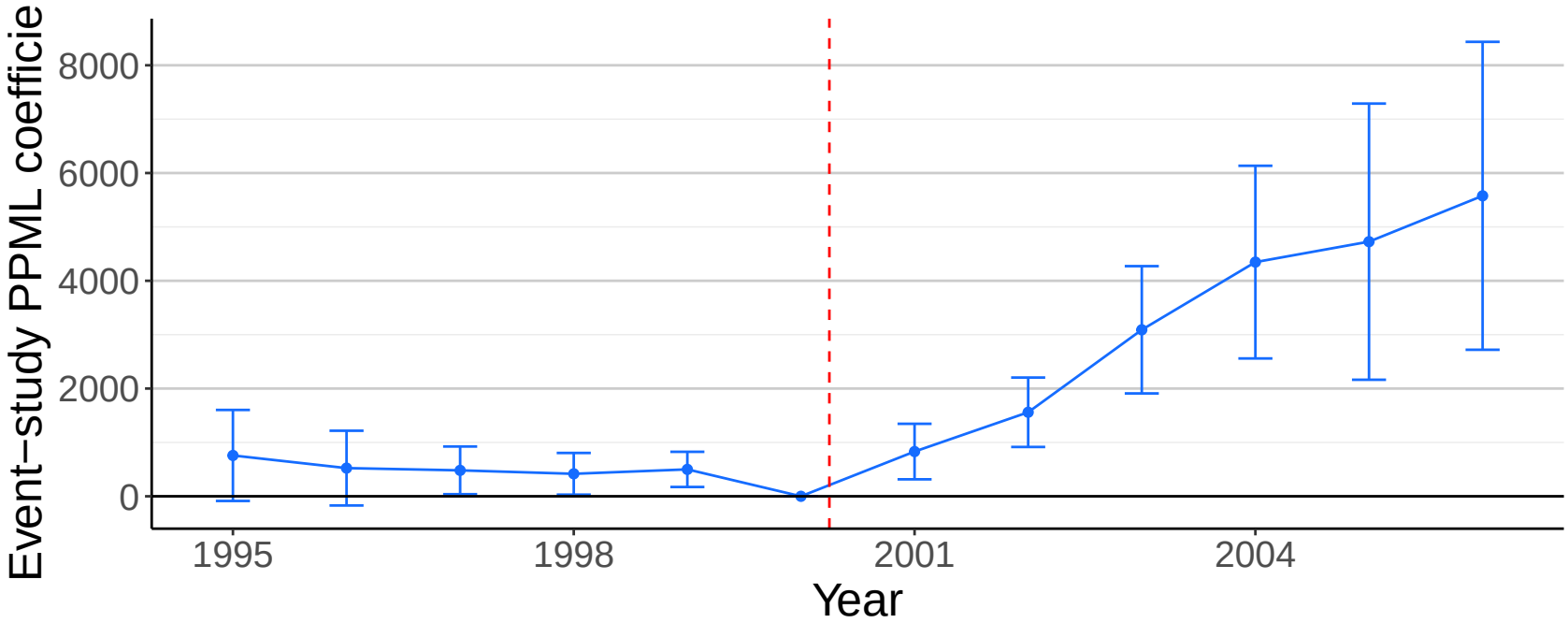


$$N_{ct} = exp\left(\gamma_c + \gamma_t + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} \beta_k \times \mathbb{1}\left(t = k\right) \times D_c + \sum_{\substack{k=-6 \\ k\neq -1}}^{5} X'_{2000} \cdot \alpha_k \times \mathbb{1}\left(t = k\right)\right) \epsilon_{ct}$$

◂ Return

Same trends using OLS

Event-study OLS



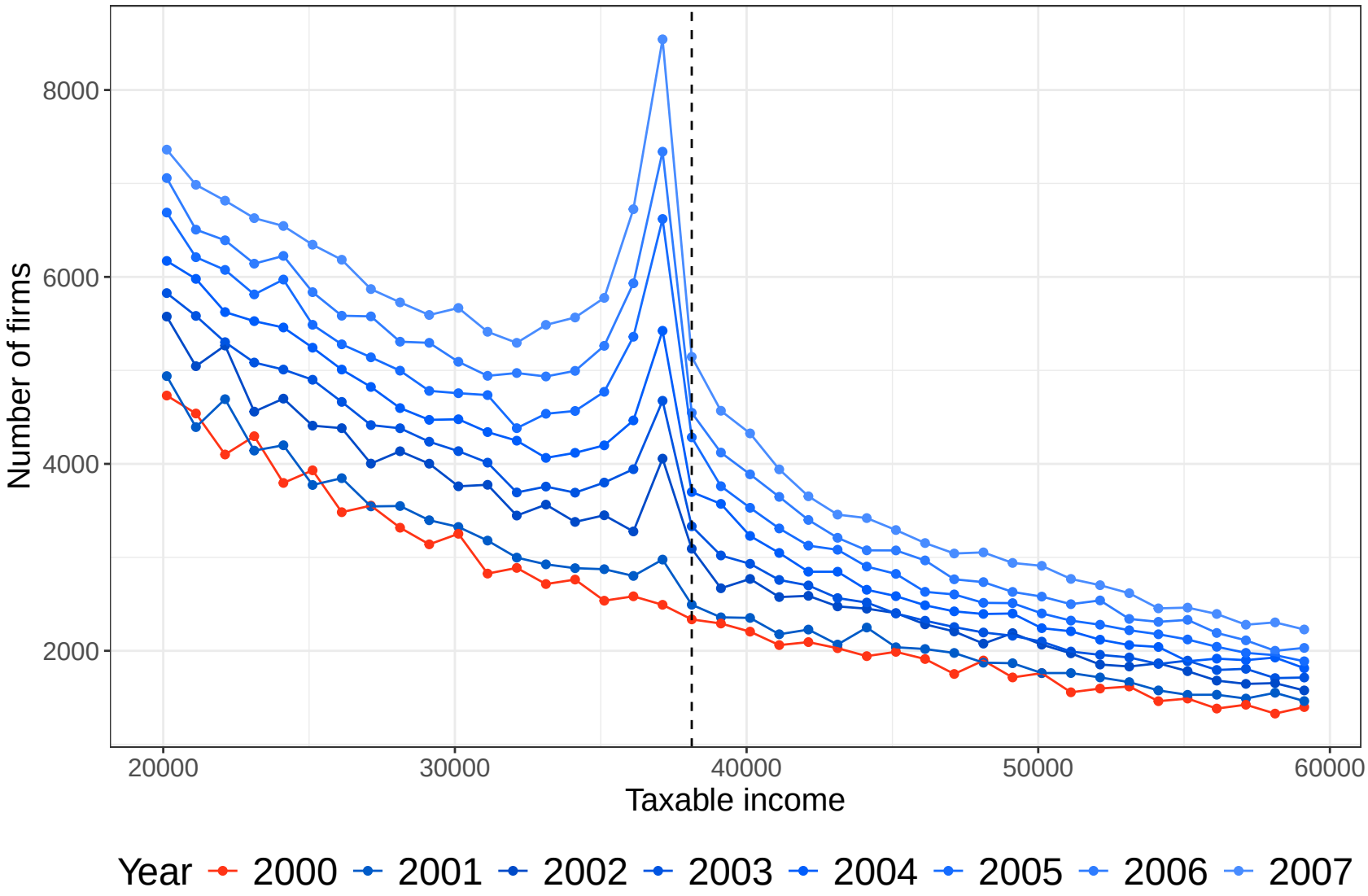
◂ Return

Threat to identification

1. Industry
2. Nation-wide shock
3. Continuous treatment + PPML
4. Treatment intensity highly correlated with unobservables
5. ATT >> ATE ?

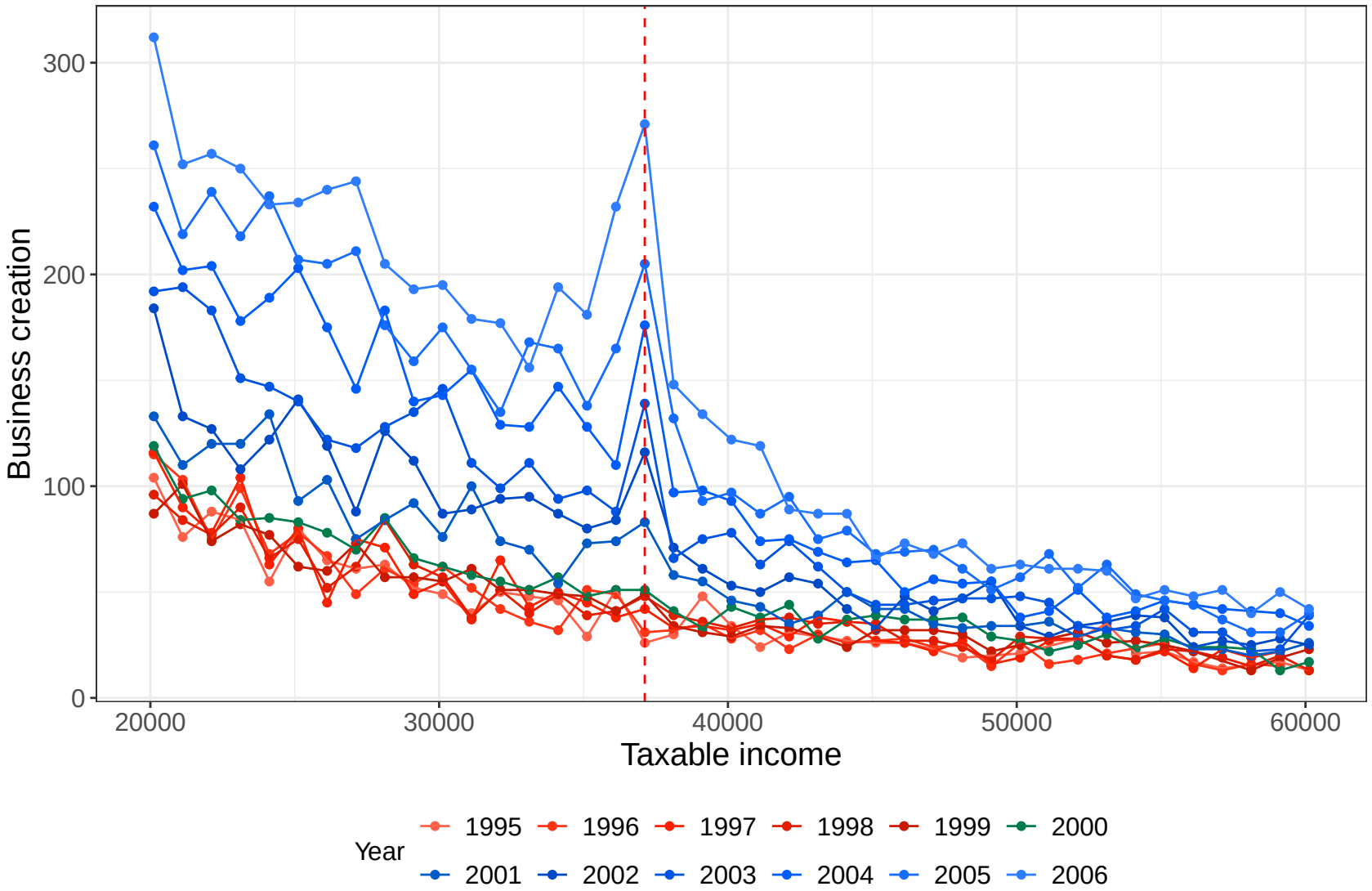
◂ Return

Overall bunching (incumbents + business creation)



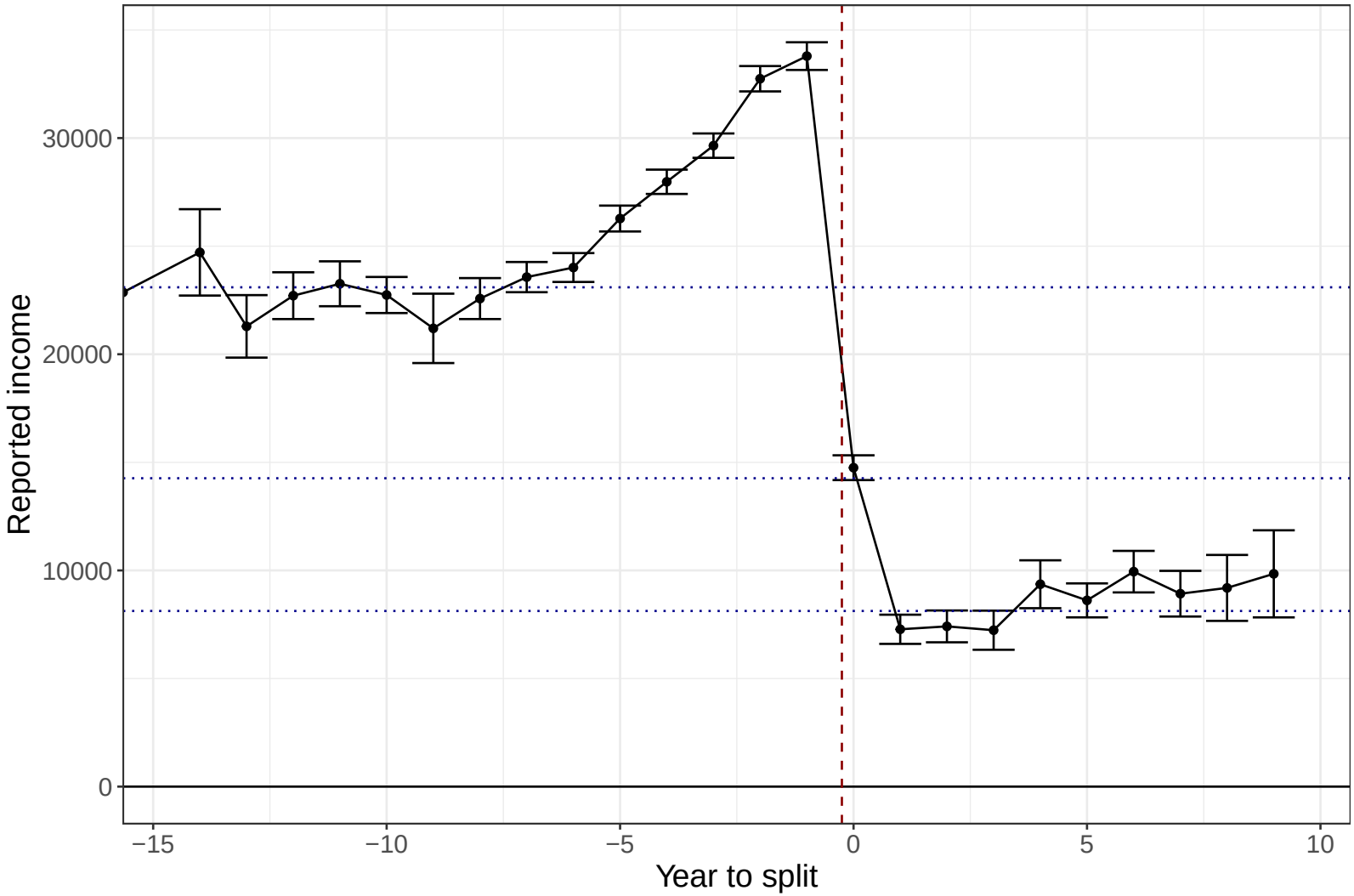
◂ Return

Bunching at the extensive margin $\Longrightarrow$ Why?



◂ Return

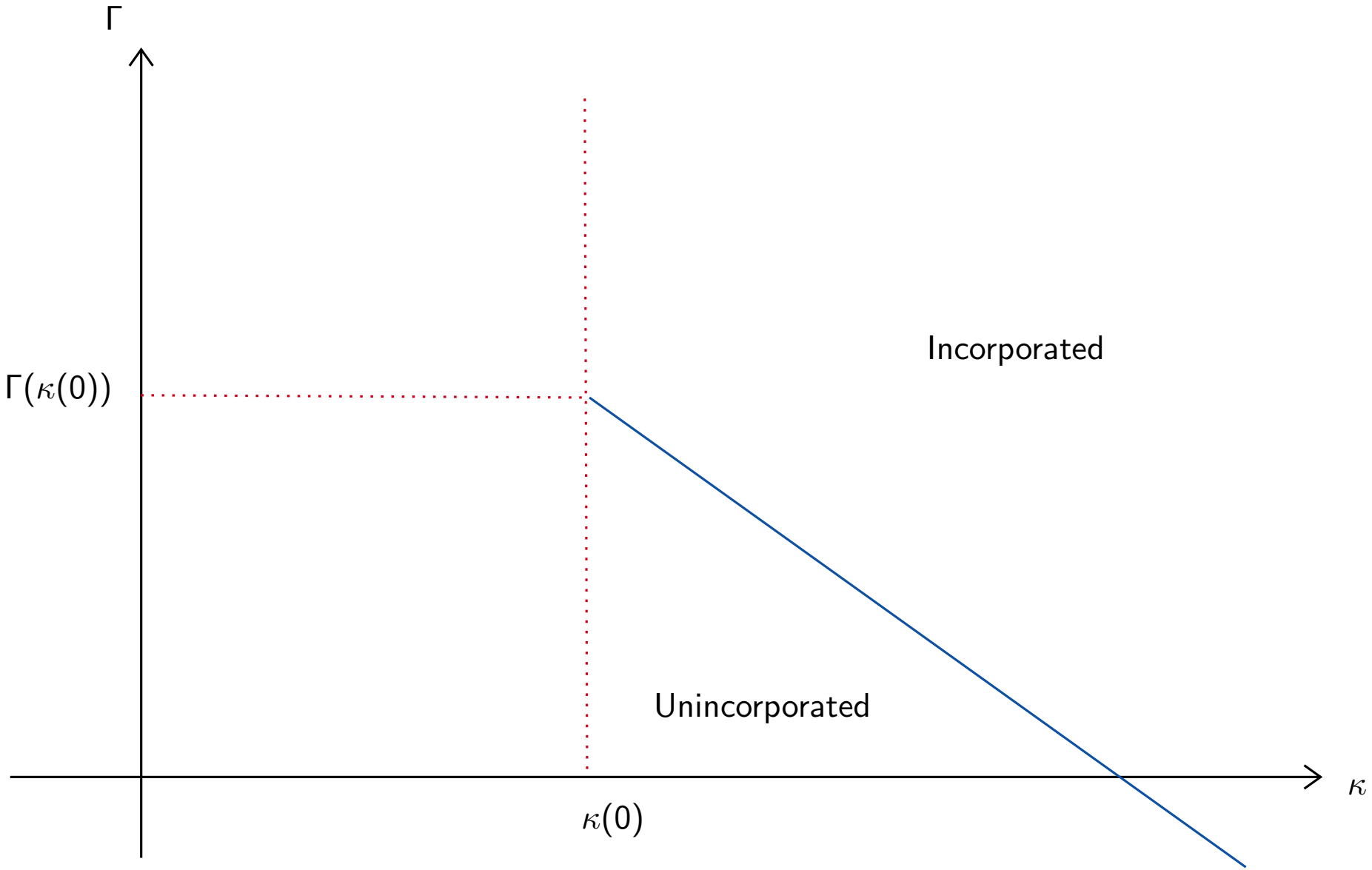
Revenues in the first entity drop after splitting



-56% in 2001, -78% in 2002, converge to the threshold at the PIT

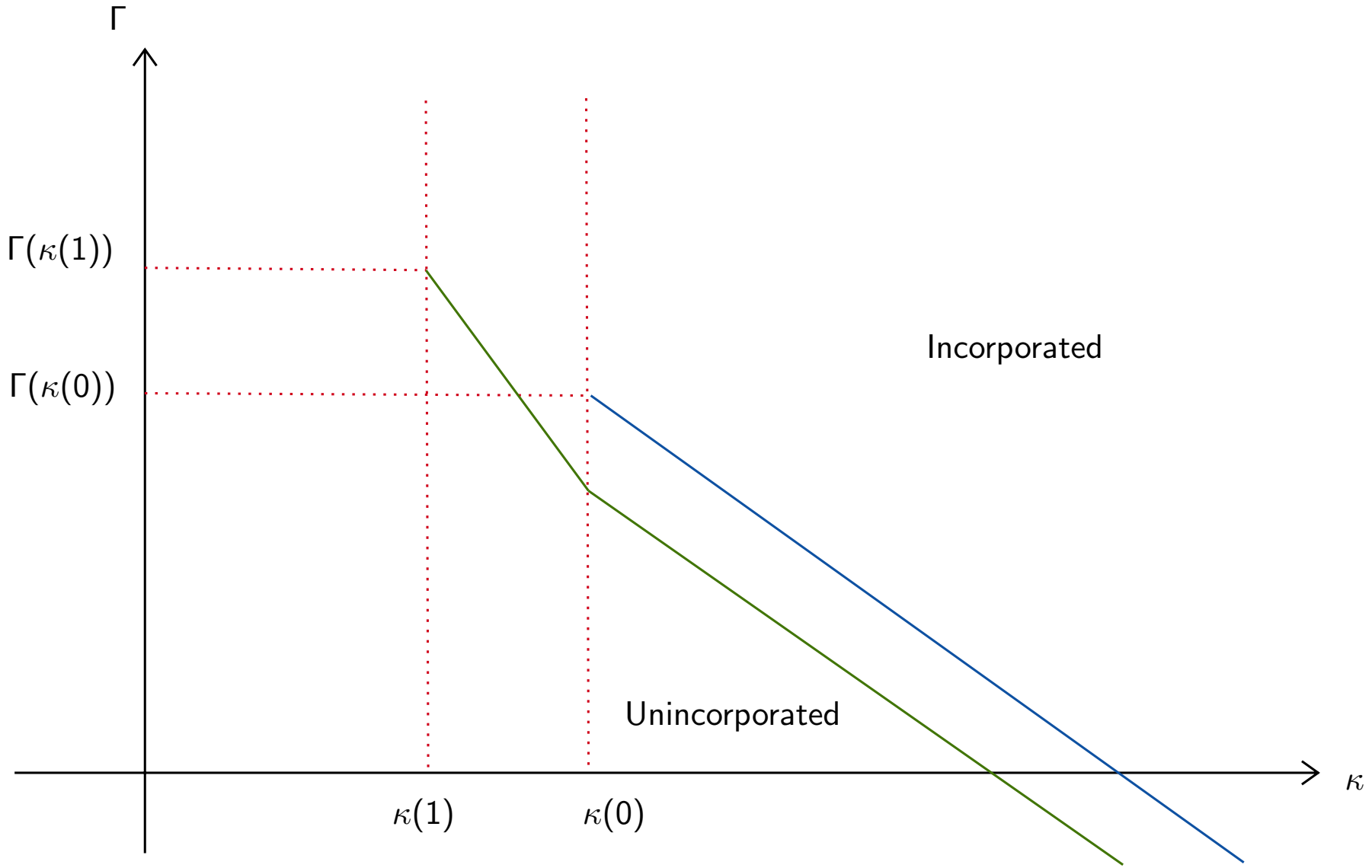
◂ Return

Firms' choice of entry and tax schedule



◂ Return

Firms' choice of entry and tax schedule



◂ Return

Optimal corporate tax rate

It is possible to retrieve an optimal corporate tax rate:

$$\frac{dW}{\mu d\tau} = 0$$

$$\Longrightarrow \tau^* = \frac{(1-g)\cdot[1-\overbrace{\eta_\Sigma\cdot\lambda_\Sigma}^{\text{Entity splitting}}]-g\overbrace{\cdot\lambda_\kappa\cdot\eta_\kappa}^{\text{Extensive margin}}-\overbrace{\widetilde{\tau}\cdot\bar{\widetilde{\varepsilon}}\widetilde{\lambda}}^{\text{Income shifting}}}{1-g+\underbrace{\mathbb{P}(\delta=1)}_{\text{Attention}}\cdot\underbrace{\bar{\varepsilon}}_{\text{Intensive margin}}-\bar{\widetilde{\varepsilon}}\widetilde{\lambda}}$$

Go back

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