Salary Misreporting and the Role of Firms in Workers' Responses to Taxes: Evidence from Pakistan

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Motivation

- Taxation in Low Income Countries is different
  - Both *how much* revenue, and *how* raised
  - Rich countries rely heavily on consumption & income taxes
  - 3rd party reporting by firms key to enforcement in rich countries
- **This paper: Could taxation of salaried workers' income help close gap?**
  - Personal income tax raises little revenue (under 1% of GDP)
  - Salary is 3rd party reported by employer
  - Current rates are low (0-20%)
- Unique partnership with tax authorities granting access to administrative data to generate evidence on this issue.

Taxing Salaried Workers: Conceptual Considerations

- Optimal tax rate

$$\tau = \frac{1 - \bar{g}}{1 - \bar{g} + e}$$

- e**: *elasticity of taxable income.*** *How strongly does reported income respond to the tax rate?*

- Taxable Income = Salary + Non-salary Income - Evasion

Pakistani Personal Income Tax System

- An exceptionally complicated tax schedule.
  - Separate tax schedules depending on salary/TI $\gtrless 1/2$
  - Salaried workers face lower tax burden than non-salaried
- Salaried tax schedule features 16 – 19 **kink** thresholds
  - Marginal tax rate jumps up $\rightarrow$ identify responses
  - Disentangle salary and non-salary responses
- Employers
  - 3rd-party report employees' salaries
  - Withold income tax

Data

- Administrative tax records of Federal Board of Revenue (FBR)

1. Income Tax Returns 2008/09–2011/12
   - Report salary, deductions, other income, total taxable income.
   - Contains ∼670,000 returns/year
   - ∼165,000 salaried workers
2. Employer Statements (W2) reporting employees' salaries and income tax withheld
   - Private sector only

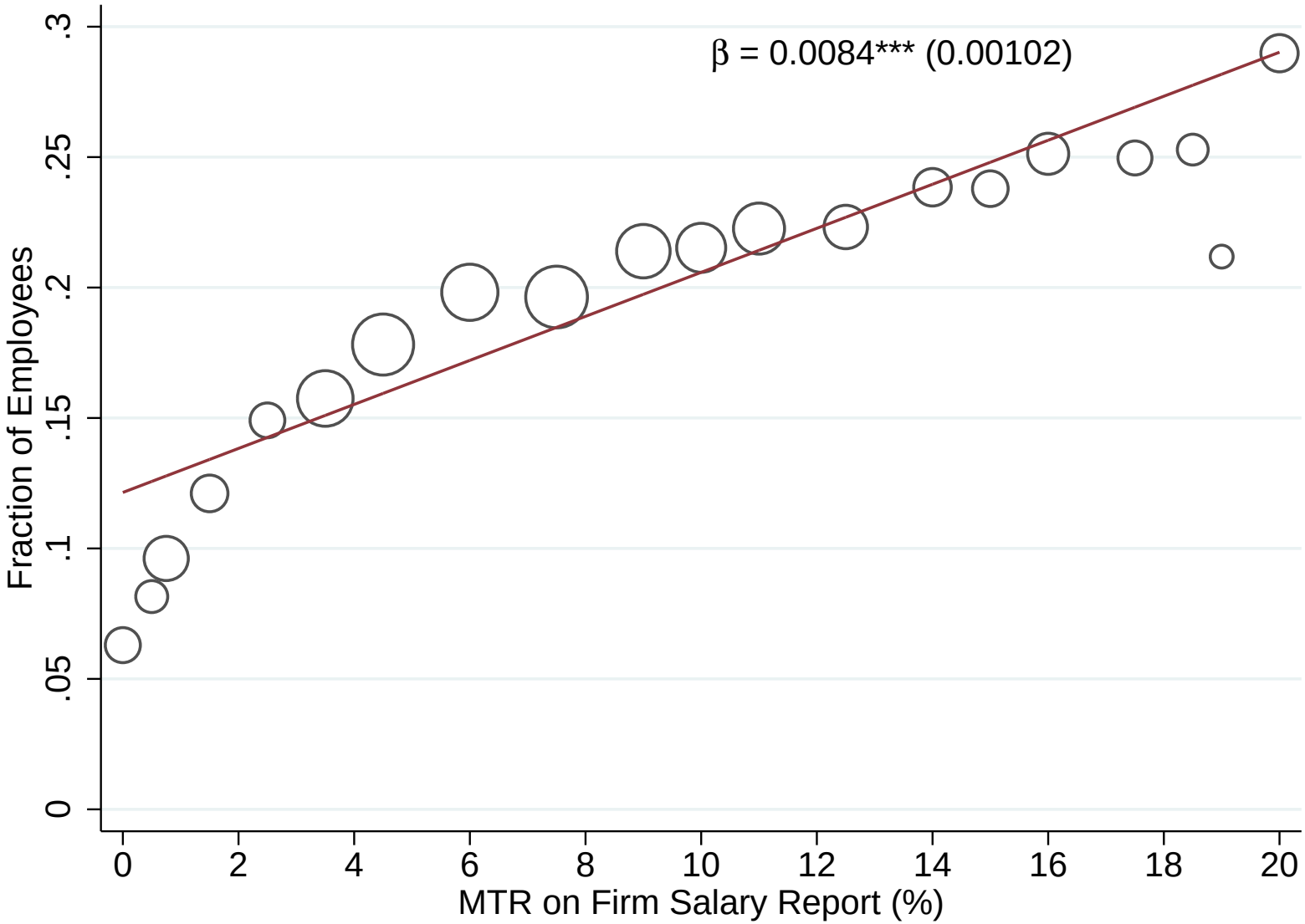
- Merge the two datasets
  - Match ∼87,000 employees/year
  - Not all employees required to file
  - Missing/inaccurate identifiers

Outline

Evasion - Salary Misreporting

Panel A: Incidence (% of Workers)		
(1)	Employee $<$ Employer	19.3
Panel B: Underreported Salary Income (SI)		
(2)	Employee $<$ Employer (Rs. Bn)	15.6
(3)	Total Evaders' Employer Reported SI (Rs. Bn)	98.9
(4)	Total Employer Reported SI (Rs. Bn)	437.3
(5)	Employee Underreported SI(% of evaders' SI)	15.7
(6)	Employee Underreported SI(% of total SI)	3.6
Panel C: Underreported Tax Liability		
(7)	Employee $<$ Employer (Rs. Bn)	3.1
(8)	Total Evaders' Employer Reported Tax (Rs. Bn)	14.4
(9)	Total Employer Reported Tax (Rs. Bn)	60.6
(10)	Underreported Tax by Workers (% of evaders' tax)	21.3
(11)	Underreported Tax by Workers (% of total tax)	5.1

Evasion - Salary Misreporting



Evasion - Salary Misreporting: Implications

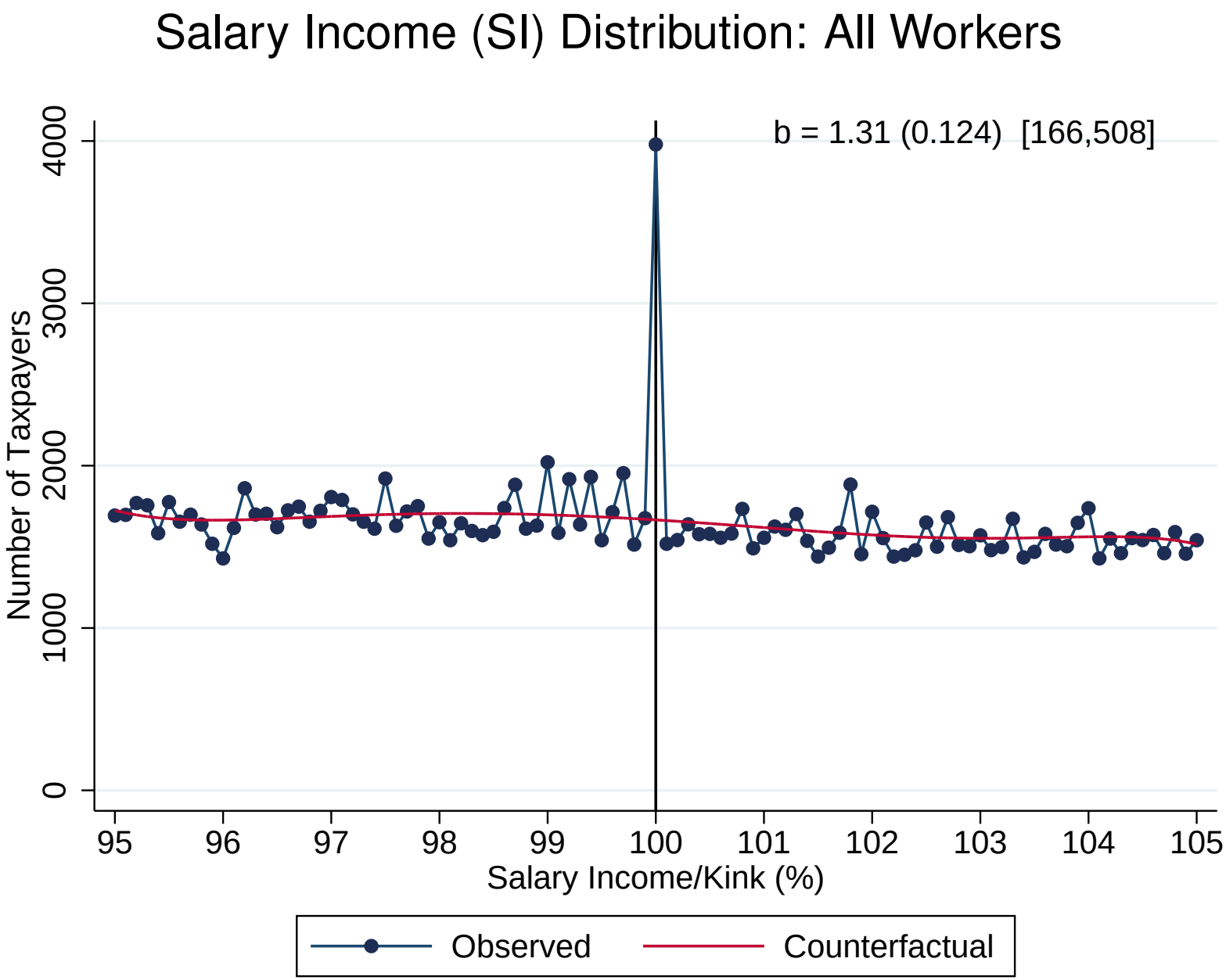
- *19% of workers underreport their salary, by 16% overall, total salary income underreported by >4%*
- Widespread underreporting
  - Contrast with Denmark findings (Kleven et al 2011): 1.3% of individuals underreport, underreport by 0.2%
  - 3rd party reporting ineffective with low fiscal capacity
  - high returns to systematic cross checking
- Evidence consistent with evasion increasing with tax rate
  - Higher salary individuals evade more
  - salary underreporting increasing in nonsalary income
- Tip of the iceberg: Unilateral underreporting, not collusive

Outline

Salary Income Responses

- Taxable Income = **Salary** + Non-salary Income - Evasion
- Kinks in tax schedule $\rightarrow$ incentive to "bunch" at threshold
- Degree of bunching proportional to elasticity needed for optimal policy design

Salary Income Responses

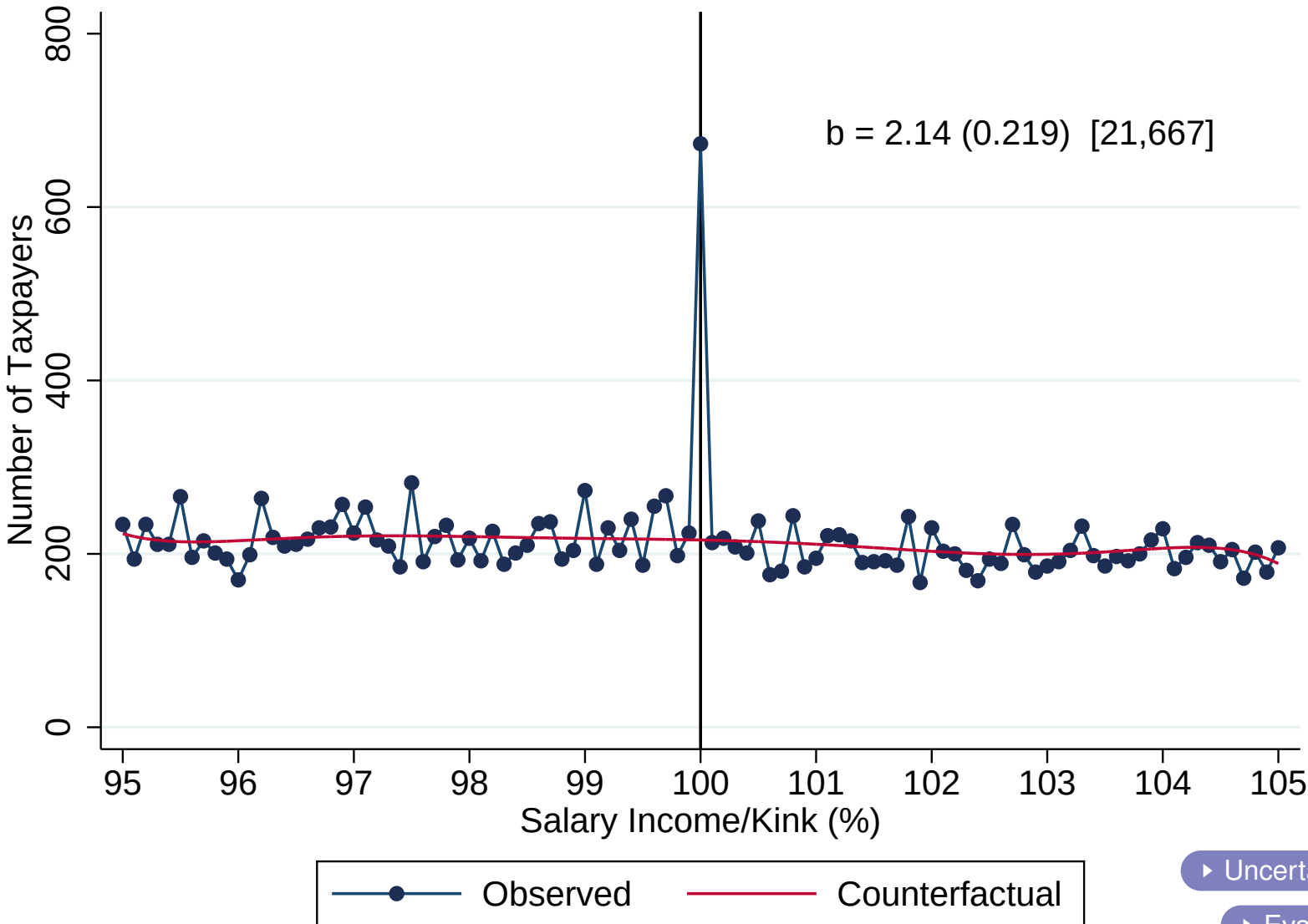


Salary Income Responses

- Salaries bunch strongly at kinks
  - But, salaries determined through interaction of firm and worker
  - Is it firms or workers responding?
- Kinkis in terms of Taxable Income
  - Focus on workers with non-salary income, $\rightarrow$ salary $\neq$ taxable income
  - Bunching of salaries must be driven by firms.

Salary Income Responses

Salary Distribution: Workers with TI≠SI



▸ Uncertainty?
▸ Evaders?

Salary Income Responses: Implications

- *Bunching of SI around kinks, even when TI $\neq$ SI*
- Salary bunching driven by firm salary-hours offers
  - Firms post offers catering to preferences of average worker (typically salary-only)
- Firms key in determining how responsive salary income is

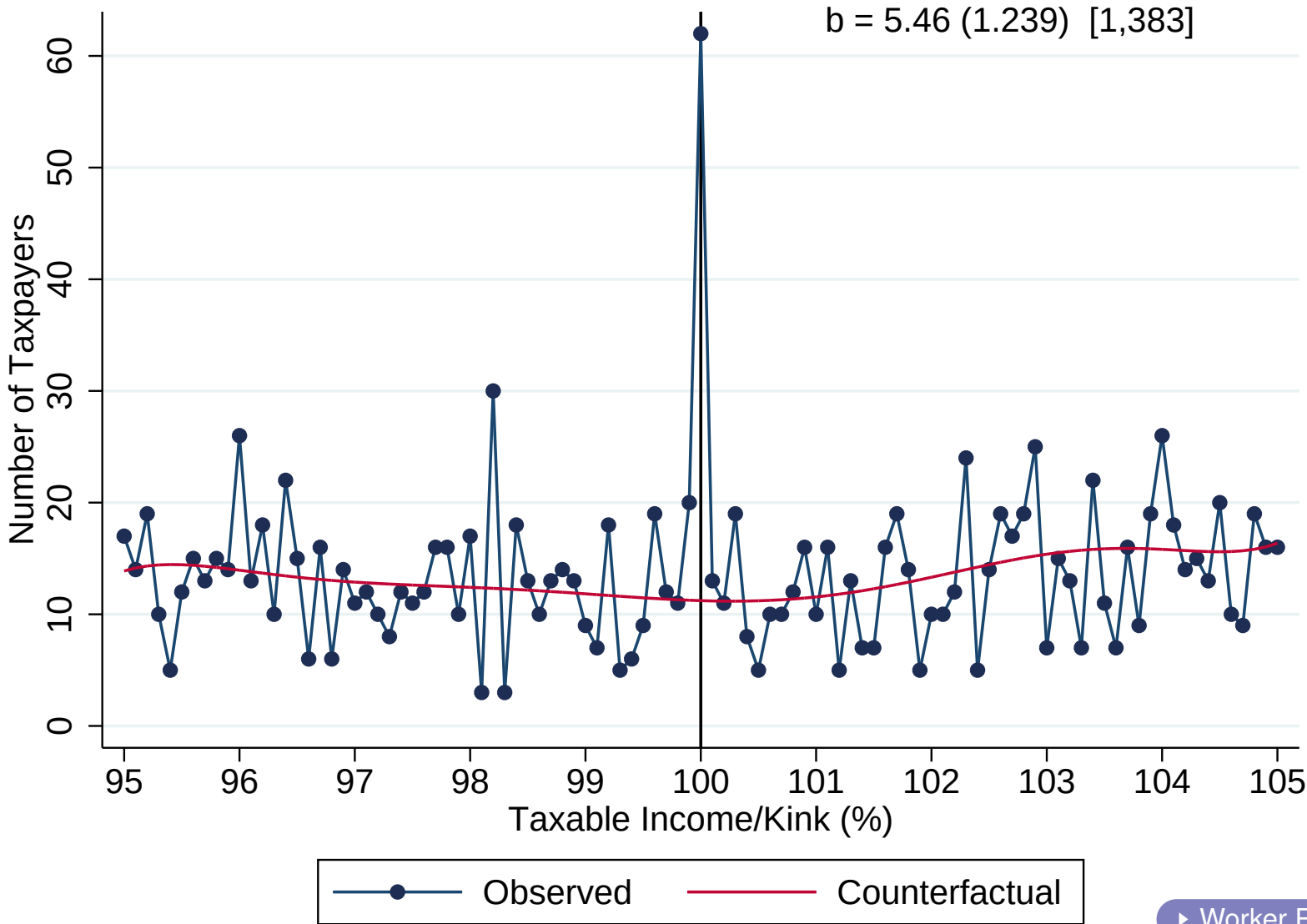
Outline

Non-Salary Income Responses

- Taxable Income = Salary + **Non-salary Income** - Evasion
- Firms set salaries. Do workers respond by adjusting non-salary income?
- Does firm behaviour make workers more responsive?

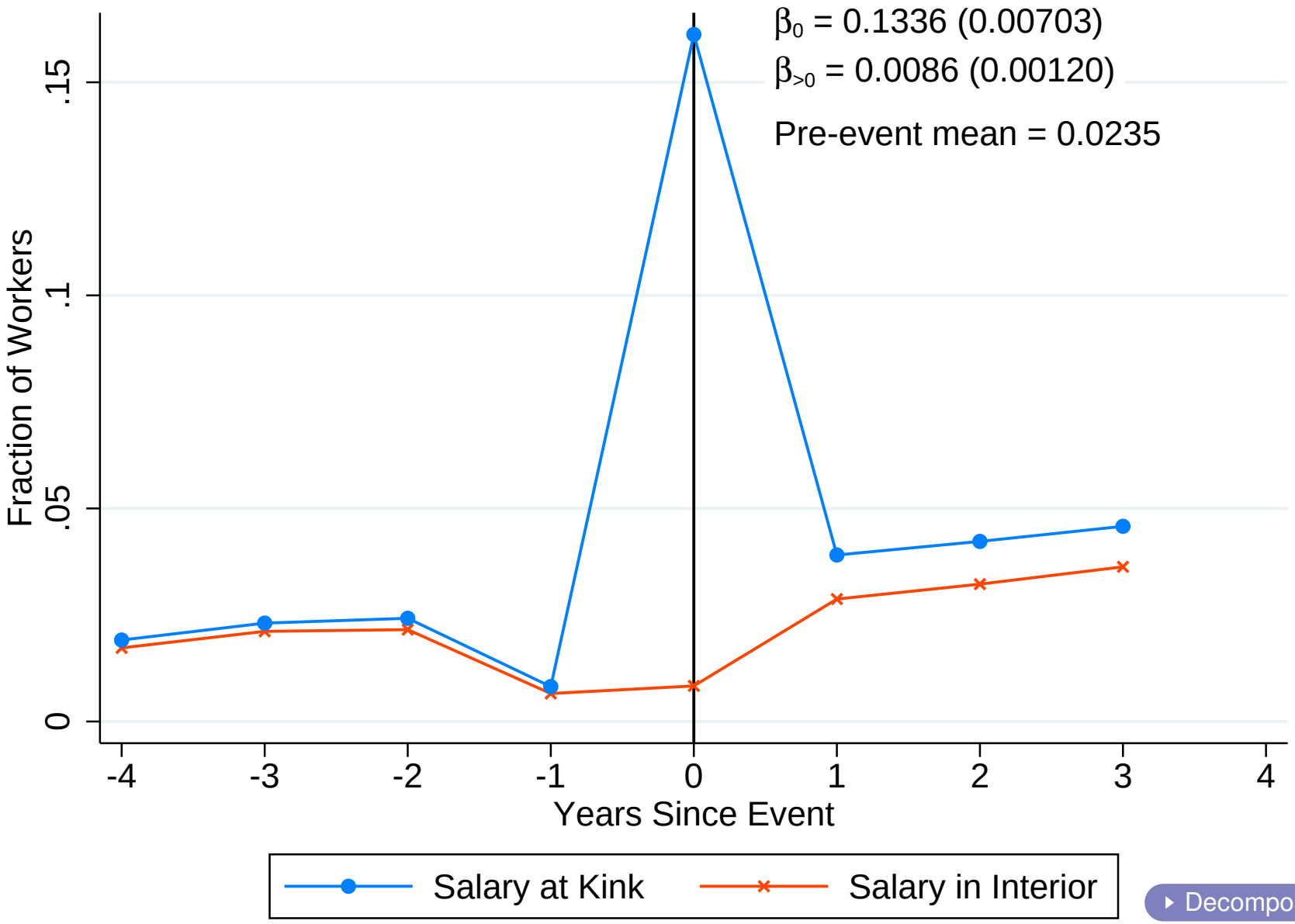
Non-Salary Income Responses: Double Bunching

TI Distribution: Workers with SI at a Kink & TI Away From That Kink



▸ Worker Report

Non-Salary Income Responses: Dynamic Responses



▸ Decompose

Non-Salary Income Responses: Implications

- *Workers with SI bunched around one kink have TI bunched around another kink*
  - $\Rightarrow$ Workers adjust *non-salary income* so taxable income at a different kink
  - Spillover of taxation of salary onto non-salary earnings. Important in LICs
- *Firm bunching in SI makes workers more likely to bunch in TI*
  - 128% contemporaneous effect, medium run effect 36%
  - Natural learning interpretation

Outline

Conclusion: Implications for Tax Policy

- Firms are key: 3rd party reporting *should* improve compliance
  - Need to make sure firm and worker reports match though!
  - High returns to improved capacity for cross checking
  - Would more cross checking $\rightarrow$ more collusion?
- Separate schedules for salaried and non-salaried individuals?
  - Firms set salaries. Easier monitoring $\rightarrow$ higher taxes on salary
  - Non-salary income responsive $\rightarrow$ lower taxes on non-salary
  - Reverse of current system: gives tax cut to salaried individuals

Thank You

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Appendix Slides

Bunching Methodology

- Compute *scaled income* y/K_y
  where K_y is closest kink and $y \in S, TI$

- Look for excess bunching in distribution $h\left(y/K_y\right)$ around 100%
  - estimate counterfactual distribution $\hat{h}^0\left(y/K_y\right)$ using flexible polynomial excluding region around kink
  - excess mass is $\hat{B}_y = \int_{\underline{y}}^{\bar{y}} h\left(y'\right) - \hat{h}^0\left(y'\right) dy'$
  - normalised excess mass is $b_y \equiv \hat{B}_y / \hat{h}^0\left(100\right)$
  - $b_y \propto$ earnings elasticity (Saez, 2010; Chetty *et al.*, 2011)

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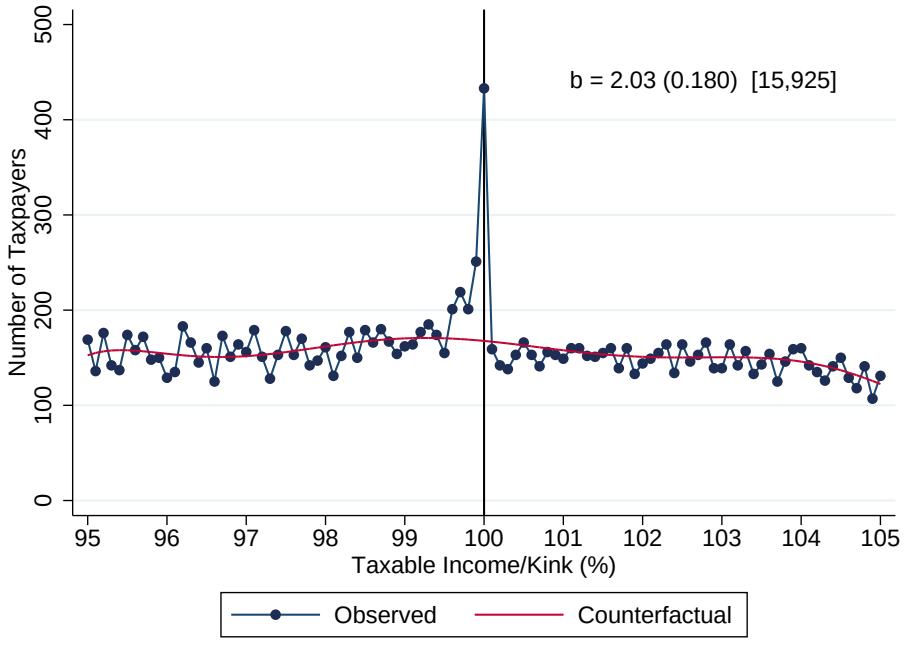
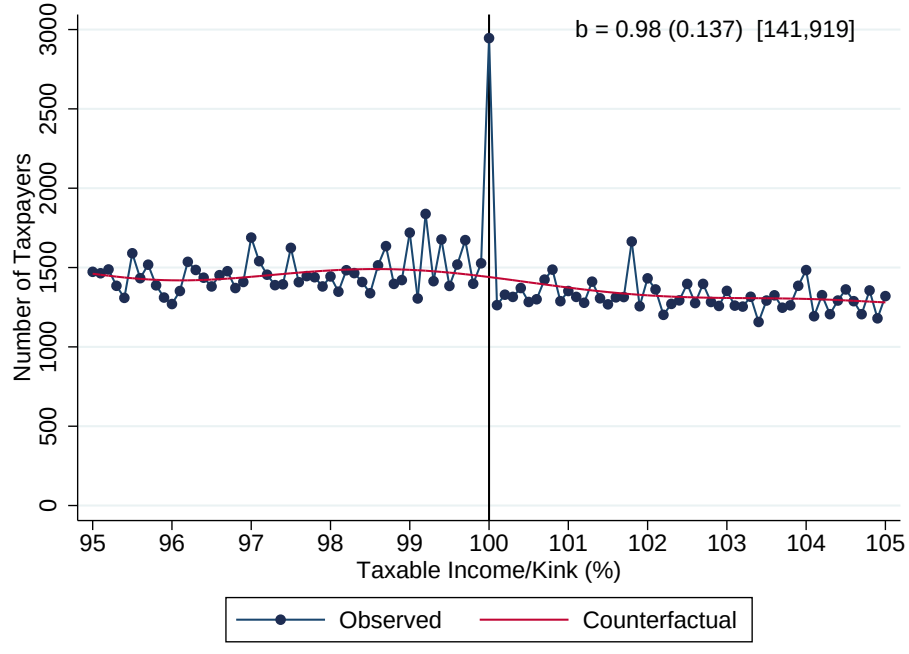
Firm Bunching: Uncertainty?

TI Distributions

TI≠SI



TI=SI



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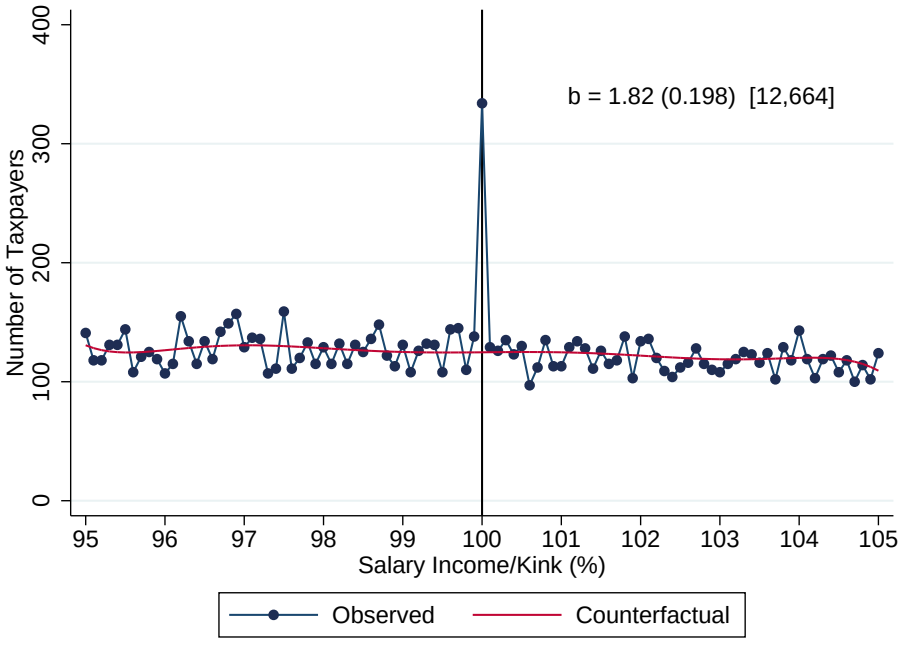
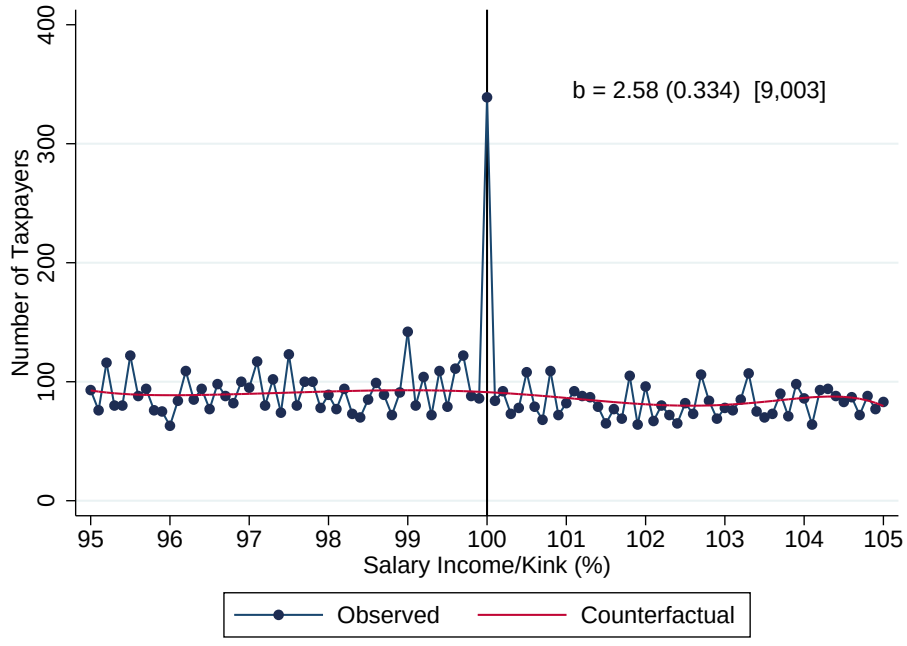
Firm Bunching: Evaders?

Employer SI Distributions

Worker < Employer



Worker ≥ Employer



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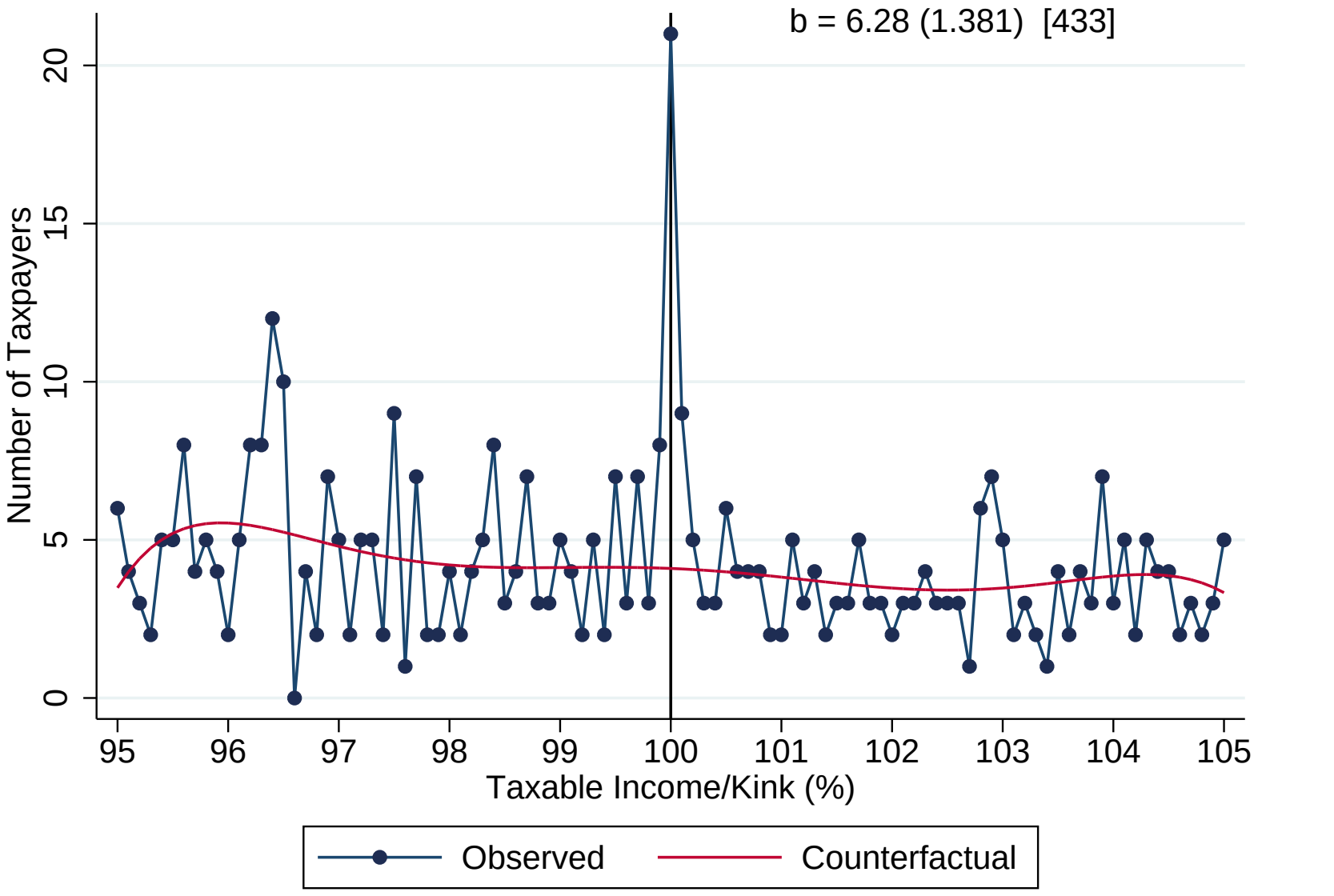
Double Bunching: Worker's Report

TI Distribution: Worker's SI report at a Kink



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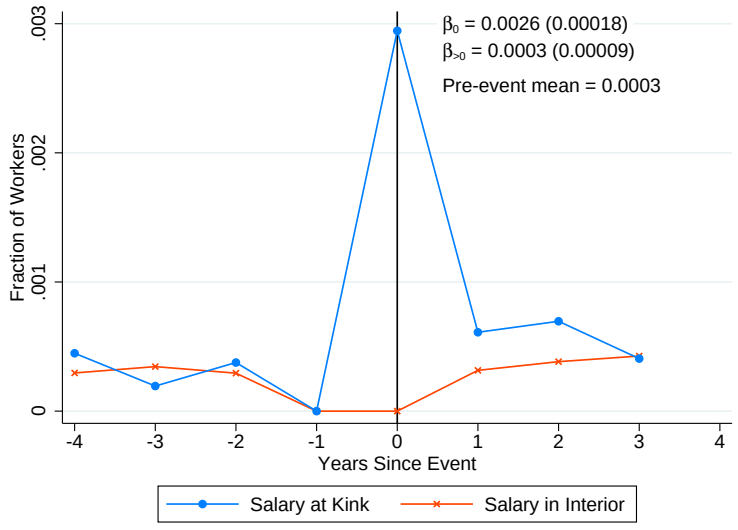
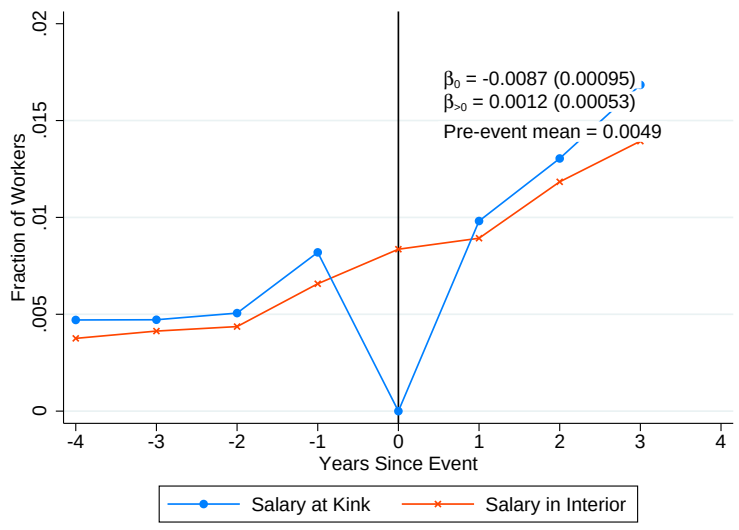
Event Study: Decomposition

Salary Bunches at Different Kink



Salary Does Not Bunch



Salary Bunches at Same Kink

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