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**Webinar | October 10, 2024**

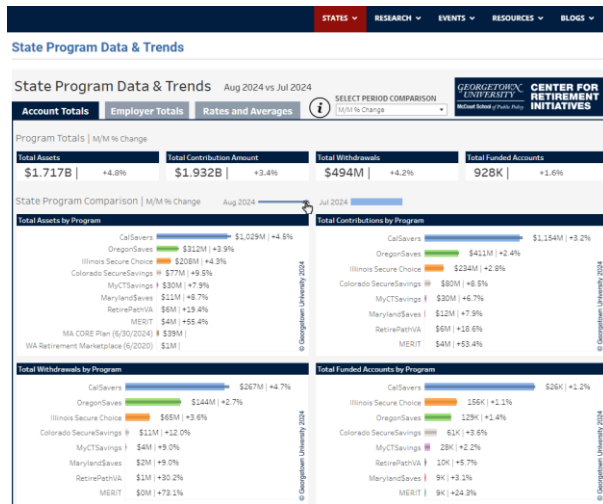
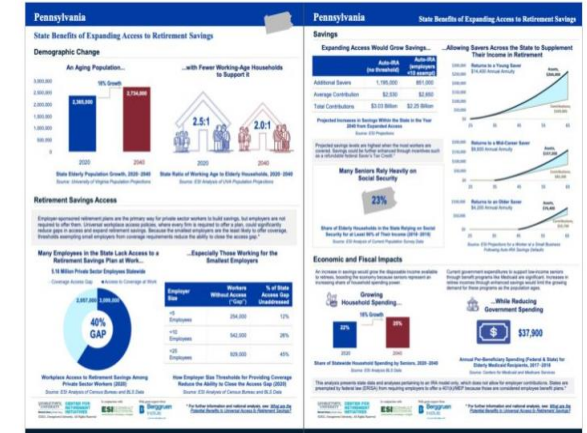
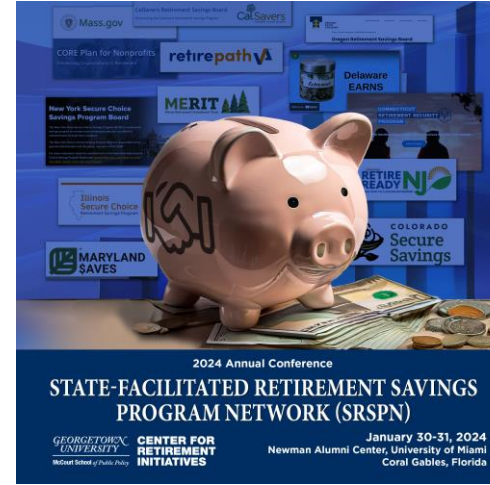
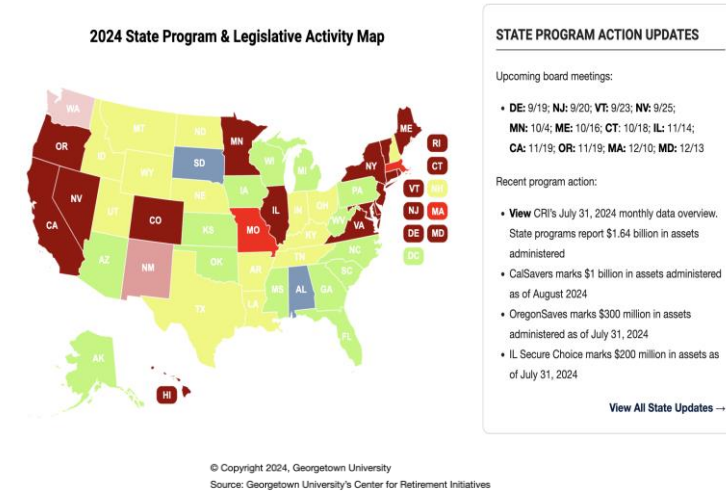
**How Are State Programs and the SECURE Act  
Affecting New Plan Formation?**

# The Georgetown Center for Retirement Initiatives

## State-Facilitated Retirement Savings Programs Research and Clearinghouse

Working to close the access gap for private sector workers since 2014

- Educate and inform about state-facilitated programs
- Host the network of the states (monthly and annual meetings)
- Provide technical assistance to the states to support legislative and program implementation
- Share resources to address legal, policy, and regulatory issues
- Maintain a State Resource Center for the states
- Maintain and disseminate state program performance data
- Share best practices and lessons learned



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**Frequently Asked Questions**

- State-Facilitated Retirement Savings Program Models
- Auto-IRA Common Program Design Features
- Employer and Employee Program Experience
- Comparison of the Basic Features of an IRA and a 401(k)
- A Comparison of Traditional IRAs and Roth IRAs
- Impact of State Programs on Employer-Sponsored Plans
- Vendors Servicing State-Facilitated Retirement Savings Programs

**State Program Guides**

STATE BRIEF 22-01 | JUNE 30  
**State-Facilitated Retirement Features**

This document provides summary state-facilitated retirement savings programs.

**State Resource Center**

Please click below to access materials produced by previous and current study and implementation states.

- State Partnerships
- Study Reports
- Feasibility Studies/Market Analyses
- RFP Request for Proposal
- Snapshot of Plan Design

## Panelists:

- **Adam Bloomfield**, Ph.D., FDIC, and Non-Resident Scholar, Georgetown University Center for Retirement Initiatives
- **Manita Rao**, Ph.D., Senior Policy Advisor, AARP Public Policy Institute, and Non-Resident Scholar, Georgetown University Center for Retirement Initiatives
- **Chad Parks**, Founder and CEO, Ubiquity
- **Jeff Rosenberger**, Ph.D., Chief Operating Officer, Guideline
- **Mary Torgerson**, Head of Small Business Retirement Savings, Ascensus

## Moderator:

- **Angela Antonelli**, Research Professor and Executive Director, Georgetown University Center for Retirement Initiatives

# Why Do Employers Establish Retirement Savings Plans?

## Evidence from State “Auto-IRA” Policies

**Adam Bloomfield**, FDIC, and Georgetown University Center for Retirement Initiatives

**Lucas Goodman**, U.S. Treasury Department

**Manita Rao**, AARP, and Georgetown University Center for Retirement Initiatives

**Sita Slavov**, George Mason University and NBER

# Disclaimer

This research was conducted while Goodman was an employee at the U.S. Department of the Treasury. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors and do not necessarily reflect the views or the official positions of the U.S. Department of the Treasury, AARP, FDIC, the U.S. Government or Georgetown University. Any taxpayer data used in this research was kept in a secured Treasury or IRS data repository, and all results have been reviewed to ensure that no confidential information is disclosed.

# Motivation

- Fringe benefits – mostly **employer-sponsored retirement plans (ESRPs)** and **health insurance** – have grown as a share of employee compensation.
- Most private retirement saving occurs via tax-advantaged ESRPs, but many employers do **not offer** them.
- Workers without ESRPs can still save in a tax advantaged individual retirement account (**IRA**) but most do not.

# “Auto-IRA” Policies

- In recent years, many state governments have adopted “**auto-IRA**” *policies* consisting of **two components**:
  1. **Auto-IRA program**: state-facilitated IRAs for workers.
  2. **Employer mandate**: employers must either offer their own employer-sponsored retirement plan (“**ESRP**”) or facilitate automatic employee contributions to the state auto-IRA program.
- Establishing an ESRP is **costly** (to employers) compared to enrolling workers in an auto-IRA program.
- **We find** many firms establish ESRPs in response to state auto-IRA policies (“**crowd-in**”) and no evidence that firms terminate existing ESRPs in favor of auto-IRA program (“**crowd-out**”).

# Why is this puzzling behavior for employers?

- Firms offer nonwage compensation if the **benefit** to employees (and owner-as-employee) exceeds **cost** to firm (Summers 1989).
  - Cash wages adjusted to capture benefit to employees.
  - Benefits of ESRP: tax advantage, convenience, economies of scale
  - Costs of ESRP: administrative, compliance with nondiscrimination rules and fiduciary requirement.
- Firms optimally compare ESRP offering with next best alternative.
  - **Pre-Policy:** alternative is to offer no retirement savings vehicle.
  - **Post-policy:** alternative is to enroll workers in state auto-IRA program.
  - ESRPs and IRAs are not “new”, if ESRPs are optimal, why did employers not offer them in the previous period?



# Literature: Auto-IRA Programs

- Impact on **IRA participation** and **retirement savings** (Quinby et al. 2020; Chalmers et al. 2022; Dao 2024).
- Impact on **ESRP offering** using Census survey and/or plan-level data (Scott 2021; Bloomfield et al. 2024).
- We revisit impact on ESRP offering using **tax return data**:
  - Improved treatment assignment using firm size.
  - More recent auto-IRA policy expansions.
  - More granular analysis of heterogeneous responses across employer size, industry, worker, and owner demographics

# Literature: Automatic Enrollment

- Automatic enrollment **boosts short-run DC ESRP participation** and influences **savings intensity**, although the impact on long-term saving is less clear (Madrian and Shea 2001; Choi et al. 2004; Choukmane 2021; Beshears et al. 2021; Derby et al. 2023).
- We focus on **employer decisions** to offer ESRPs, rather than worker decisions to participate.

# Literature: Employer Fringe Benefit Offerings

- *Why firms offer fringe benefits*: role of **unions** (Freeman 1981), **tax policy** (Long and Scott 1982, 1984; Turner 1987a, 1987b), **worker characteristics** (Rhine 1987), **economies of scale** in benefit provision and search costs (Oyer 2008), **desire to attract female employees** (Liu et al. 2023).
- *How compensation packages respond to government mandates*: **minimum wage laws** (Clemens et al. 2018; Clemens 2021; Meiselbach and Abraham 2023), **health insurance mandates** (Kolstad and Kowalski 2016; Lyons 2017; Abraham 2019).
- We examine impact of state mandate on employer decisions to offer DC ESRPs.

# Literature: Behavioral Economics and Firm Decision-Making

- Role of **behavioral factors** in firm decision-making (Heidhues and Kozzegi 2018; Malmendier 2018)
- We argue that that neoclassical factors **cannot fully explain** large impact of auto-IRA policies on employer decisions to offer ESRPs
  - **Plausible alternatives:** inertia, salience, marketing.

# Policy Implications

- States continue to roll out auto-IRA policies.
- At federal level, **SECURE** Act and **SECURE 2.0** aim to boost ESRP coverage, participation, and retirement saving.
- More generally, **employer mandates** are a widespread policy tool that governments use to affect societal goals.

# Background: Tax-Advantaged Retirement Saving

- Employer Sponsored Retirement Plans (**ESRPs**):
  - **Defined benefit (DB)** plan: workers receive benefit based on formula that accounts for age, years of service, and salary.
  - **Defined contribution (DC)** plan: workers make voluntary contributions to account, possibly with employer contributions or matching, then draw down on savings to finance retirement. Includes 401(k)s, 403(b)s, and SIMPLE IRAs.
  - Coverage estimates **vary**: 70% of workers have access to any ESRP and 67% have access to DC plan (source: [BLS](#)).
- Individual Retirement Accounts (**IRAs**):
  - Available to most workers, no employer contributions or matching.

# Auto-IRA Policy “Experiments”

- In each adopting state, auto-IRA policies have been rolled out at different **times** for different **firm size categories** (e.g., 50-99)
- An “experiment” is an **expansion** of a state’s auto-IRA mandate.
  - Compare affected firms to **control group** of firms in same size category in **non-adopting states**.
- Focus on expansions applying to firms with fewer than **100** employees.
- We focus mainly on experiments occurring in 2022 or earlier.

# Main Auto-IRA Policy Experiments

<b>State</b>	<b>Employer Size</b>	<b>Year of Implementation</b>
Oregon	20-99	2018
Oregon	5-19	2019
Illinois	25-99	2019
California	50-99	2021
Illinois	16-24	2022
California	5-49	2022
Connecticut	26-99	2022



# Other Experiments, not included in Main Analysis

- **2023** expansions:
  - Illinois (5-15 employees)
  - Connecticut (5-25 employees).
  - Colorado (5+ employees).
  - Virginia and Maryland (pilot programs).
- Maryland adopted auto-IRA policy in 2022, but employer mandate incentivized by tax credit rather than financial penalties for noncompliance.
- We exclude **Colorado, Maine, Maryland, and Virginia** firms from all control groups.

# Data (1)

- Employer-level annual panel from tax filings from **2012 – 2023**.
  - Each Employer Identification Number (**EIN**) treated a distinct employer.
  - **Full population** of firms from adopting states (California, Oregon, Illinois, and Connecticut); **10% random sample** of firms from other states.
  - Industrial classification from **business tax returns** and health insurance offers from Forms **1095-B** and **1095-C** beginning in 2015.
  - Obtain state and employee count from **Form 941**.
- Link each EIN to employees' **W-2s**.
  - Use presence employee contributions (in **Box 12**) to determine if firm offers ESRP.

# Data (2)

- Employee Characteristics (from **W-2** linkage)
  - **Income, marital status, geography**, and other characteristics from **1040**.
  - **Date of birth** and **gender** from Social Security records
  - **Race/ethnicity** imputed based on name and zip code.
- Owner Characteristics
  - Identify natural person owner when possible.
  - Use **Schedule K-1** (of **Forms 1120S** and **1065**) or individual tax return for **S-corporations, partnerships, and sole proprietorships**.
  - For closely-held **C corporations**, **Schedule G** of **Form 1120** lists owners with at least 20% direct ownership share.
  - Obtain same characteristics for owners as we do for workers.

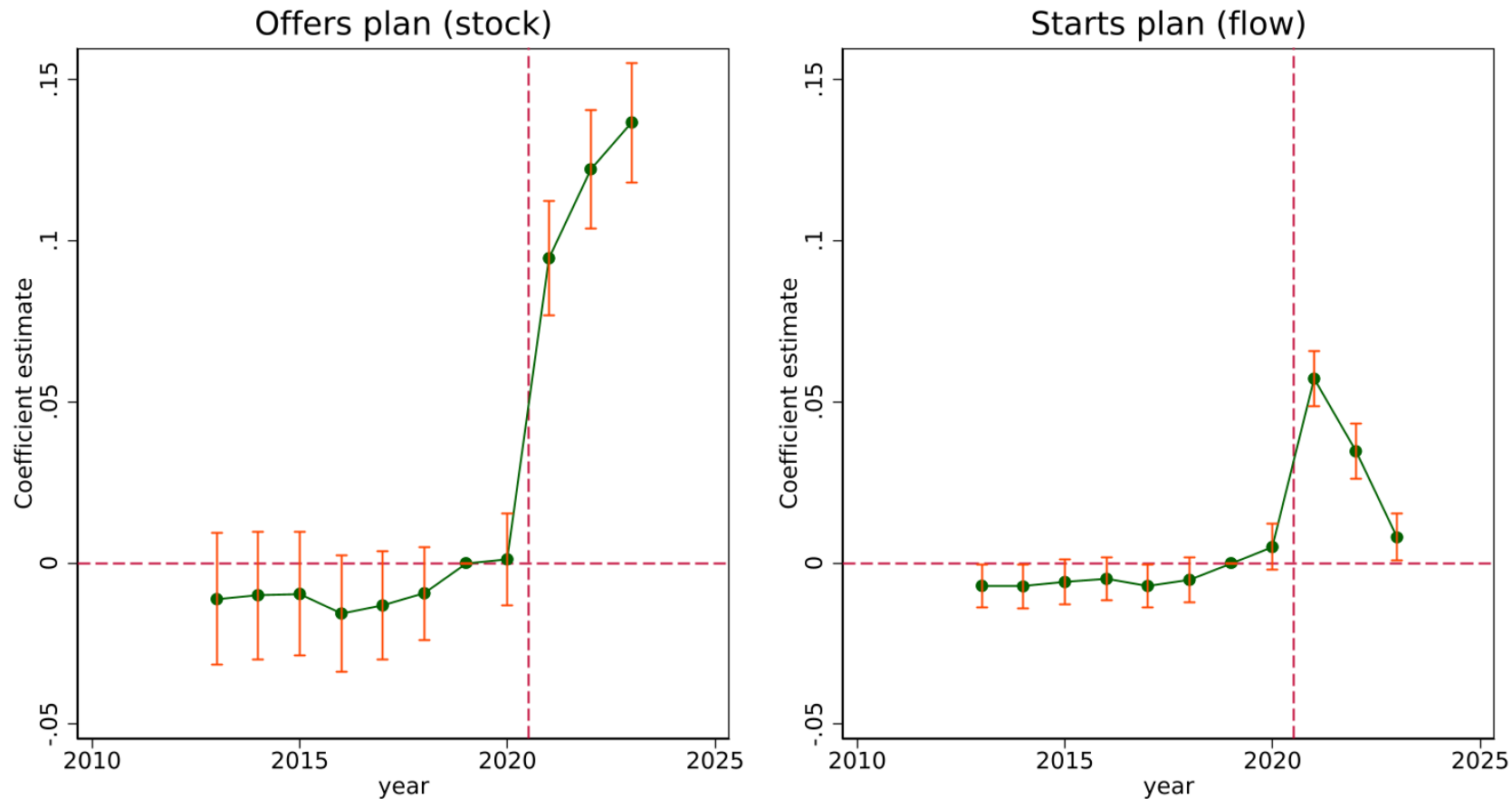
# Dependent Variables

- **“Offers Plan” (stock): 1** if a firm offers ESRP to any employees and **zero** otherwise.
- **“Starts Plan” (flow): 1** if a firm did not offer an ESRP last year and offers an ESRP this year, **zero** otherwise.
  - Unconditional probability of starting to offer an ESRP among firms that existed last year.
- **“Stops Plan” (flow): 1** if a firm offered an ESRP last year and does not offer an ESRP this year, **zero** otherwise.
  - Unconditional probability of terminating an ESRP among firms that existed last year.

# Methods

- Estimate **event study** for each experiment, using two years prior to implementation ( $t = -2$ ) as reference period.
  - **Treatment group**: affected firms (in adopting state / firm size category).
  - **Control group**: same size firms in non-adopting states.
- Obtain aggregate effect using **stacked** event study (Cengiz, et al. 2019).
  - Use balanced panel at state-year level - i.e., follow all seven experiments through  $t = +1$ , only 2021 and earlier experiments through  $t = +2$ .

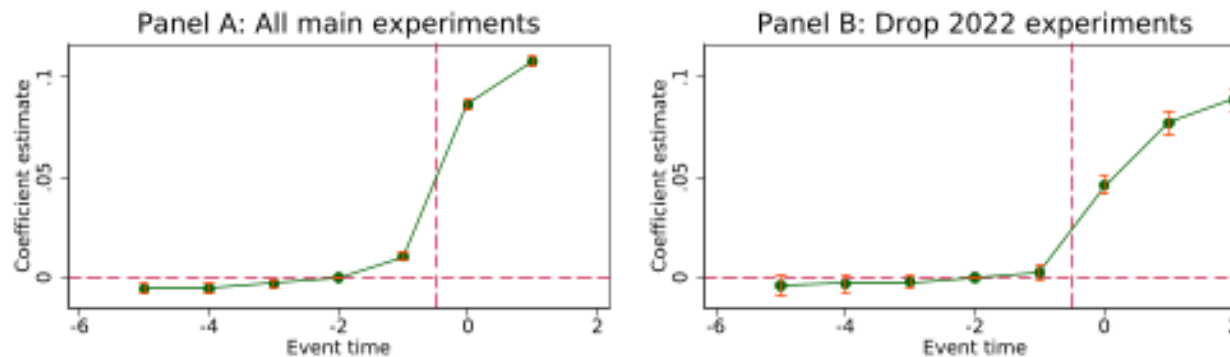
# California, 50-99 employees (2021)



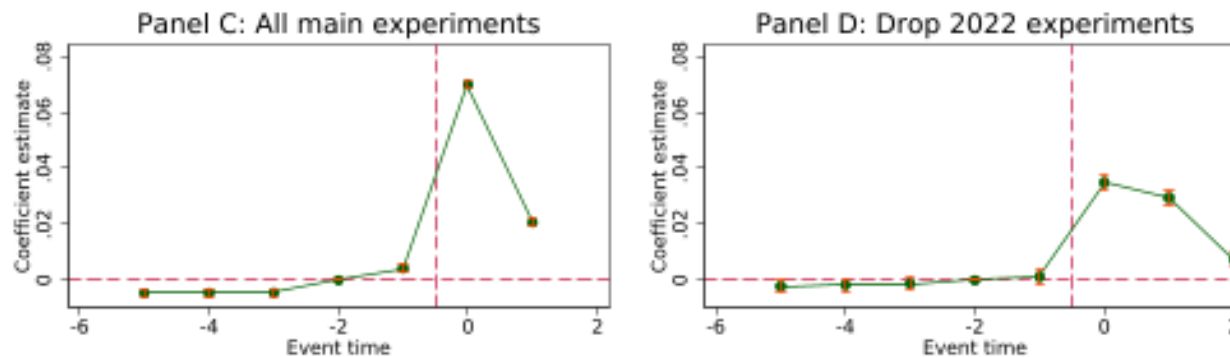
# Stacked Event Study Results

# Offers Plan (**Stock**) and Starts Plan (**Flow**)

## Offers plan (stock)

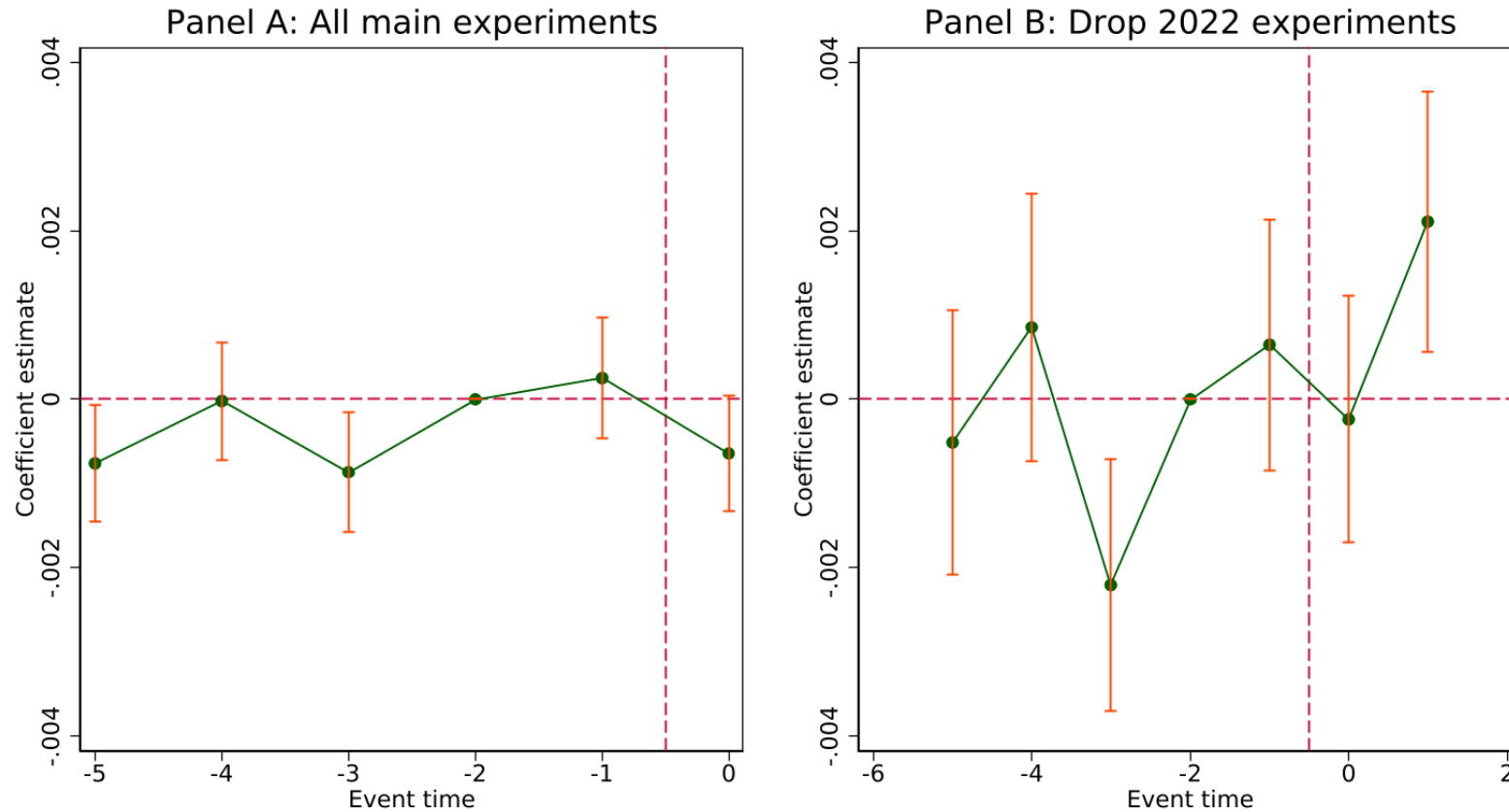


## Starts plan (flow)





# Stops Plan (Flow)



# How “Big” is the Impact? (1)

State	Employer Size	Year of Implementation	Firms induced to offer (1)	Firms not offering, pre-policy (2)	Share induced (3)
Oregon	20-99	2018	416	3170	13.1%
Oregon	5-19	2019	1795	16164	11.1%
Illinois	25-99	2019	883	6918	12.8%
California	50-99	2021	1395	6176	22.6%
Illinois	16-24	2022	477	5895	8.1%
California	5-49	2022	26513	165315	16.0%
Connecticut	26-99	2022	321	1856	17.3%

Firms **induced** to offer: event time coefficients for “starts plan” at t = -1, 0, and 1 multiplied by number of firms and summed.

# How “Big” is the Impact? (2)

<b>State</b>	<b>Induced ESRP</b>	<b>Firms participating in Auto-IRA</b>	<b>ESRP as share of sum</b>
	(1)	(2)	(3)
Oregon	2211	6000	27%
California	27908	34000	45%
Illinois	1360	3700	27%

# Firm choices with respect to the policies?

- “**Complier**” = firm in treated group that is induced to offer an ESRP by the policy.
- “**Always-Taker**” = firm that starts an ESRP for reasons unrelated to policy.
- “**Never-Offerer**” = firm that does not offer ESRP regardless of policy.
- “**Always-Offerer**” = firm that offered ESRP both before and after policy.

# Which Firms are Induced to Offer ESRPs?

<u>Characteristic</u>	<u>Compliers</u>	<u>Never-offerers</u>	<u>Always-offerers</u>	<u>Always-take</u>
<b><u>Industries</u></b>				
Education/Health	<b>0.144</b> (0.006)	<b>0.124</b> (0.001)	<b>0.199</b> (0.002)	<b>0.203</b> (0.007)
Goods-Producing	<b>0.165</b> (0.006)	<b>0.177</b> (0.001)	<b>0.203</b> (0.002)	<b>0.181</b> (0.007)
Leisure/Hospitality	<b>0.249</b> (0.005)	<b>0.266</b> (0.002)	<b>0.043</b> (0.001)	<b>0.127</b> (0.005)
Professional Services	<b>0.102</b> (0.005)	<b>0.089</b> (0.001)	<b>0.233</b> (0.002)	<b>0.176</b> (0.007)
Trade, Transportation, Utilities	<b>0.206</b> (0.006)	<b>0.204</b> (0.001)	<b>0.151</b> (0.001)	<b>0.154</b> (0.007)
All other industries	<b>0.134</b> (0.005)	<b>0.140</b> (0.001)	<b>0.171</b> (0.002)	<b>0.158</b> (0.006)
<b><u>Other characteristics</u></b>				
Offers health insurance	<b>0.356</b> (0.008)	<b>0.264</b> (0.002)	<b>0.728</b> (0.002)	<b>0.498</b> (0.009)
Offers SIMPLE IRA (at event time 1)	<b>0.220</b> (0.006)	<b>0.000</b> (0.000)	<b>0.166</b> (0.002)	<b>0.142</b> (0.008)

# What are the characteristics of their employees and owners?

Characteristic	<i>Employees</i>				<i>Owners</i>			
	Compliers (1)	Never- offerers (2)	Always- offerers (3)	Always- takers (4)	Compliers (5)	Never- offerers (6)	Always- offerers (7)	Always- takers (8)
Age	<b>38.37</b> (0.11)	<b>39.30</b> (0.03)	<b>41.82</b> (0.03)	<b>37.63</b> (0.13)	<b>52.69</b> (0.35)	<b>54.02</b> (0.09)	<b>55.56</b> (0.19)	<b>50.63</b> (0.36)
Male	<b>0.527</b> (0.004)	<b>0.533</b> (0.001)	<b>0.509</b> (0.001)	<b>0.507</b> (0.005)	<b>0.686</b> (0.014)	<b>0.692</b> (0.002)	<b>0.740</b> (0.008)	<b>0.703</b> (0.011)
Married	<b>0.347</b> (0.003)	<b>0.368</b> (0.001)	<b>0.471</b> (0.001)	<b>0.372</b> (0.004)	<b>0.742</b> (0.014)	<b>0.749</b> (0.005)	<b>0.811</b> (0.003)	<b>0.758</b> (0.011)
Have Dependents	<b>0.315</b> (0.002)	<b>0.331</b> (0.001)	<b>0.362</b> (0.001)	<b>0.345</b> (0.003)	<b>0.462</b> (0.012)	<b>0.430</b> (0.007)	<b>0.435</b> (0.005)	<b>0.501</b> (0.014)
Black	<b>0.046</b> (0.001)	<b>0.047</b> (0.000)	<b>0.045</b> (0.000)	<b>0.052</b> (0.002)	<b>0.043</b> (0.002)	<b>0.045</b> (0.001)	<b>0.037</b> (0.001)	<b>0.045</b> (0.003)
Hispanic	<b>0.365</b> (0.003)	<b>0.366</b> (0.001)	<b>0.267</b> (0.001)	<b>0.300</b> (0.003)	<b>0.199</b> (0.026)	<b>0.194</b> (0.024)	<b>0.126</b> (0.018)	<b>0.154</b> (0.023)
Investment income	<b>0.360</b> (0.003)	<b>0.355</b> (0.001)	<b>0.486</b> (0.001)	<b>0.388</b> (0.003)	<b>0.801</b> (0.013)	<b>0.782</b> (0.013)	<b>0.922</b> (0.011)	<b>0.837</b> (0.016)
Log wages	<b>9.814</b> (0.012)	<b>9.732</b> (0.003)	<b>10.679</b> (0.003)	<b>10.125</b> (0.014)	N/A	N/A	N/A	N/A
New this year	<b>0.362</b> (0.004)	<b>0.352</b> (0.001)	<b>0.240</b> (0.001)	<b>0.396</b> (0.005)	N/A	N/A	N/A	N/A

# Discussion and Conclusions

- State auto-IRA policies have a **large** “crowd-in” **effect** on employer decisions to offer retirement plans to workers.
  - There is **no** meaningful crowd-out effect.
- Firms induced to offer ESRPs (compliers) **resemble** never-offering firms rather than always-offering firms.
- Findings **cannot be fully explained** in a neoclassical model with rational firms.

**QUESTIONS?**



**Center for Retirement Initiatives  
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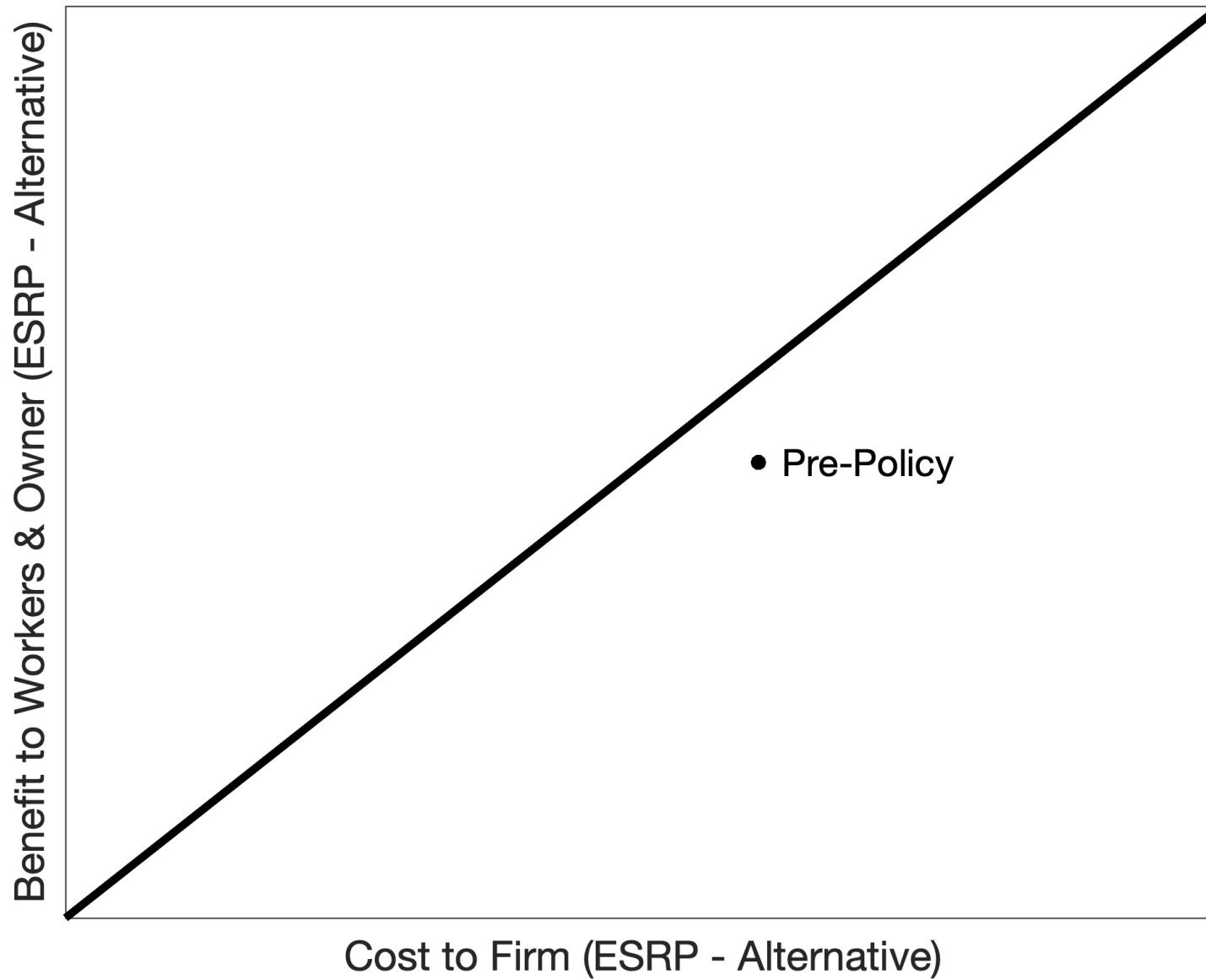
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# Appendix

# Conceptual Framework

- What explains relatively large crowd-in with little crowd-out?
- Firms offer fringe benefit if benefit to employees (and owner-as-employee) exceeds cost to firm (Summers 1989).
  - Cash wages adjusted to capture benefit to employees.
  - Benefits of ESRP: tax advantage, convenience.
  - Costs of ESRP: administrative, compliance with nondiscrimination rules and fiduciary requirement.
- Firms compare ESRP offering with next best alternative.
  - Pre-Policy: alternative is to offer no retirement savings vehicle.
  - Post-policy: alternative is to enroll workers in state auto-IRA program.

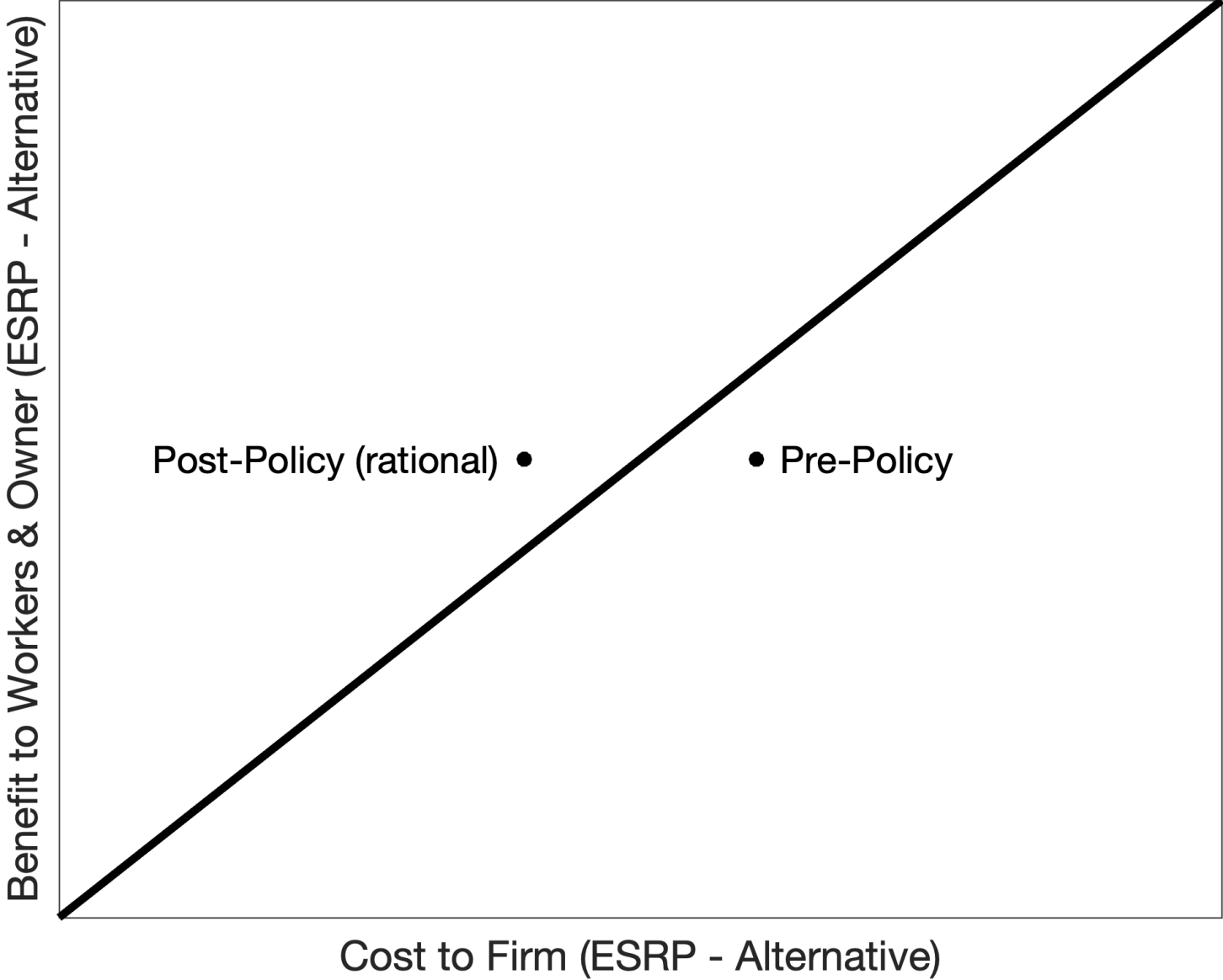
# Stylized ESRP Offering Decision



# Case 1: Firms and Workers Fully Rational

- Auto-IRA has administrative cost to firm (possibly small).
- Auto-IRA has no value to workers (replicates existing part of choice set).
- Firm moves left (amount depends on administrative cost of using auto-IRA program).
- Prediction: no crowd-out, some crowd-in (possibly small).

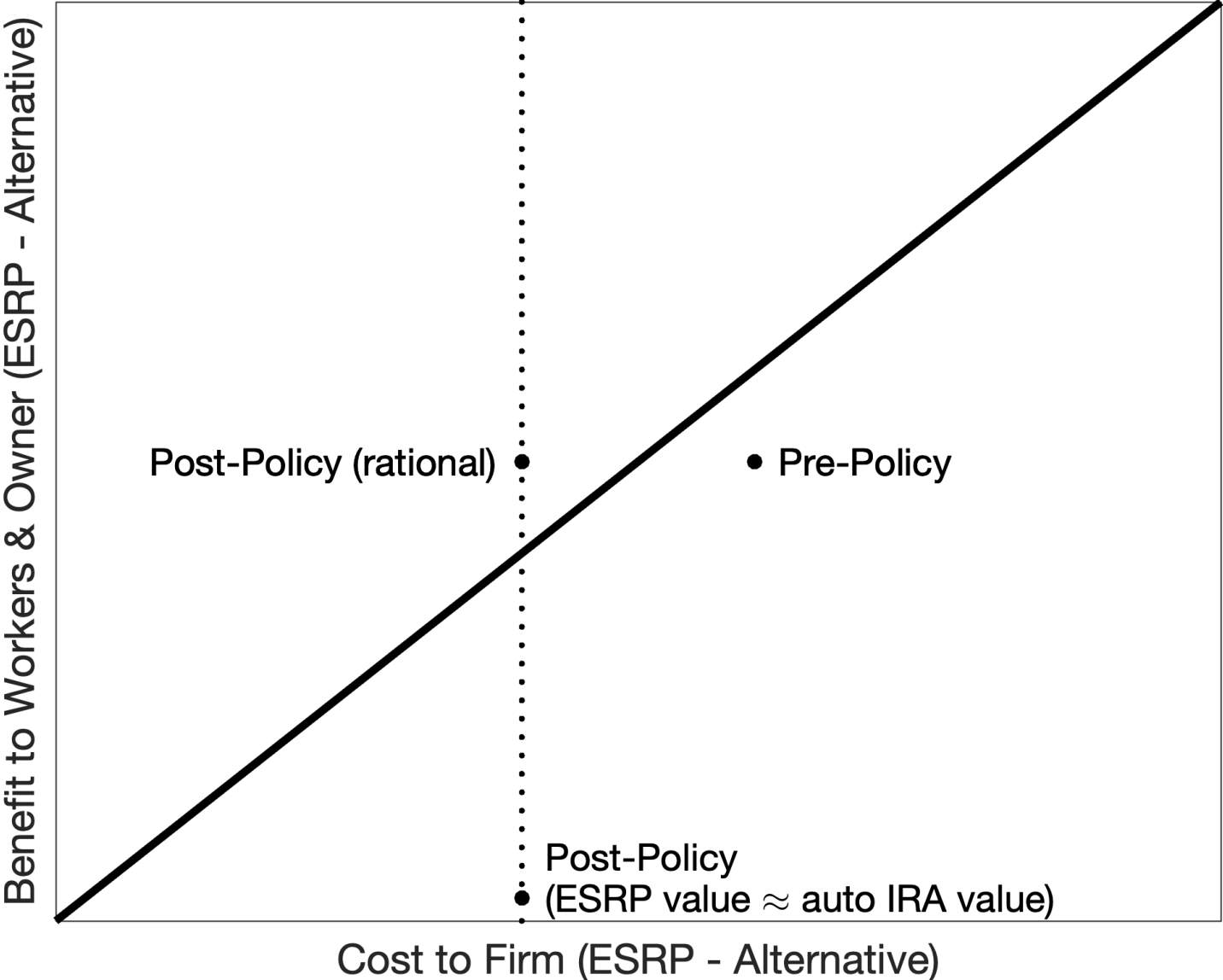
# Stylized ESRP Offering Decision



# Case 2: Auto-IRAs Have Positive Value to Workers

- If workers are “behavioral” they may value convenience and opportunity to overcome present-biased preferences.
- Firm moves left (amount depends on administrative cost of using auto-IRA program) and down (amount depends on value of auto-IRA to workers)
- Prediction: potential crowd-in, possibly significant crowd-out.

# Stylized ESRP Offering Decision

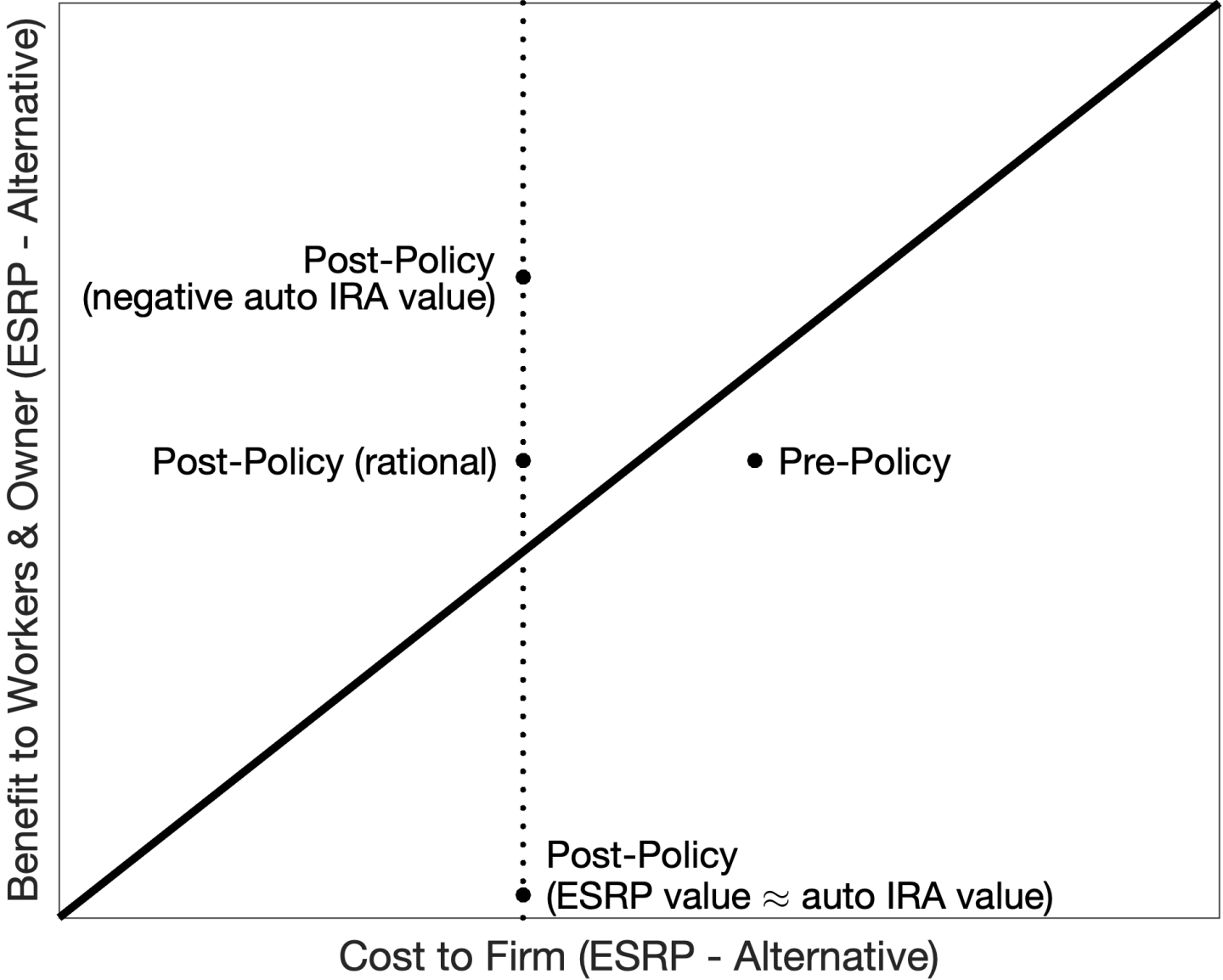




# Case 3: Auto-IRAs Have Negative Value to Workers

- If “behavioral” workers do not wish to save for retirement, auto-enrollment imposes costs on them.
- Firm moves left (amount depends on administrative cost of using auto-IRA program) and up (amount depends on negative value of auto-IRA to workers).
- Prediction: crowd-in, but with ESRPs that do not feature auto-enrollment.

# Stylized ESRP Offering Decision



# What could cause **large crowd-in** with **no crowd-out**?

- Auto-IRAs have low or zero value to workers AND (perceived) high administrative cost to firm.
  - Workers fully rational.
  - Workers not fully rational but do not value auto IRAs.
- Auto-IRAs have negative value to not-fully-rational workers who are burdened by auto-enrollment.

# Do auto-IRAs have **negative value** to employees?

- Model predicts that in this case, new ESRPs will not feature auto-enrollment.
  - Cannot directly observe whether ESRP has automatic enrollment.
- Can observe participation rates (lower without auto-enrollment):
  - 33.5% for compliers vs. 37.5% for always-takers.
- Also, firms that establish ESRPs in 2023 or later must auto-enroll new employees starting in 2025 (SECURE 2.0 Act)
  - Compare 2023 experiments in Connecticut and Colorado with 2022 experiment in California.
  - Prediction: smaller crowd-in from 2023 experiments because auto-enrollment cannot be avoided by starting an ESRP.

# Comparison of 2022 and 2023 Experiments

	<u>Starts plan</u>		<u>Offers plan</u>	
	(1)	(2)	(3)	(4)
2022 experiment	California	California	California	California
2023 experiment	Colorado	Connecticut	Colorado	Connecticut
Firm size	5-49	5-24	5-49	5-24
2022 effect	<b>0.096</b> (0.001)	<b>0.099</b> (0.002)	<b>0.122</b> (0.002)	<b>0.121</b> (0.003)
2023 effect	<b>0.111</b> (0.003)	<b>0.081</b> (0.005)	<b>0.131</b> (0.004)	<b>0.078</b> (0.007)

# Do auto-IRAs have **zero** or **small value** to employees?

- They may be fully rational and not wish to save in an IRA.
- They may already be contributing to an IRA.
- They may not be eligible to contribute to an IRA due to income limits.
- They may wish to save more than the IRA contribution limit.

# IRA Contribution and Income Limits

Characteristic	<u>Employees</u>				<u>Owners</u>			
	Compliers (1)	Never-offerers (2)	Always-offerers (3)	Always-takers (4)	Compliers (5)	Never-offerers (6)	Always-offerers (7)	Always-takers (8)
<u>IRA and ESRP participation rate</u>								
Contribute to IRA (-2)	<b>0.090</b> (0.002)	<b>0.079</b> (0.000)	<b>0.098</b> (0.000)	<b>0.107</b> (0.002)	<b>0.206</b> (0.012)	<b>0.188</b> (0.008)	<b>0.113</b> (0.009)	<b>0.238</b> (0.015)
Contribute to this ESRP (1)	<b>0.335</b> (0.004)	<b>0.000</b> (0.000)	<b>0.461</b> (0.001)	<b>0.375</b> (0.005)	<b>0.260</b> (0.026)	<b>0.000</b> (0.000)	<b>0.624</b> (0.023)	<b>0.504</b> (0.030)
<u>Contribution limits</u>								
Income above Roth IRA limits (-2)	<b>0.075</b> (0.002)	<b>0.072</b> (0.000)	<b>0.177</b> (0.001)	<b>0.118</b> (0.002)	<b>0.455</b> (0.041)	<b>0.435</b> (0.028)	<b>0.712</b> (0.017)	<b>0.600</b> (0.013)
Contributions to ESRP above IRA contribution limits (1)	<b>0.025</b> (0.002)	<b>0.000</b> (0.000)	<b>0.163</b> (0.001)	<b>0.076</b> (0.002)	<b>0.071</b> (0.020)	<b>0.000</b> (0.000)	<b>0.491</b> (0.018)	<b>0.323</b> (0.025)

# Do auto-IRAs have a **large (perceived) administrative cost** to employers?

- Auto-IRA participation requires paperwork.
  - ESRPs have higher costs but can perhaps more easily be outsourced to third-parties.
  - Paperwork costs to owners can potentially be inferred by use of paid preparer, filing tax return later in year, or claiming of tax credit for new ESRPs.
- Owners may have distaste for government programs.



# Burden and Hassle Costs to Employers

Characteristic	Compliers	Never-offerers	Always-offerers	Always-takers
<b><u>Tax filing behavior</u></b>				
Has Form 941 preparer	<b>0.503</b> (0.007)	<b>0.546</b> (0.002)	<b>0.502</b> (0.002)	<b>0.527</b> (0.009)
Has Form 1120S preparer	<b>0.135</b> (0.009)	<b>0.256</b> (0.003)	<b>0.130</b> (0.002)	<b>0.168</b> (0.010)
Average Form 1120S filing time (days)	<b>151.9</b> (2.2)	<b>146.7</b> (0.6)	<b>148.8</b> (0.6)	<b>142.2</b> (2.3)
<b><u>Take-up of section 45E credit</u></b>				
Receives section 45E credit	<b>0.035</b> (0.006)	<b>0.002</b> (0.000)	<b>0.009</b> (0.001)	<b>0.093</b> (0.007)
<b><u>Proxied political ideology</u></b>				
County Democratic vote share	<b>0.636</b> (0.002)	<b>0.638</b> (0.000)	<b>0.641</b> (0.001)	<b>0.645</b> (0.002)

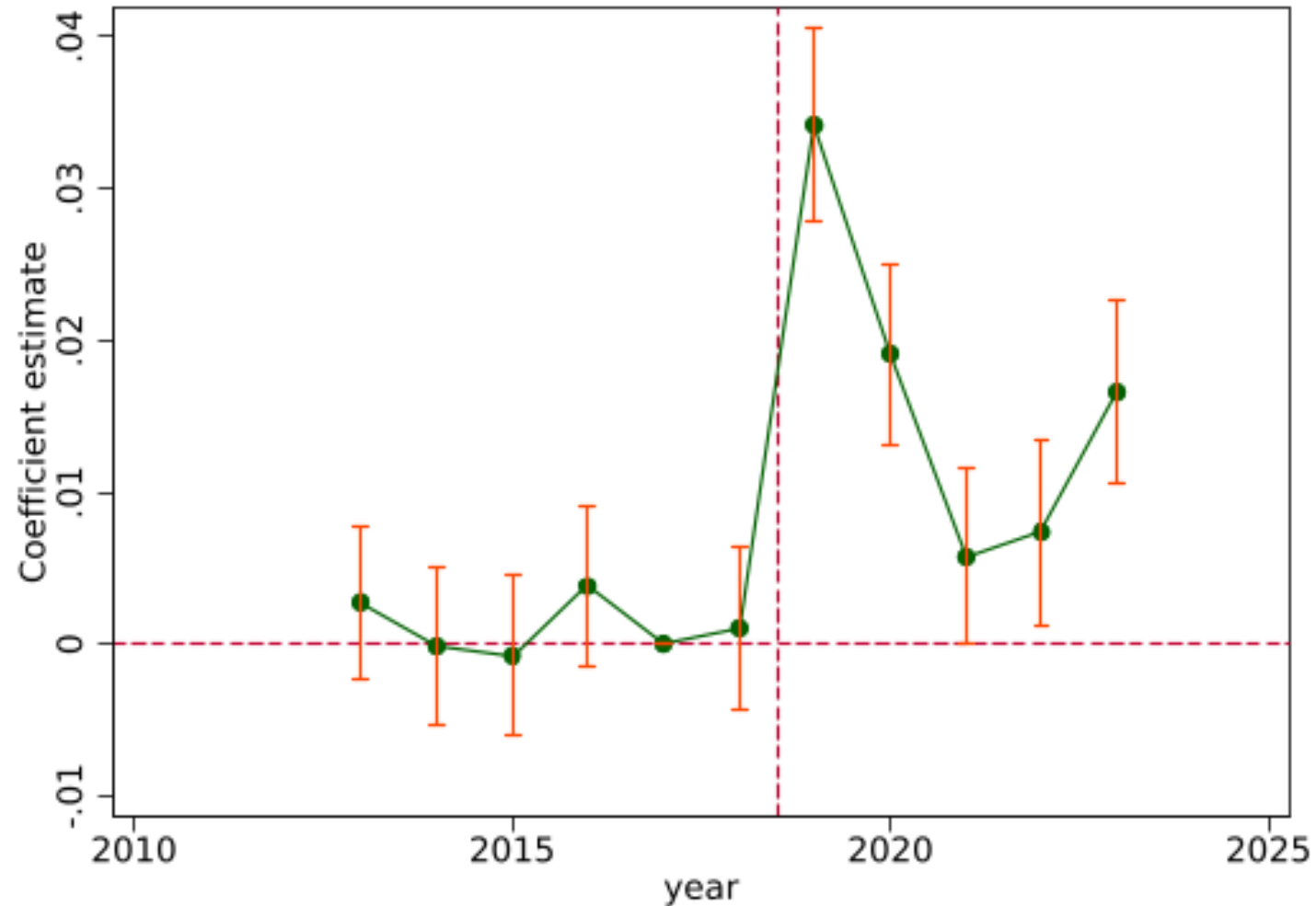
# Are firms “behavioral”?

- Firms may suffer from inertia:
  - Offering ESRP may not be optimal when firm established.
  - ESRP becomes optimal but firm does not revisit decision (inertia).
  - Auto-IRA policy forces revisiting of decision.
- Third-party ESRP providers may use auto-IRA policies as an opportunity to market services to firms.
- Owners may have low financial literacy.

# Additional Evidence: Enforcement Letters

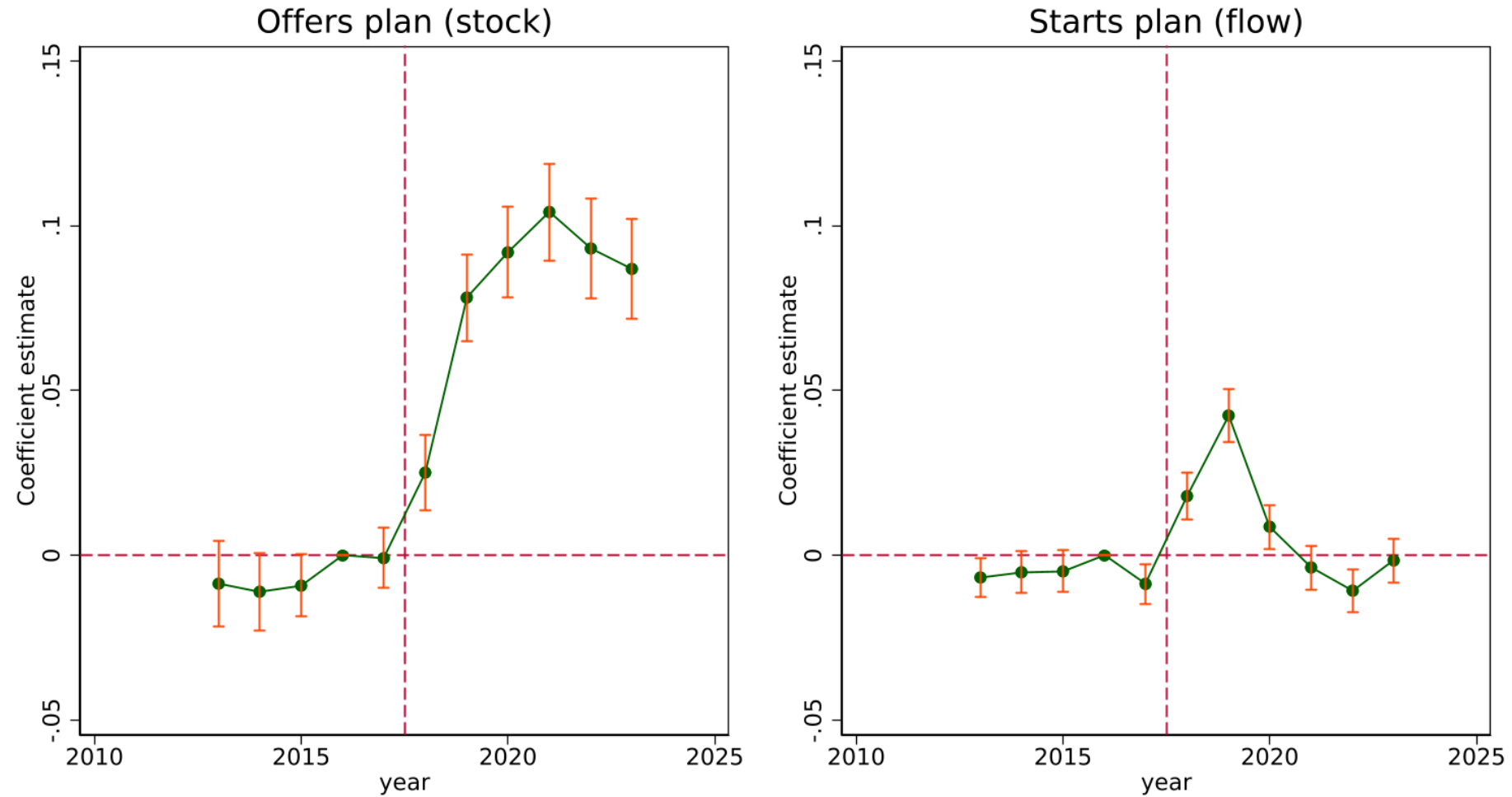
- In February 2023, Illinois sent letters to noncompliant firm owners reminding them of potential penalties.
- May serve as reminder or behavioral “nudge,” or provide new information about likelihood of enforcement.
- Examine impact on firms with 25-99 employees (treated in 2019).

# Illinois Case Study: Impact of Enforcement Letters

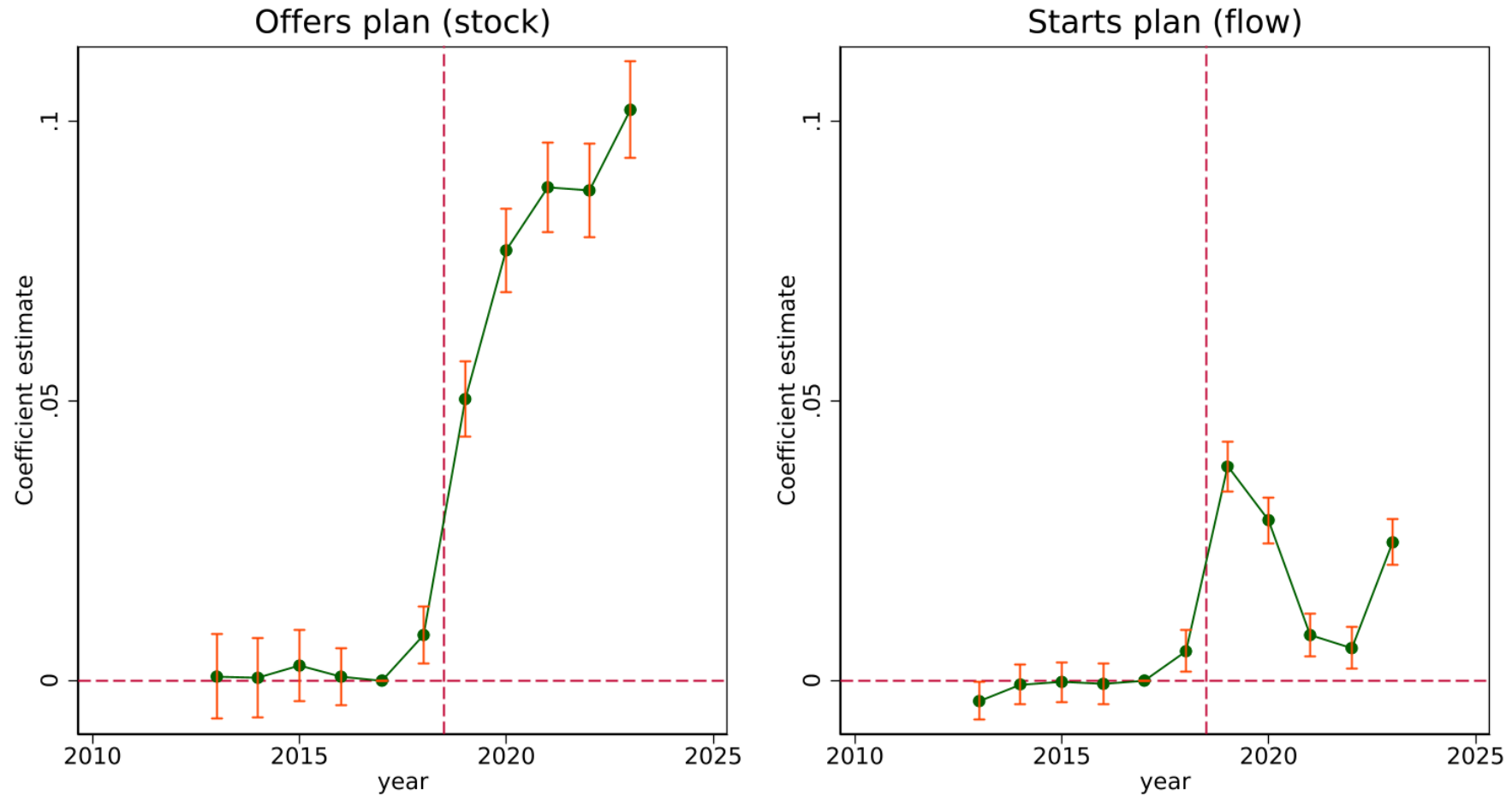


# Experiment-by-Experiment Event Studies

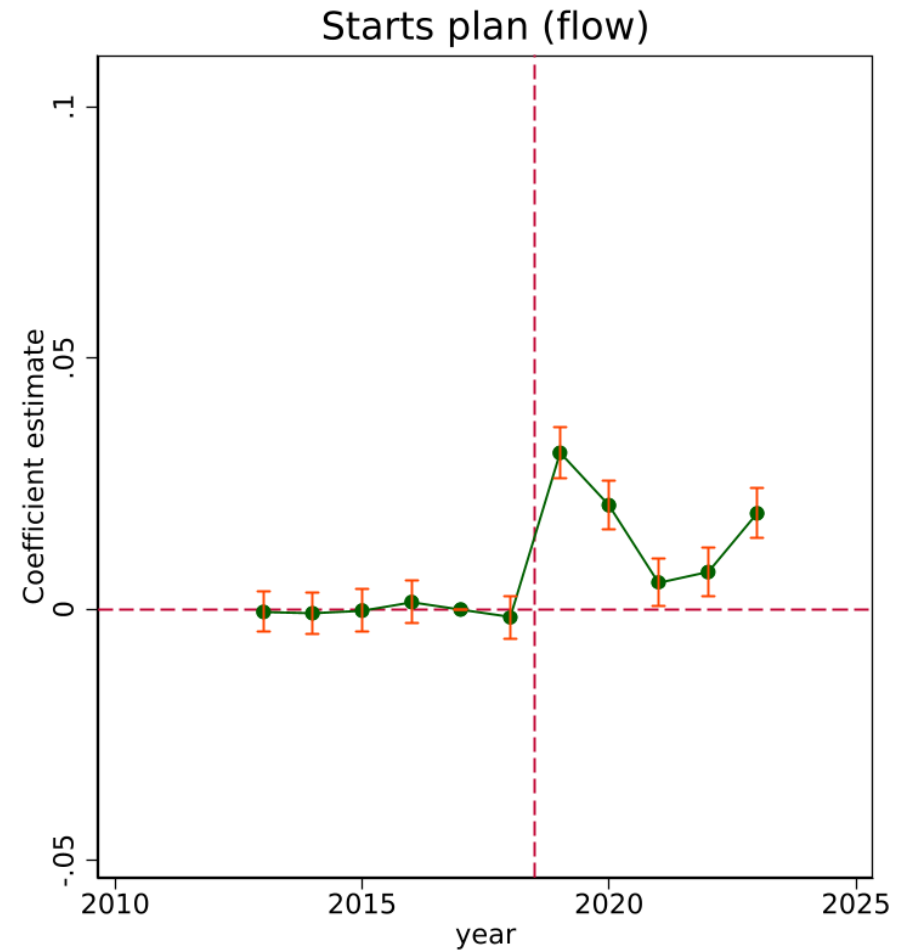
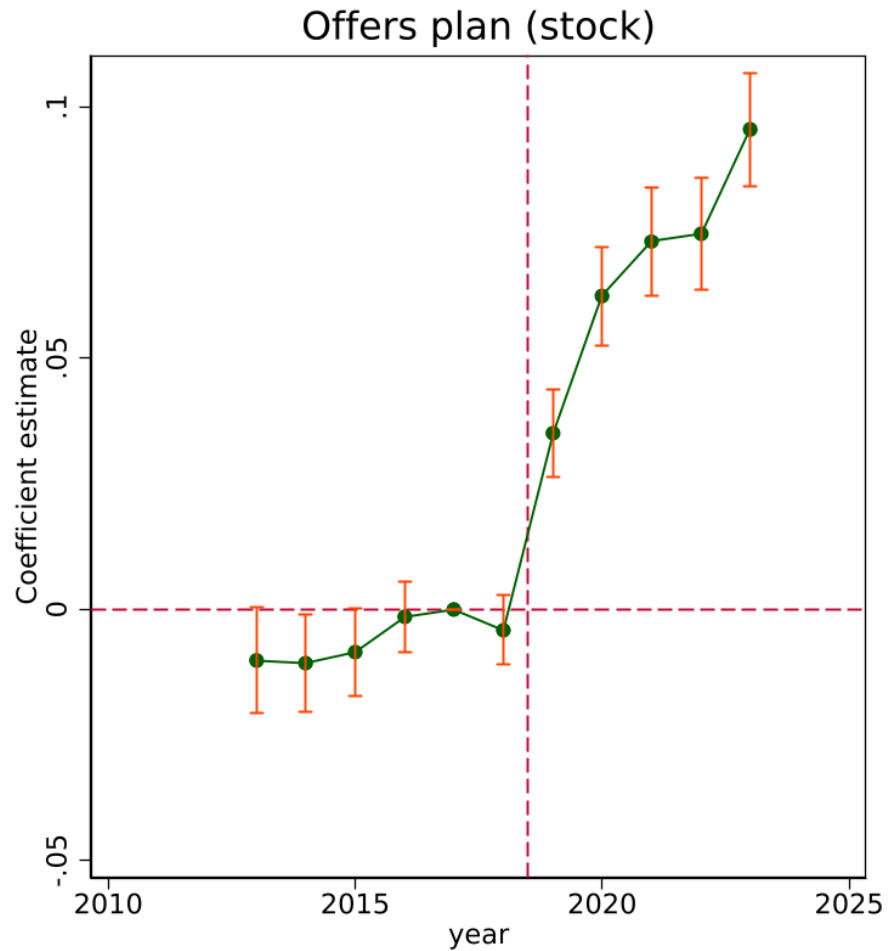
# Oregon, 20-99 employees (2018)



# Oregon, 5-19 employees (2019)

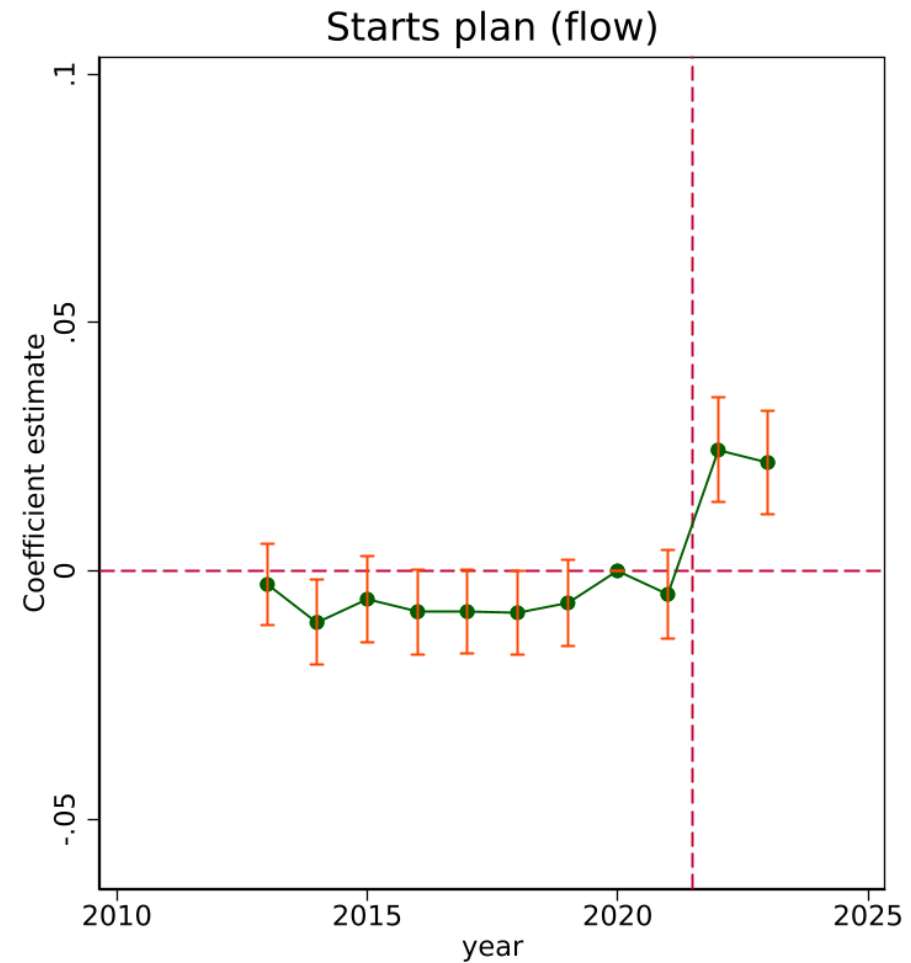
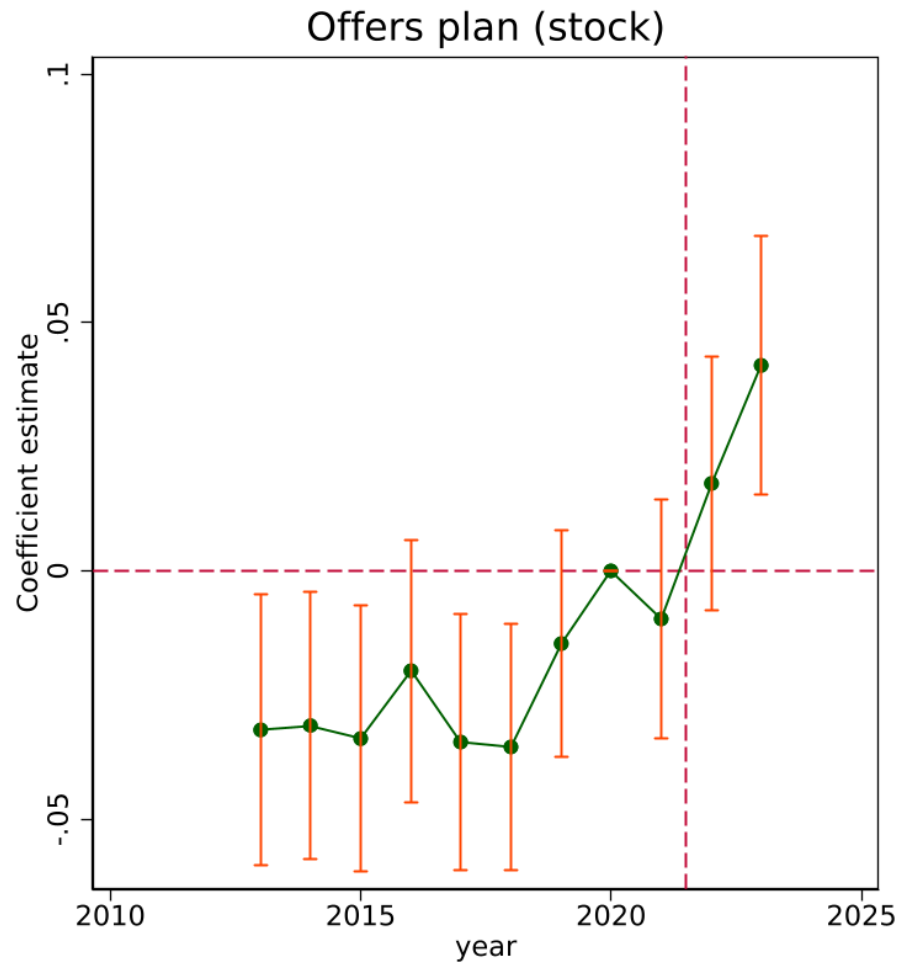


# Illinois, 25-99 employees (2019)

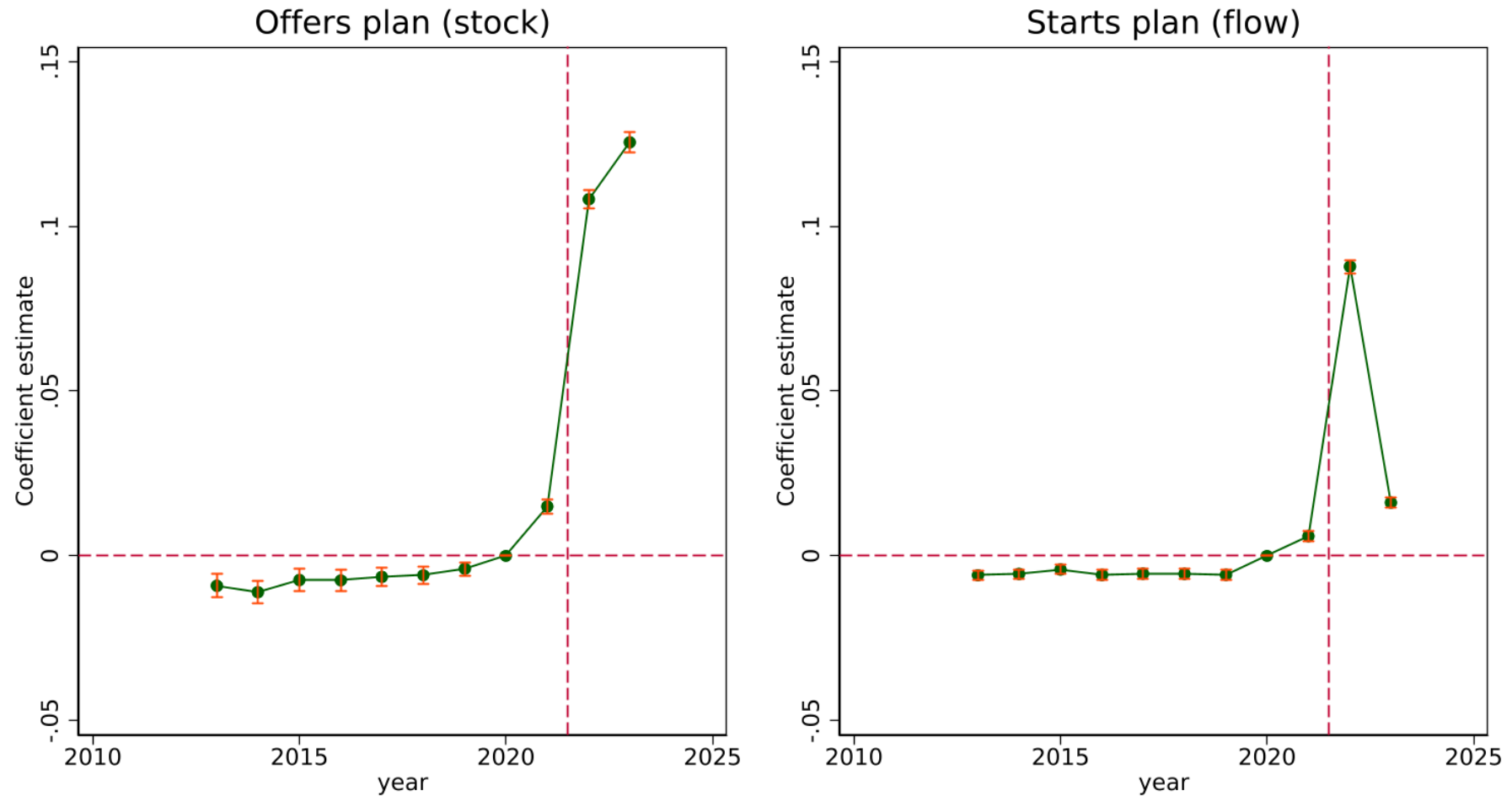




# Illinois, 16-24 employees (2022)



# California, 5-49 employees (2022)



# Connecticut, 26-99 employees (2022)

