The Rise of Pass-throughs: an Empirical Investigation

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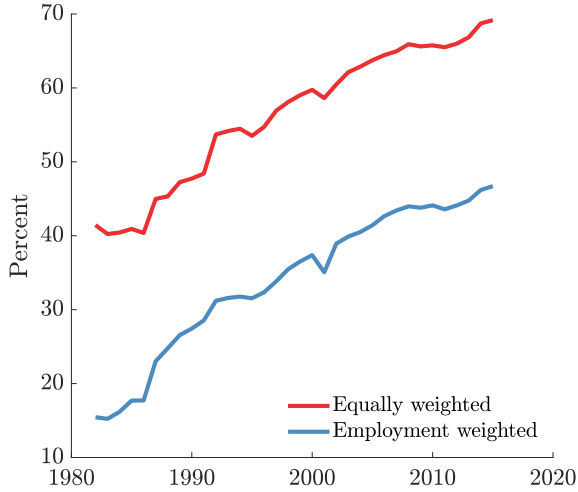
Traditional C corporations supplanted by pass-thorughs in the U.S.

- The share of businesses organized as pass-throughs has increased from roughly **40% to almost 70%**.
- The share of employment tripled, rising from **15% to 47%**.
- Business income is passed-throughs to the owners and taxed according to individual income tax code, rather than taxed first at the corporation and then again when distributed.



Why do we care about the rise?

- **Distorts measurement**
  - Rise of top income shares: Piketty and Saez (2003), Piketty et al. (2018)
    - Kopczuk and Zwick (2020), Auten and Splinter (2022): largely income reclassification of C-corp income to personal accounts
  - Secular fall in labor share: Elsby et al. (2013)
    - Smith et al. (2022): pass-throughs have lower incentives to classify profits as labor income, hence the fall is partly fictitious.
- **Has real macro effects**
  - Capital allocation: Bhandari and McGrattan (2020), Smith et al. (2019), Dyrda and Pugsley (2023):
    - Pass-throughs face tighter financial constraints and rely on sweat equity. Tax incentives distort allcation of capital.
  - Productivity: Barro and Wheaton (2020)
    - Regulations on pass-throughs enhanced productivity growth in the 90s
- **Affects policy design**
  - Base shifting and tax avoidance: Smith et al. (2022), Di Nola et al. (2022)
  - Limited scope for welfare improvement: Dyrda and Pugsley (2022)

What accounts for this dramatic rise?

To address this question we:

- We **enhance** the Longitudinal Business Database (LBD) which provides comprehensive administrative panel data on nearly all U.S. establishments with measures of each business's taxable legal form (TLFO)
- **Develop** an empirical and parsimonious decomposition of the pass-through share's evolution over time.
- Map the objects from the decomposition to the data and **dissect** the sources of the aggregate rise of pass-throughs.

What do we find? And why it matters?

Key findings:

1. Uncover the central role of firm dynamics, particularly **the entry margin**, in driving this trend.

2. Document **minimal compositional effects**; instead, the rise in pass-throughs is pervasive.

3. Document the presence of **real reorganizational frictions**: direct and opportunity costs.

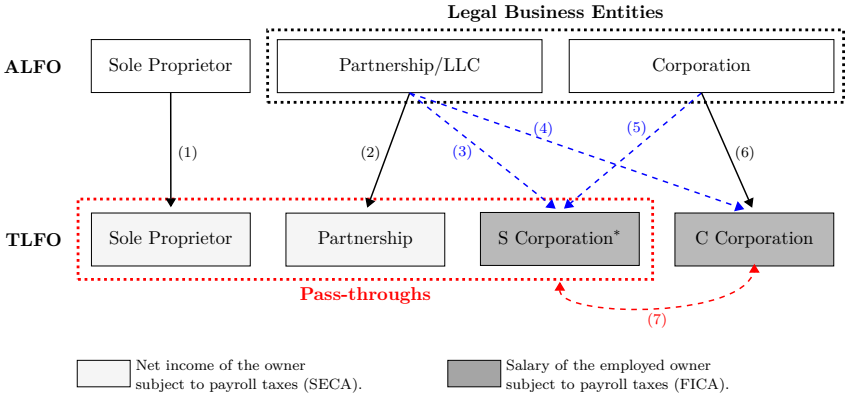
Key implications:

1. Changes in tax policy or the regulatory environment that affect the tradeoff between organizational forms may take **decades** to show their full effects.

2. Legal form adjustment margin: the short-run elasticity driven by incumbents is dominated by **the long-run elasticity** driven by entrants.

LEGAL BACKGROUND

Actual and tax legal forms of organization of for-profit businesses



Note: **ALFO**: Actual Legal Form of Organization; **TLFO**: Tax Legal for of Organization; **LLC**: Limited Liability Company; **SECA**: Self-Employment Contributions Act; **FICA**: Federal Insurance Contributions Act.
Solid black lines (1),(2) and (6) denote "default" classification of legal business entities for federal tax purposes by the IRS.
Dashed lines (3), (4), (5) and (7) indicate elective classifications of business entities for federal tax purposes, which require submitting Form 8832 or Form 2553.
*To qualify for S corporation status the entity must: (i) be a domestic corporation (ii) have only allowable shareholders (not partnerships, corporations or non-resident aliens) (iii) have no more than 100 shareholders (iv) have only one class of stock (v) Not be an ineligible corporation.

TFLOs tax implications

1. **Pass-throughs:**
   - Profits are passed directly to the shareholders, who then report their earnings on their own Schedules E and Form 1040.
   - This income is subject to individual income tax at rates as high as 37%, **regardless of whether the earnings are distributed**.

2. **C corporations:**
   - Pay a corporate income tax of 21% on profits. Retain after-tax profits for future investment or pay dividends.
   - The individual income tax on dividends: up to 37% for ordinary dividends or up to 20% for qualified dividends.
   - Capital gains tax at rates up to 20% when they sell their firm's stock.
   - C corporation's profits are subject to **double taxation**.

Real reorganization frictions

Pass-through → C corp.

Direct costs:

- Change an accounting method from the cash to the accrual.
- Shareholders of a former S corporation would lose the tax-free benefit of not apportioned distributions (AAA).

Opportunity costs:

- Shareholder's "suspended losses" are lost once the corporation's S election is revoked.
- Partial irreversibility: cannot switch back for 5 years.

C corp. → Pass-through

Direct costs:

- Separate accounting for retained earnings.
- Appraise all its assets to determine their fair market value: basis in the assets.
- Any "built-in gains" over this basis, if realized, subject to corporate income tax.

Opportunity costs:

- Accumulated net operating losses as a C corporation are lost.
- Partial irreversibility: cannot switch back for 5 years

DATA

Starting point: LBD + BR data set

- Census Longitudinal Business Database (LBD) linked to its underlying source records in the Census Bureau's Business Register (BR).
- **Coverage**: all establishments with employees outside of the public administration sector in the United States.
- **Time frame**: 1982 - 2015.
- High-quality **longitudinal linkages** of cross-sectional establishment-level data sourced from administrative payroll tax records stored.

Innovation: construct LBD-TLFO data set

- We construct a time-consistent set of establishment-level **TLFO assignments** from 1982 to 2015. Use interpolation scheme to fill in missing/unknown assignment in the early years of the sample.
- We assign to each establishment one of the following TLFOs: (i) sole proprietorship (sp) (ii) partnership (p) (iii) S corporation (sc) (iv) C corporation (c) (v) other (z). We group (sp), (p), (sc) into **pass-throughs**.
- Using the **establishment-level longitudinal linkages** we measure transitions across TLFOs types.
- Aggregate by year to measure the annual distribution of TLFO, i.e. **stocks**, and the **flows** across TLFO types.
- Cleaning and starting after 1982 is important to minimize spurious flows in/out of (z).

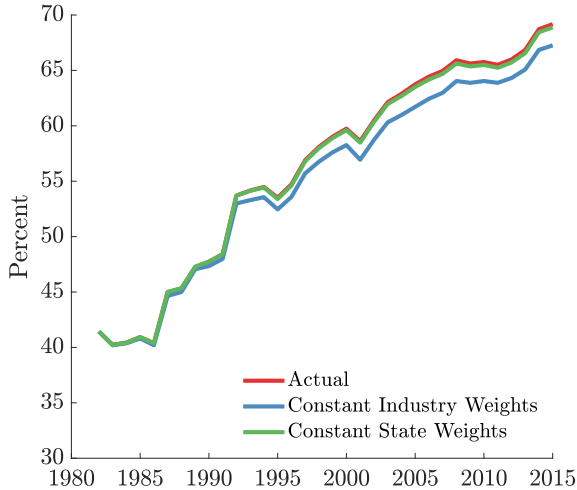
FINDINGS

Five new facts on the rise of pass-throughs

1. The shift in organizational form is widespread across industries and geography.
2. Pass-through shares converge unconditionally across industries and U.S. states.
3. Entrants' organization accounts for 60% of the pass-throughs' rise overall.
4. The Tax Reform Act of 1986 (TRA86) explains the jump *and* continued rise in pass-throughs into the 2000s.
5. There is little lifecycle pattern to business organization; organizational form at entry is very persistent.

Compositional explanation: structural transformation

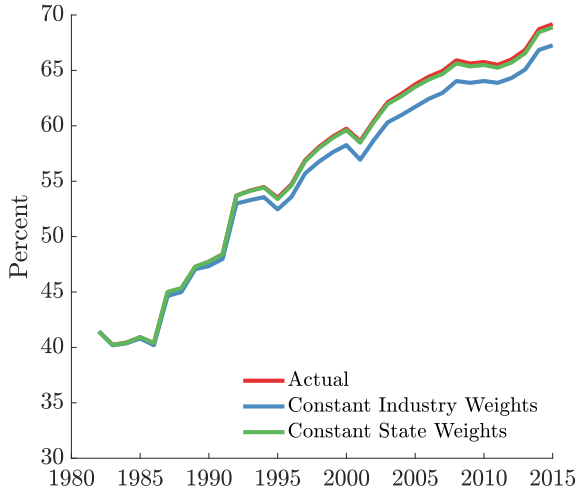
- From 1982 to 2015, manufacturing companies' share fell from 7.1% to 4.4% and employment from 23.2% to 9.4% (BDS)
- 1982-84 period, pass-through shares varied across industries, from 8.0% in Utilities and 20.3% in Manufacturing to 57.2% in Accommodation and Food Services.
- Industry composition barely influenced the growth of pass-throughs, adding only **1.9 percentage points (ppt)** by 2015.



Compositional explanation: U.S. States

- Heterogeneous pass-through intensity across U.S. states and over time due to:
  - population and GDP
  - state tax policies on pass-through income and corporate profits
  - ALFO and TLFO regulations

- State variations affected the pass-through rise less than industry shifts; counterfactual **nearly identical**.



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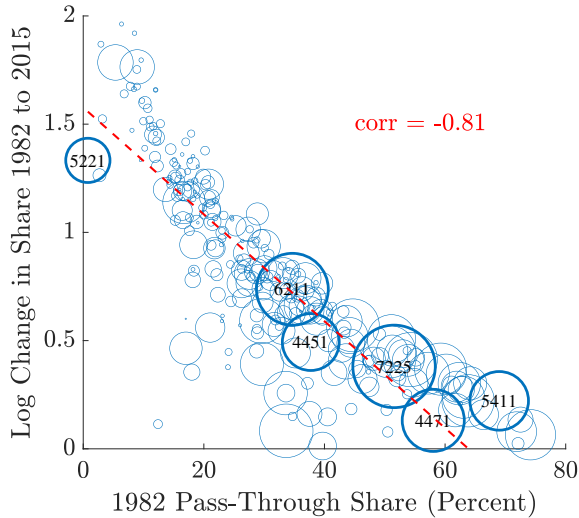
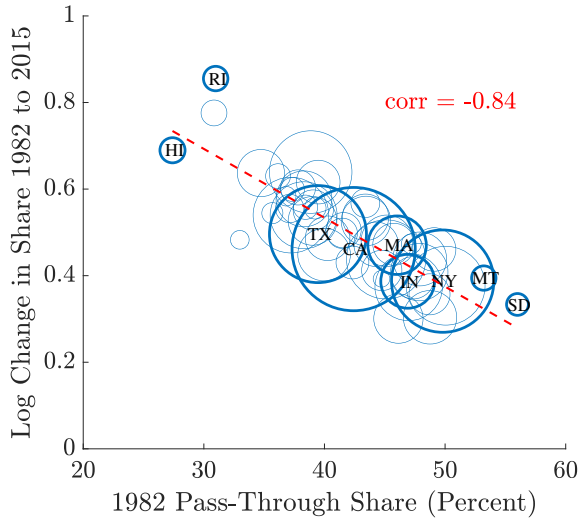
Industry convergence

- Industries with barely any pass-throughs, e.g. Credit Intermediation (5221), Offices of Physicians (6221), caught up the most.
- Legal services (5411) already had 70% of businesses organized as pass-thorughs in 1982. Barely changed.



U.S. state convergence

- MA and RI had about 30% of pass-throughs in 1982.
- SD and MT had much higher shares, around 55%.
- By 2015 all but two states had share of **at least 60%**.



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The Role of Firm Dynamics: an Empirical Decomposition

The pass-through share, ω_{pt}, is given by the law of motion:

$$\omega_{pt} = \underbrace{s_t \theta_{pt}}_{\text{entrants}} + \underbrace{(1-s_t)\left(\underbrace{(1-\theta^p_{ct})\frac{1-x^p_t}{1-x_t}\omega_{pt-1}}_{\text{stayers in } p} + \underbrace{\theta^c_{pt}\frac{1-x^c_t}{1-x_t}\left(1-\omega_{pt-1}\right)}_{\text{switchers from } c} \right)}_{\text{incumbents}}.$$

- s_t: the entry rate
- θ_{pt} : fraction of pass-throughs among entrants
- x_t, x^c_t, x^p_t: overall exit rate for all firms, among C corp. and pass-throughs
- θ^c_{pt} : share of surviving last period pass-throughs that converted to C corporations
- θ^p_{ct} : share of surviving last period corporates that convert to pass-throughs

We measure all these objects directly in the LBD-TLFO data set.

Deconstructing the Rise: Convergence (G):

Counterfactual pass-through share $\tilde{\omega}_{pt}^{G}$:

$$\tilde{\omega}_{pt}^{G} = \bar{s}\bar{\theta}_p + (1-\bar{s})\left((1-\bar{\theta}_c^p)\frac{1-\bar{x}^p}{1-\bar{x}}\tilde{\omega}_{pt-1}^{G} + \bar{\theta}_p^c\frac{1-\bar{x}^c}{1-\bar{x}}\left(1-\tilde{\omega}_{pt-1}^{G}\right)\right)$$

- $\bar{s}, \bar{\theta}_p, \bar{\theta}_c^p, \bar{\theta}_p^c, \bar{x}^c, \bar{x}^p, \bar{x}$ are 1983-1984 averages

Even with all the dynamics held fixed, the share of pass-throughs may still move toward **long-run value implied by the constant parameters**.

Deconstructing the Rise: Adding firm dynamics (GF)

Counterfactual pass-through share $\tilde{\omega}_{pt}^{GF}$:

$$\tilde{\omega}_{pt}^{GF} = s_t \bar{\theta}_p + (1 - s_t) \left((1 - \bar{\theta}_c^p) \frac{1 - x_t^p}{1 - x_t} \tilde{\omega}_{pt-1}^{GF} + \bar{\theta}_p^c \frac{1 - x_t^c}{1 - x_t} \left(1 - \tilde{\omega}_{pt-1}^{GF} \right) \right)$$

- Allow the startup share, s_t, exit rates, x_t^p, x_t^c, and x_t, to vary according to the data.
- Continue to hold reorganization probabilities and the pass-through share of entrants at their 1983-1984 average.

This counterfactual captures any incremental effects from **changes in entry and exit rates**.

Deconstructing the Rise: Adding reorganizational dynamics (GFR)

Counterfactual pass-through share $\tilde{\omega}_{pt}^{GFR}$:

$$\tilde{\omega}_{pt}^{GFR} = s_t \bar{\theta}_p + (1 - s_t) \left((1 - \theta_{ct}^p) \frac{1 - x_t^p}{1 - x_t} \tilde{\omega}_{pt-1}^{GFR} + \theta_{pt}^c \frac{1 - x_t^c}{1 - x_t} \left(1 - \tilde{\omega}_{pt-1}^{GFR}\right) \right)$$

- Add reorganization patterns varying over time but still constrain the pass-through share of new firms at its 1983-1984 time average.

This counterfactual captures the additional effects of any changes in the **share of incumbents switching TLFOs**.

Adding entrant choice ($GFRE$)

Counterfactual pass-through share $\tilde{\omega}_{pt}^{GFRE}$:

$$\tilde{\omega}_{pt}^{GFRE} = s_t\theta_{pt} + (1 - s_t)\left((1 - \theta_{ct}^{p})\frac{1 - x_t^p}{1 - x_t}\tilde{\omega}_{pt-1}^{GFRE} + \theta_{pt}^{c}\frac{1 - x_t^c}{1 - x_t}\left(1 - \tilde{\omega}_{pt-1}^{GFRE}\right)\right)$$

- Further allowing the entrant share of pass-throughs, θ_{pt}, to vary over time ($GFRE$) replicates the actual time series of the pass-through share, i.e., $\tilde{\omega}_{pt}^{GFRE} \equiv \omega_{pt}$.
- It captures the influence of the **entrant organizational choice margin**.

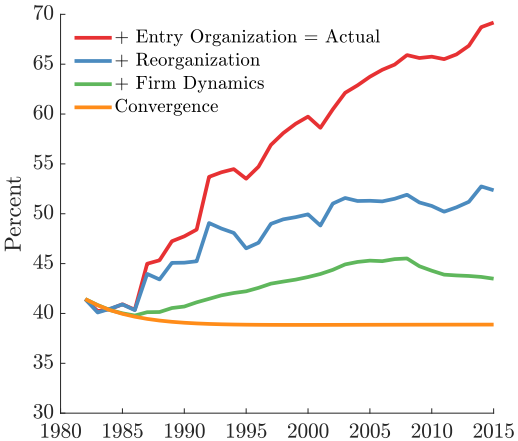
Adding entrant choice ($GFRE$)

Define the additive decomposition in terms of the above counterfactuals:

$$\underbrace{\omega_{pt} - \omega_{p1982}}_{\substack{\text{aggregate rise} \\ \text{of pass-throughs}}} \equiv \underbrace{\widetilde{\omega}^{G}_{pt} - \omega_{p1982}}_{\text{convergence}} + \underbrace{\widetilde{\omega}^{GF}_{pt} - \widetilde{\omega}^{G}_{pt}}_{\Delta\text{firm dynamics}} + \underbrace{\omega^{GFR}_{pt} - \widetilde{\omega}^{GF}_{pt}}_{\Delta\text{reorg. dynamics}} + \underbrace{\omega^{GFRE}_{pt} - \widetilde{\omega}^{GFR}_{pt}}_{\Delta\text{entry org}}.$$

Calculate counterfactual sequences and **apply the decomposition** using the LBD-TLFO data.

Counterfactual pass-through shares and their contributions



	Time periods			
	82–90	90–00	00–15	**82–15**
Convergence	-2.4	-0.2	0.0	**-2.6**
Δ Firm dynamics	1.6	3.2	-0.2	**4.6**
Δ Reorganization	4.4	1.9	2.6	**8.9**
Δ Entry org.	2.6	7.2	7.0	**16.8**
Total	**6.3**	**12.0**	**9.4**	**27.7**

Entry accounts for 60% of the rise of pass-throughs in 82-15 and nearly all since 1992.

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The impact of The Tax Reform Act of 1986 (TRA86)

TRA86:

- The largest tax reform (until TCJA in 2017) in the post-war U.S. history.
- Reduced sharply individual income tax rates at the top of income distribution.
- Tilted the regulatory environment into more favourable for pass-throughs.

Counterfactual pass-through share $\tilde{\omega}_{pt}^{TRA}$:

$$\tilde{\omega}_{pt}^{TRA} = s_t \hat{\theta}_p + (1 - s_t) \left((1 - \hat{\theta}_c^p) \frac{1 - x_t^p}{1 - x_t} \tilde{\omega}_{pt-1}^{TRA} + \hat{\theta}_p^c \frac{1 - x_t^c}{1 - x_t} \left(1 - \tilde{\omega}_{pt-1}^{TRA} \right) \right) \tag{1}$$

- $\hat{\theta}_c^p$, $\hat{\theta}_p^c$ and $\hat{\theta}_p$ are averaged between 1990 and 1991 shares of, respectively, c reorganizing as p, p reorganizing as c, and share of p among entrants

The impact of TRA 86: flows across incumbents

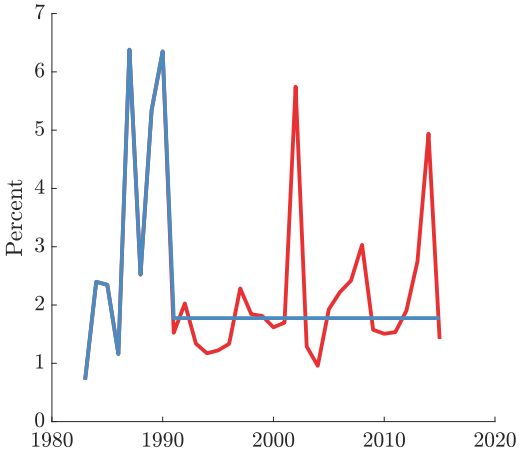

Figure: Share of c reorganizing as p, θ^c_{pt}

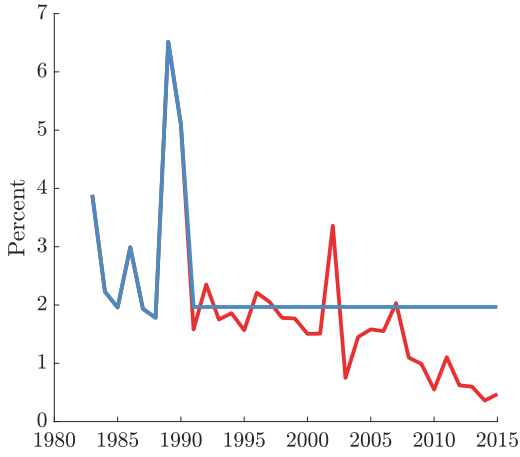

Figure: Share of p reorganizing as c, θ^p_{ct}

The impact of TRA 86: entrants and counterfactual series

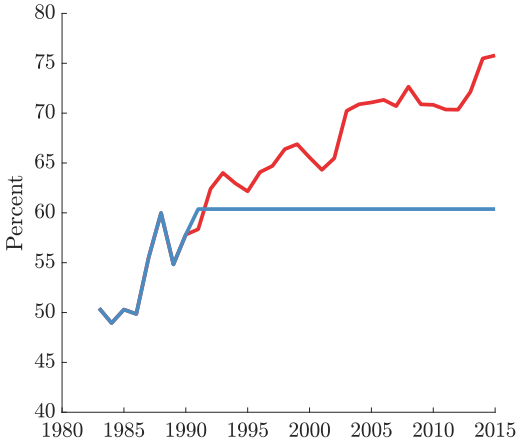

Figure: Share of p entrants, θ_{pt}

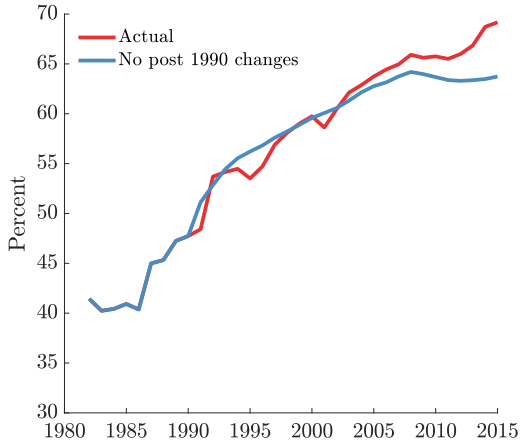

Figure: Pass-through share, ω_{pt}

If post-TRA86 averages remained constant, the share would be just **5.4 ppt lower**.

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Effects of the startup deficit and age composition

Recall the law of motion:

$$\omega_{pt} = s_t \theta_{pt} + (1 - s_t) \left((1 - \theta^p_{ct}) \frac{1 - x^p_t}{1 - x_t} \omega_{pt-1} + \theta^c_{pt} \frac{1 - x^c_t}{1 - x_t} \left(1 - \omega_{pt-1} \right) \right).$$

The rise in pass-throughs coincides with a declining entry rate, s_t. Crucial for two reasons:

1. Declining s_t attenuates the contribution from entering firms and slows the diffusion of changing entrant patterns.

2. If lower startup rates are not counteracted by survival changes, it shifts firm age composition. If firms' legal form choices change over their lifecycle the main results may be distorted.

Effects of the startup deficit

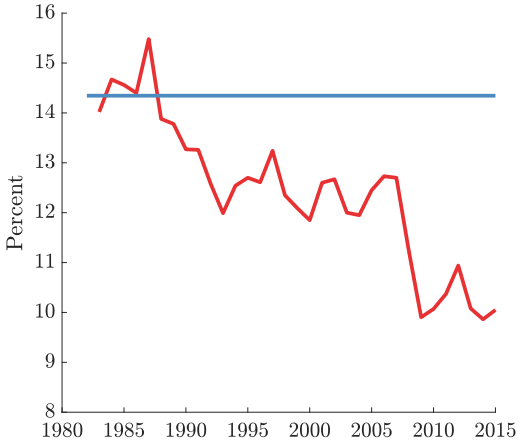

Figure: Entry rate, s_t

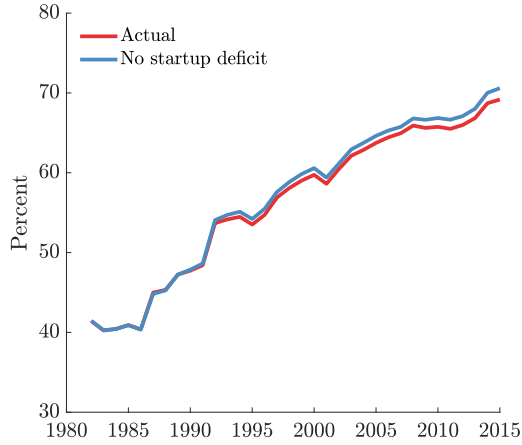

Figure: Pass-through share, ω_{pt}

Had the startup rate stayed at its 1983-84 level the share would be higher by **mere 1.4 ppt**.

TFLOs over the life-cycle and the effect of age composition.

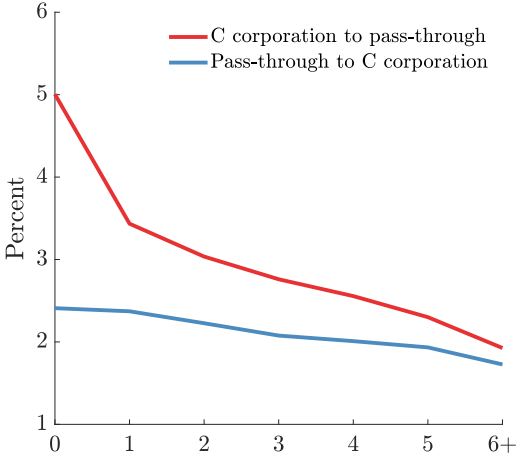

Figure: Reorganization by business age

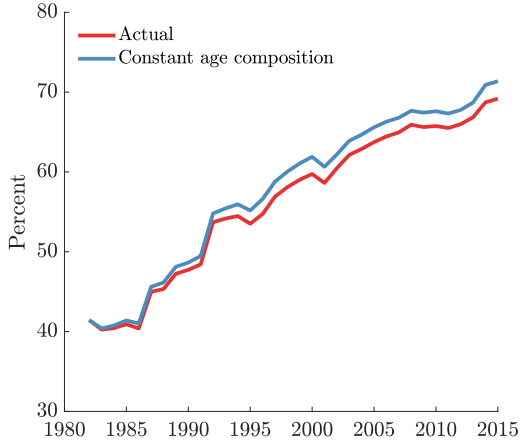

Figure: Constant age composition

Without age structure changes, the share would be 71.4%, **merely 2.2 ppt** higher.

Takeaways

1. Document **new facts** on the rise of pass-throughs.
   - **Entry margin** is dominant. Compositional stories are not important.
   - **Real reorganization frictions** are present and binding. Drive the wedge between long and short-run elasticities of TLFO choice margin.
   - Tax and regulatory changes may take **decades** to manifest itself in the data.

2. **Implications** for macro, entrepreneurship and public finance:
   - Entrepreneurship and taxation: who are you modelling?
   - Choice of TLFO margin is **responsive** and flows are **sizeable**. Need to be accounted for.
   - Long-run elasticity **dominates** the short-run. Modeling entry and transitional dynamics is crucial.

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