Recent patterns of new business creation

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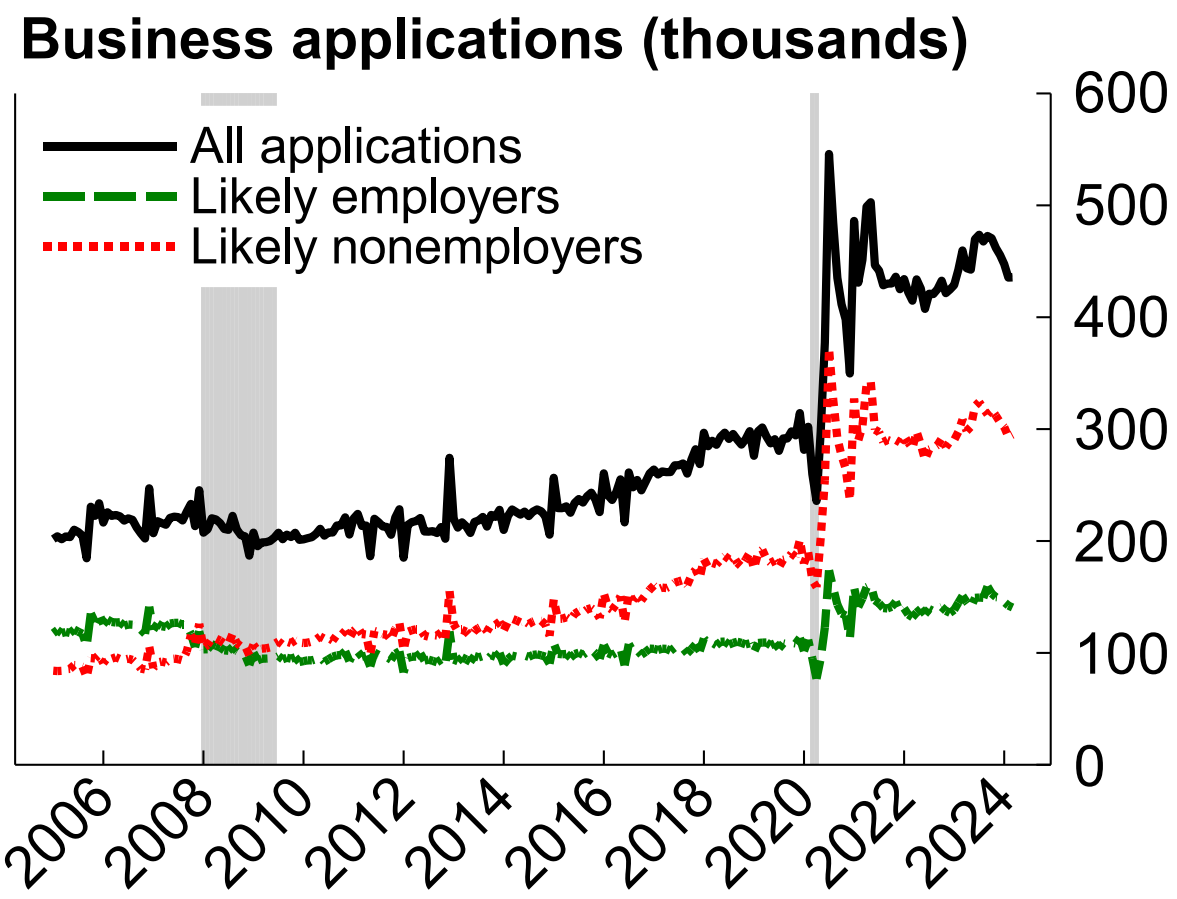
Based on joint work with John Haltiwanger, *U Maryland & NBER*

- "Surging business formation in the pandemic: Causes and consequences", Fall 2023 BPEA
- "High tech business entry in the pandemic era", FEDS Note

The analysis and conclusions set forth here are those of the authors and do not indicate concurrence by members of the Federal Reserve staff or the Board of Governors.

The surprising surge in business applications



Note: All applications = BA series; likely employers = HBA series; likely nonemployers is residual.

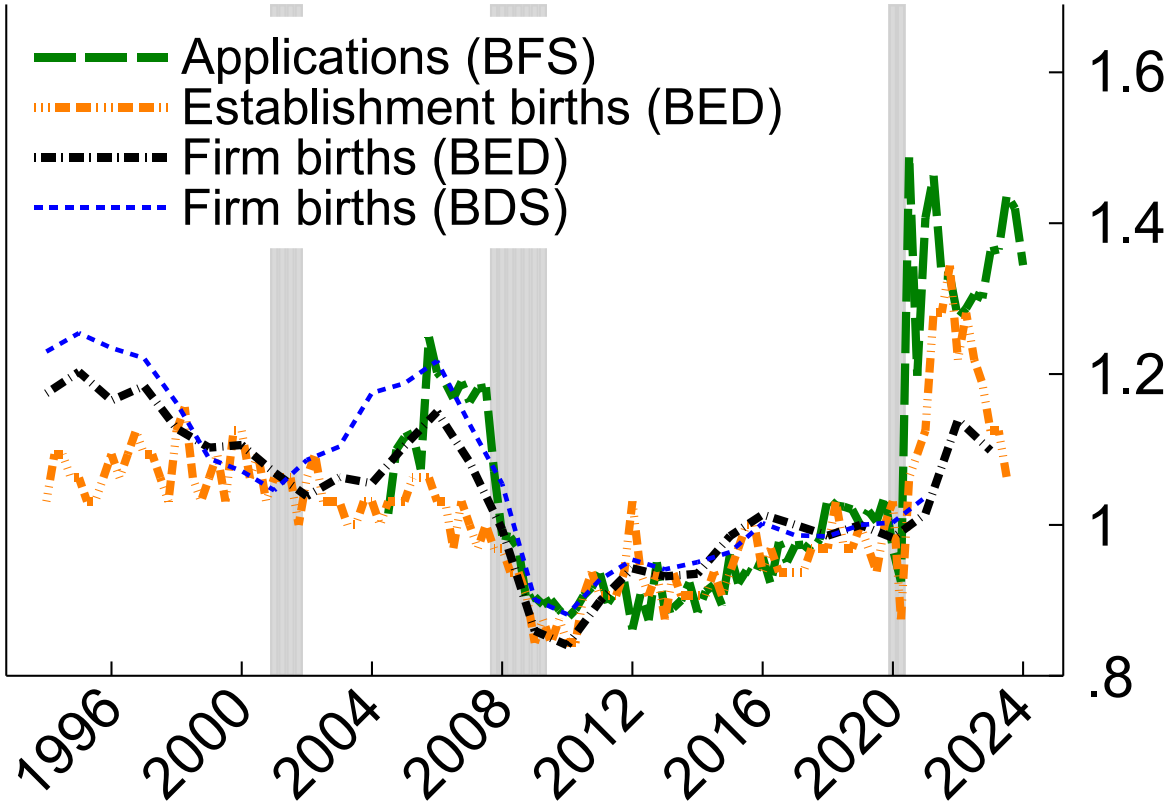
- Business Formation Statistics (BFS): Applications for Employer Identification Number (EIN).
  - Excluded: trusts, estates, financial instruments, etc.
  - "**Likely employer**" – subset with traits predictive of actual employer firm birth
- Pandemic pattern:
  - Two waves: 2020, 2021-present
  - Likely employers and likely nonemployers move together (in cross section too)

Questions raised by the application surge

- Are these applications *serious,* implying actual business and job creation?
  - Historically, tight correlation between “likely employer” applications and actual employer firm birth.
  - Would the pandemic surge be different?
- What’s the story?
  - Causal analysis must wait…
  - …but we can tell pandemic industry and geography stories to make sense of the surge.
- Is the entry surge just productivity-neutral restructuring, or a burst of innovation?
- How does this fit with longer-run (pre-pandemic) trends?

Applications were followed by employer entry

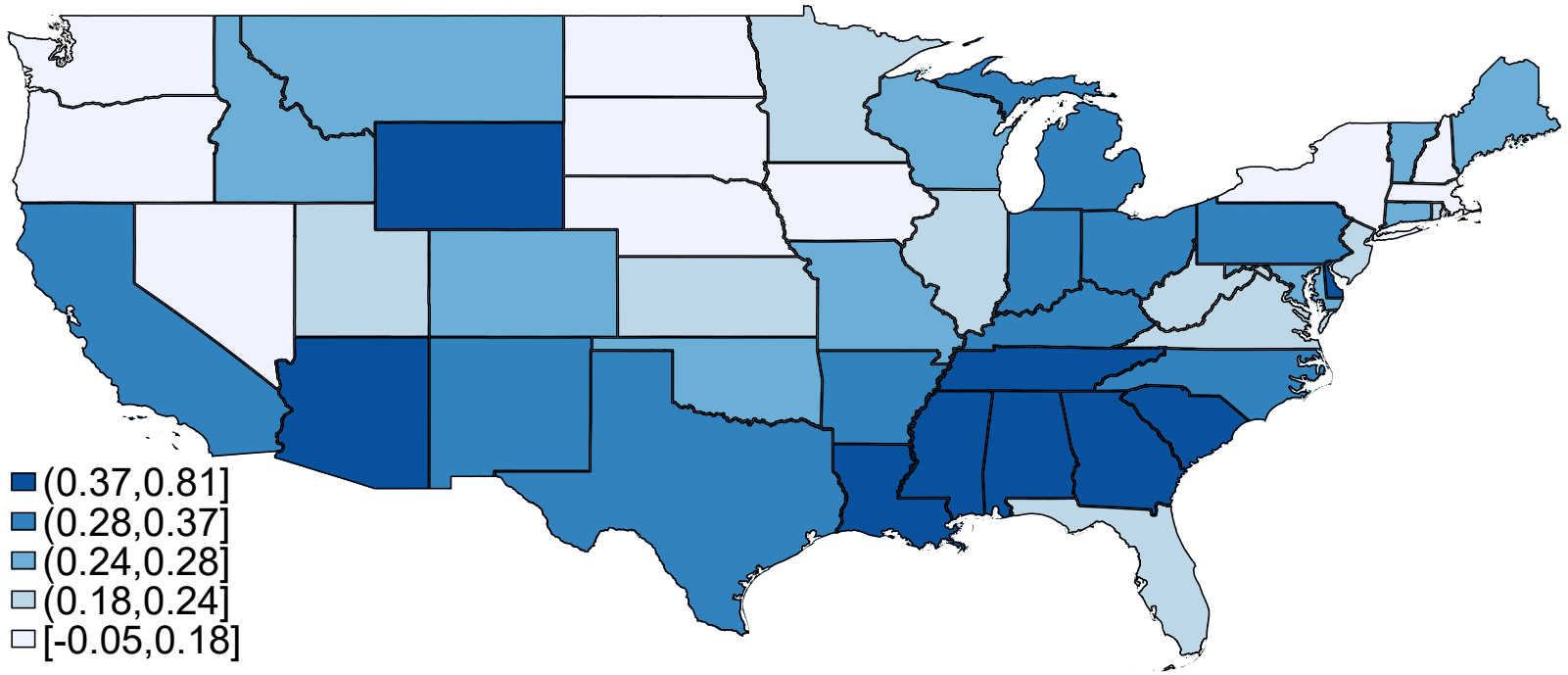
Entry rate indexes (2019:Q1 = 1)



Note: Applications are likely employer (HBA).
All series expressed as rates except BFS.

- **Employer business formation surged** starting in 2021:Q2.
  - ***Establishment* births:**
    - 1 million jobs per quarter, 2021:Q2-2023:Q3
    - Establishment birth could be new company or new location of existing company
  - ***Firm* birth** data less timely, but…
    - Jump starts in year ending March 2022
    - 1.9 million jobs per year in 2022 and 2023
    - New firm is likely a new company (EIN based)

Applications show pandemic cross-country and within-city restructuring…

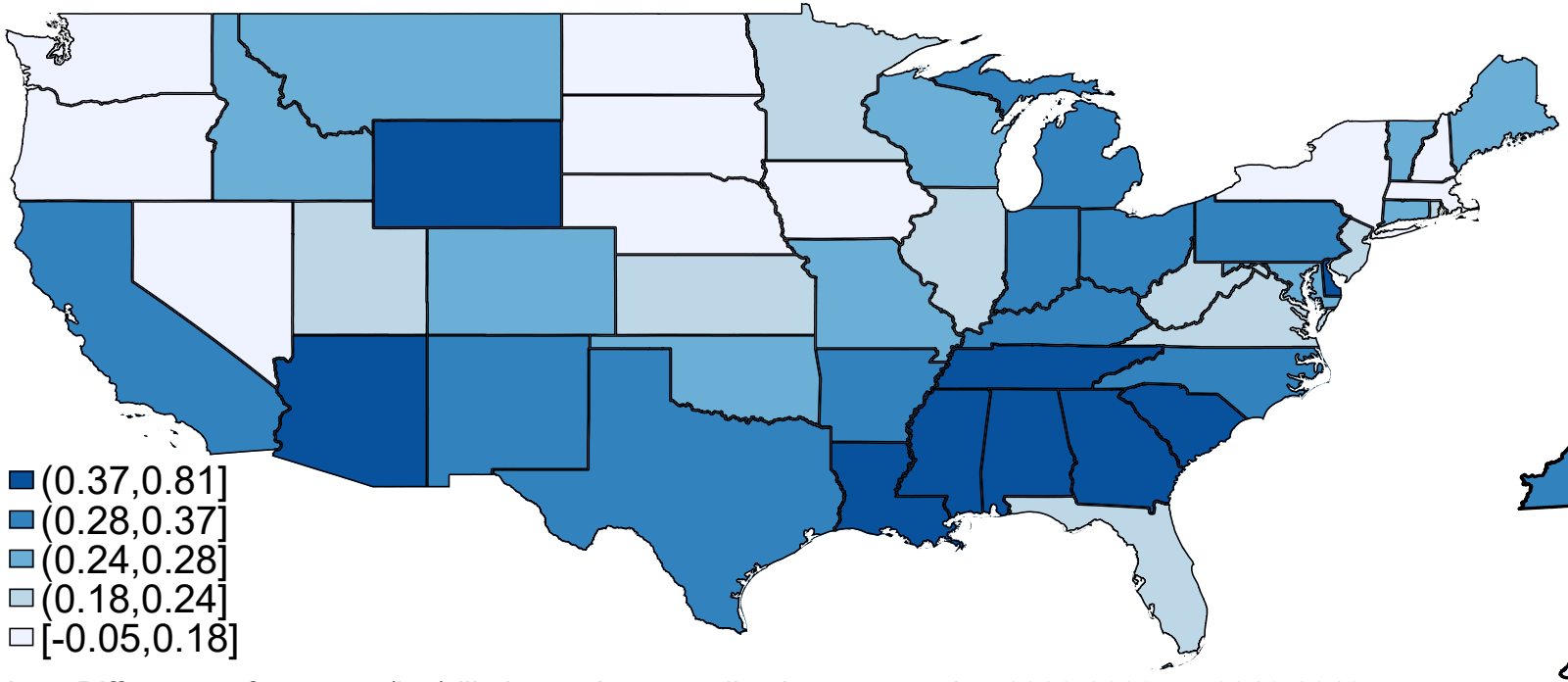


Note: Difference of average (log) likely employer applications per capita, 2020-2023 vs. 2010-2019.
Source: Census Bureau Business Formation Statistics and population estimates.

See also O'Brien 2022; Newman & O'Brien 2023; Newman & Fikri 2024

Note: State data for likely employer applications; county data for total applications

Applications show pandemic cross-country and within-city restructuring…



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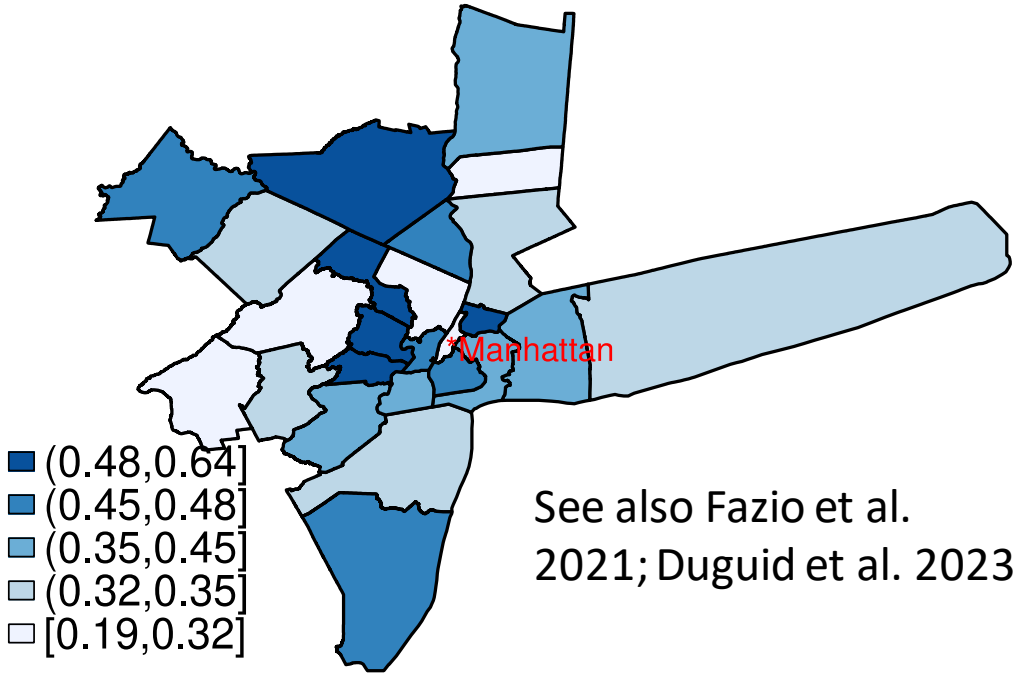
See also O'Brien 2022; Newman & O'Brien 2023; Newman & Fikri 2024

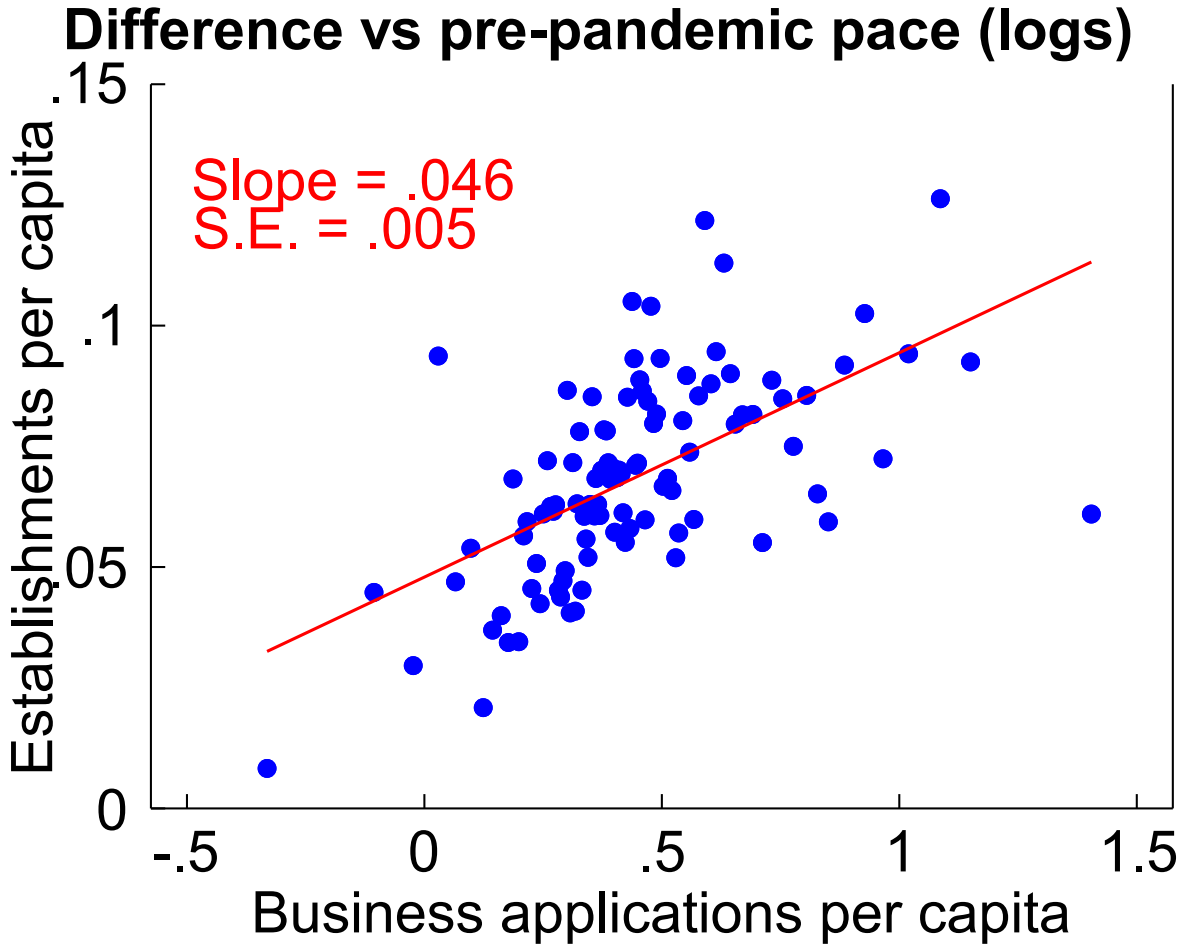
- **Donut effect** in cities related non-linearly to pop density, estab density, and changes in WFH.



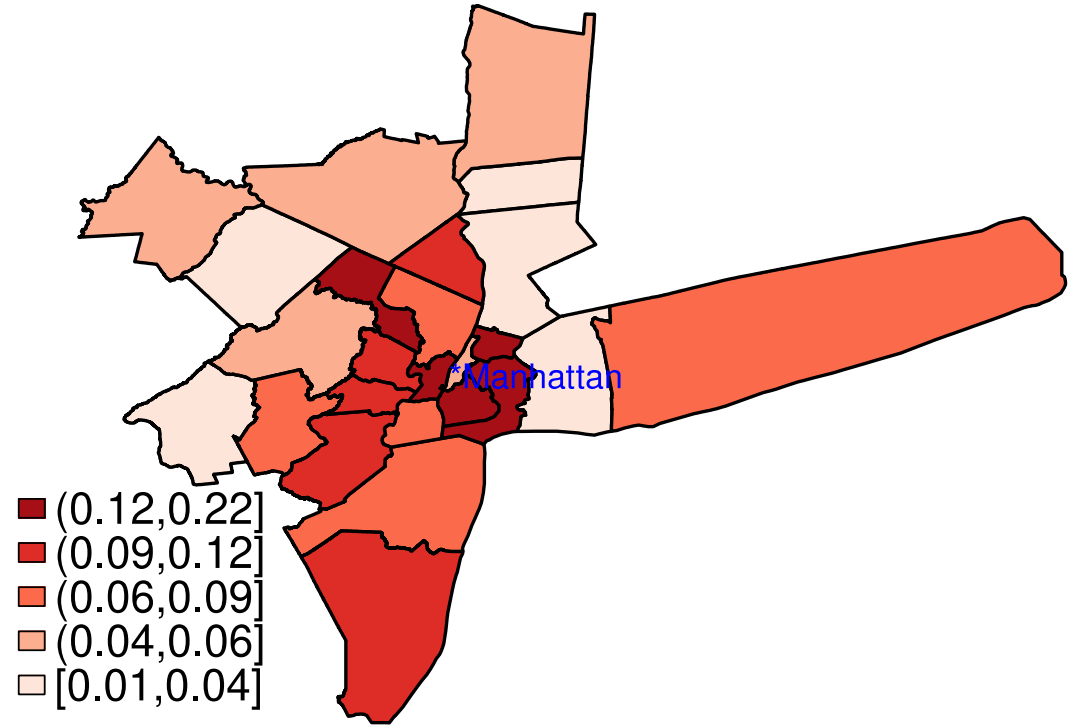
See also Fazio et al. 2021; Duguid et al. 2023

Note: State data for likely employer applications; county data for total applications

…and **employer entry** exhibits similar geographic patterns.

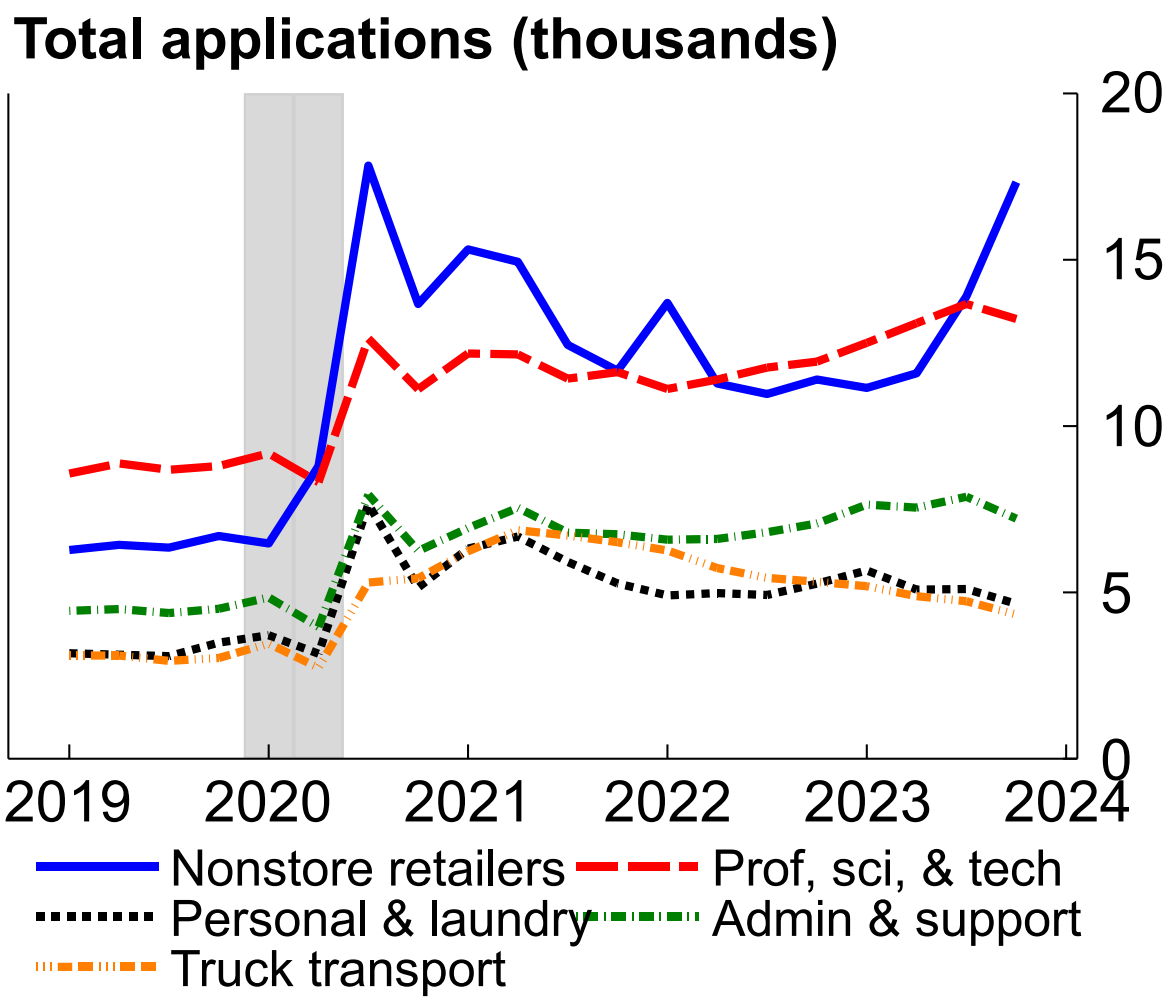


Note: 2020-2022 vs 2010-2019. County-level binscatter.



Note: Difference of average (log) establishments per capita, 2020-2022 vs. 2010-2019.
Source: QCEW and Census Bureau population estimates.

Applications tell pandemic industry stories…

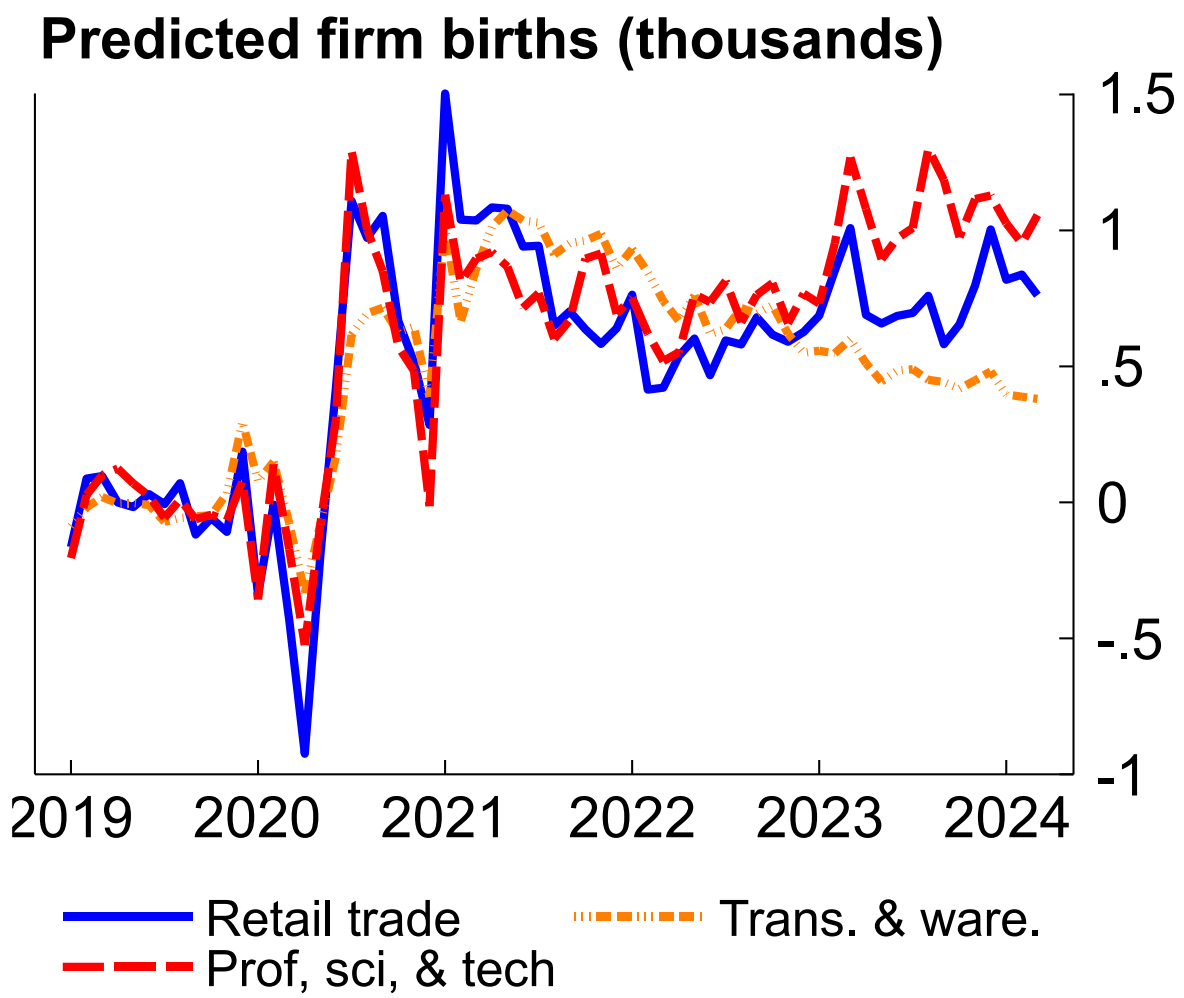


Note: Average weekly pace by quarter.

- Top industries for application surge:
  - **Nonstore retailers**: online retail, others (2023 jump likely spurious)
  - **Professional, scientific, & technical services**: includes architectural design, computer systems design, R&D, etc.
  - **Personal & laundry**: pet care, others.
  - **Administrative & support services**: Temp help, document preparation, call centers, landscaping, etc.
  - **Truck transportation**: general & specialized freight.

→ **Industries conducive to pandemic work, lifestyle, and business**

…as do **application**-*predicted* firm births…

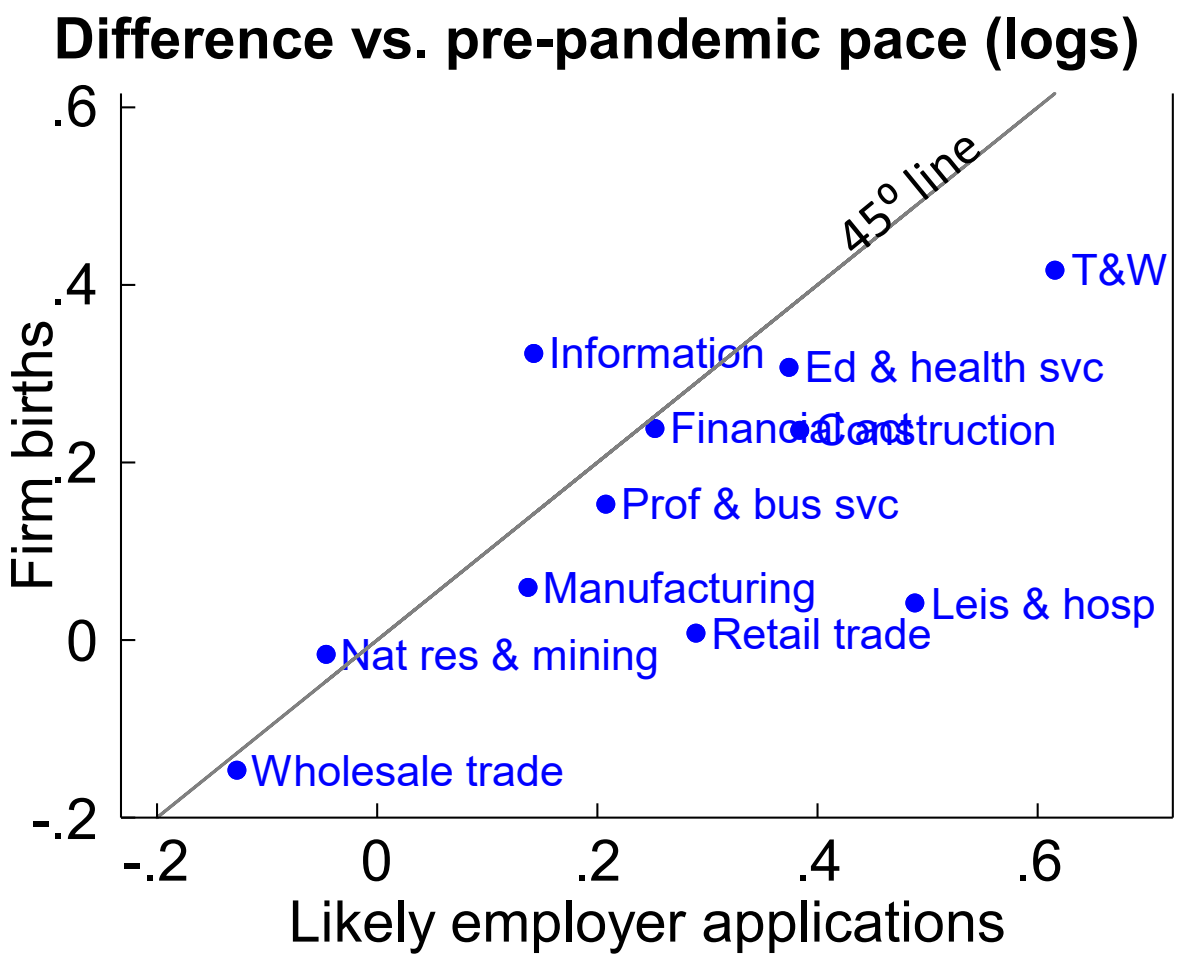


Note: Monthly pace vs. 2019 avg. 8-quarter prediction.

- BFS features predicted firm birth series based on internal Census Bureau modeling of application data, at broad sector level.
  - Differs from "likely employer" application series by using all application information with optimal weights.

- Noteworthy pattern in key sectors:
  - **Retail trade** led the early surge but cooled
    - Note, prediction series not faked out by 2023 spurious jump
  - Rise then easing for **transportation**
  - **Prof, sci, & tech** strong during 2023 (more later…)

...with similar patterns for **employer entry**.



Note: 2021-2023 vs 2011-2020, March reference month.

- Sectors with large "likely employer" applications surge tend to also see surges in firm births (through March 2023)
- Similar for establishment births through 2023:Q3
- At narrower (3-digit) industry level, correlation 0.34 and statistically significant (*all* applications, establishment *openings*)

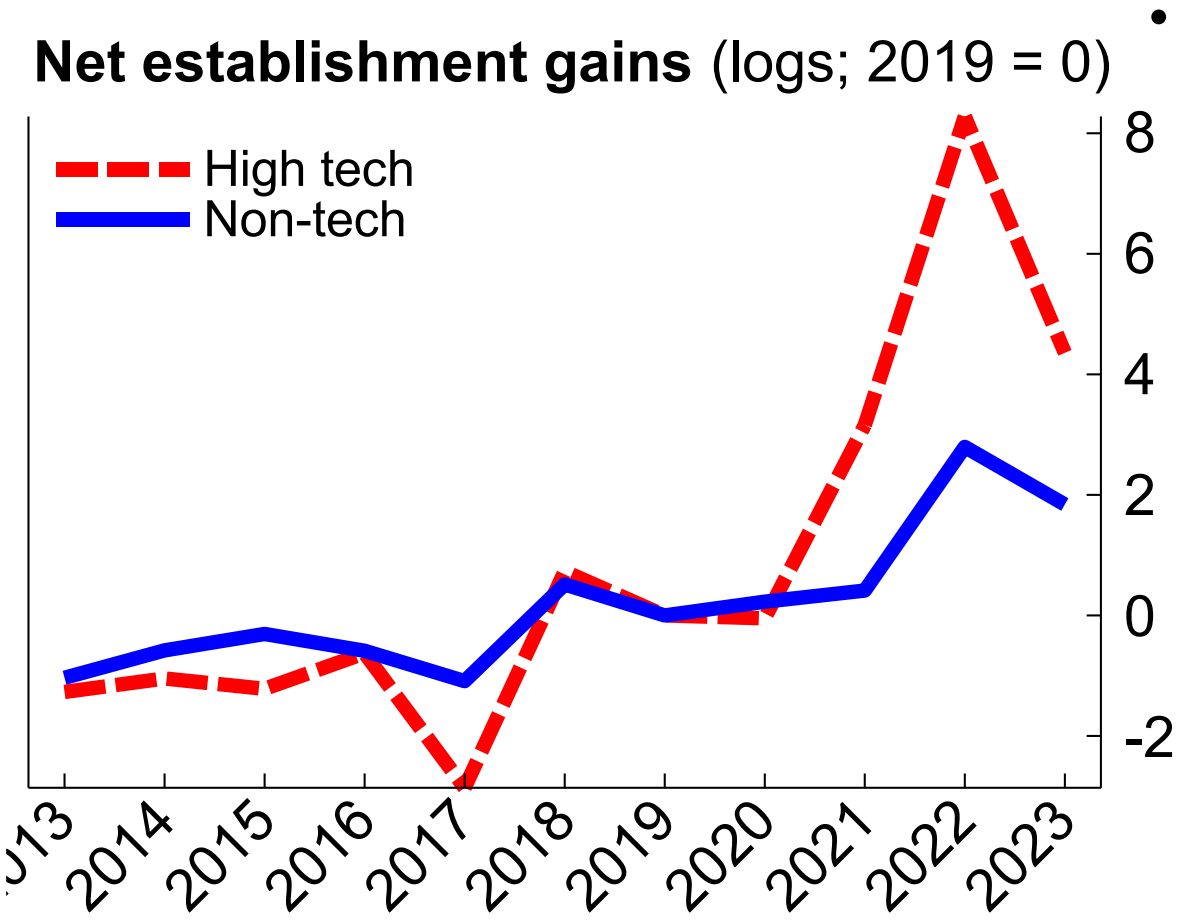
The role of high tech

Simple restructuring, or productivity boost?

- Business entry historically important for aggregate productivity (Decker et al. 2014, Alon et al. 2018).
- Late 1990s/early 2000s productivity boom was closely related to
  - high tech using and producing industries (Fernald 2015)…
  - …that had seen an earlier surge in entry (Foster et al. 2021)
- Is the pandemic entry surge
  - A simple reallocation/restructuring of activity, perhaps done by lifestyle or "mom n pop" entrepreneurs?
  - Or a burst of innovative activity?

  (could be both)

Tech industries saw larger employer entry surge



Note: Annual (log) gains versus 2019. BDS tech definition.
Source: QCEW.

- Net employer <u>establishment</u> entry surged more for **high tech industries**
  - "High tech" based on STEM employment shares at detailed industry level (QCEW)
    - Currently only available for <u>net</u> establishment entry…
    - … including both entrepreneurs and incumbent firm location openings
    - "Tech" from BDS/Goldschlag & Miranda 2020
  - Not shown:
    - Relative tech surge statistically significant
    - Robust to tech definitions
    - Common pre-trends

Tech industries made large contributions to 2019-2023 aggregate establishment gains (in thousands)…

Rank		Industry	Change (1000s)
1	5415	Computer Systems Design and Related Services	120
2	5416	Management, Scientific, and Technical Consulting Services	114
4	5112	Software Publishers	53
13	5413	Architectural, Engineering, and Related Services	27
15	5182	Data Processing, Hosting, and Related Services	26
17	5511	Management of Companies and Enterprises	24
19	5417	Scientific Research and Development Services	22

Note: Top 20 4-digit NAICS industries by establishment change (1000s), 2019 to 2023. Tech defined by BDS-HT definitions or Hecker (2005).

Source: QCEW.

Note: Aggregate establishment gain = 1.7 million

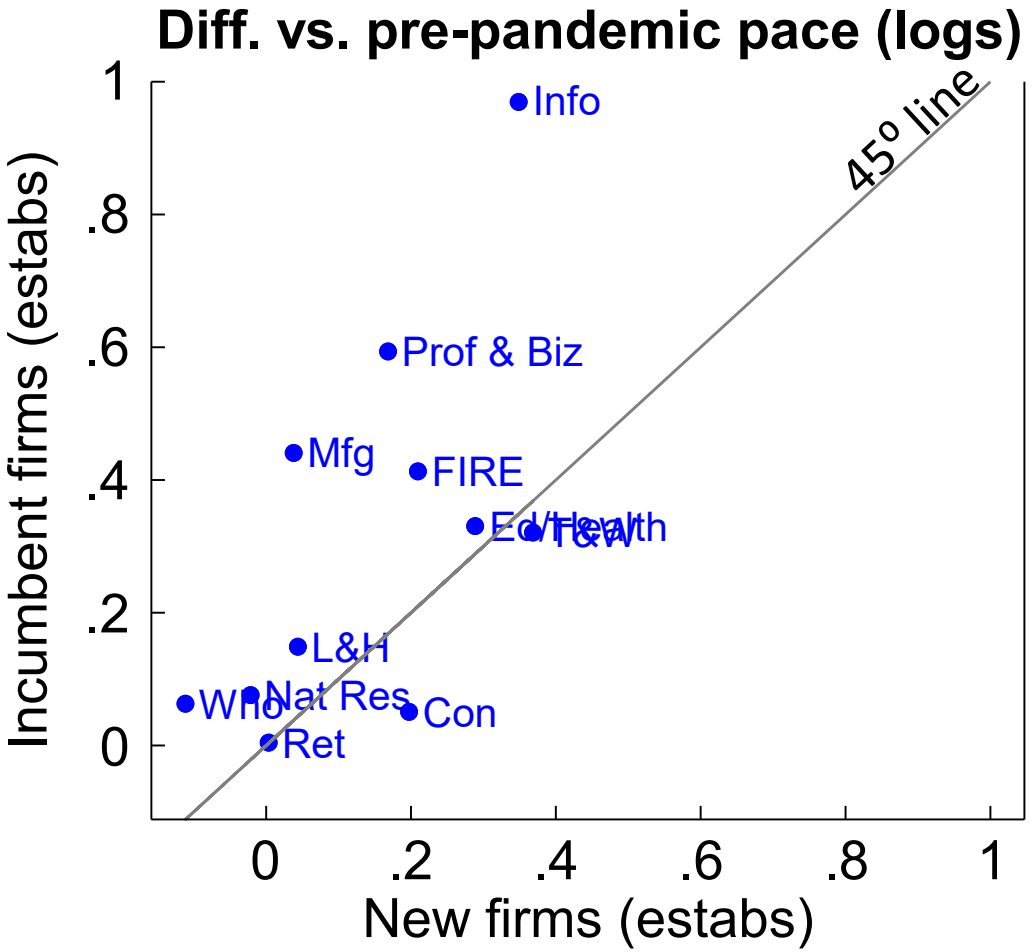
…and saw high within-industry growth (in logs)

Rank		Industry	Growth (logs x 100)
1	5112	Software Publishers	97
2	5182	Data Processing, Hosting, and Related Services	71
3	3346	Manufacturing and Reproducing Magnetic and Optical Media	67
6	5417	Scientific Research and Development Services	53
10	3254	Pharmaceutical and Medicine Manufacturing	44
15	5415	Computer Systems Design and Related Services	36
16	5416	Management, Scientific, and Technical Consulting Services	35

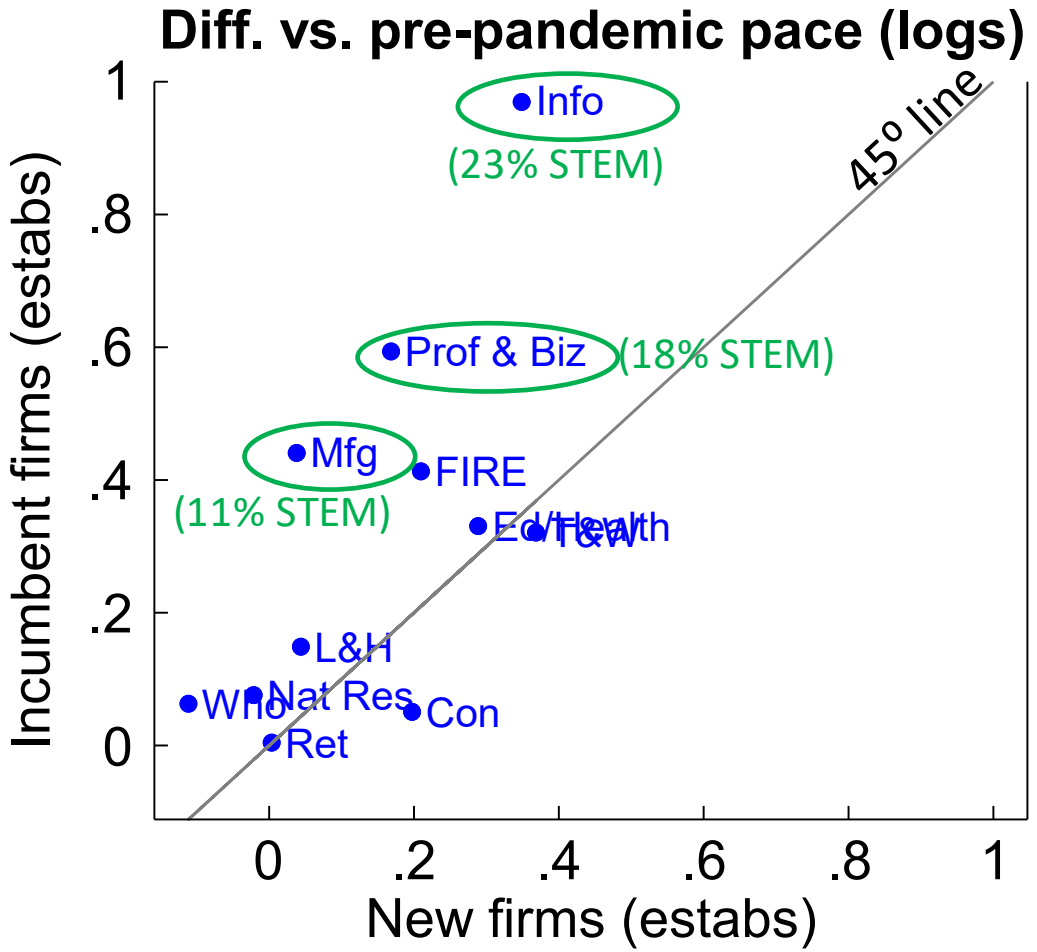
Note: Top 20 4-digit NAICS industries by log establishment change (x100), 2019 to 2023. Tech defined by BDS-HT and Hecker (2005).

Source: QCEW.

Tech estab. entry, incumbents vs. new firms

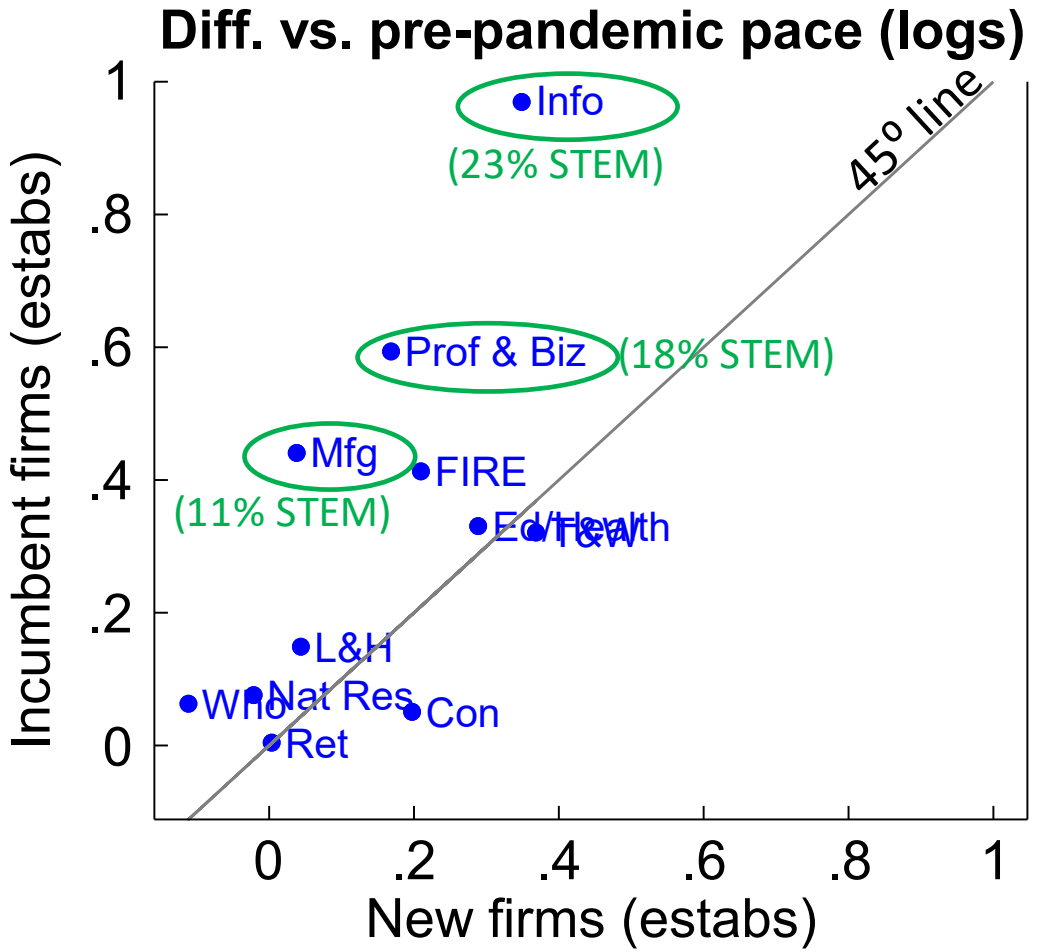


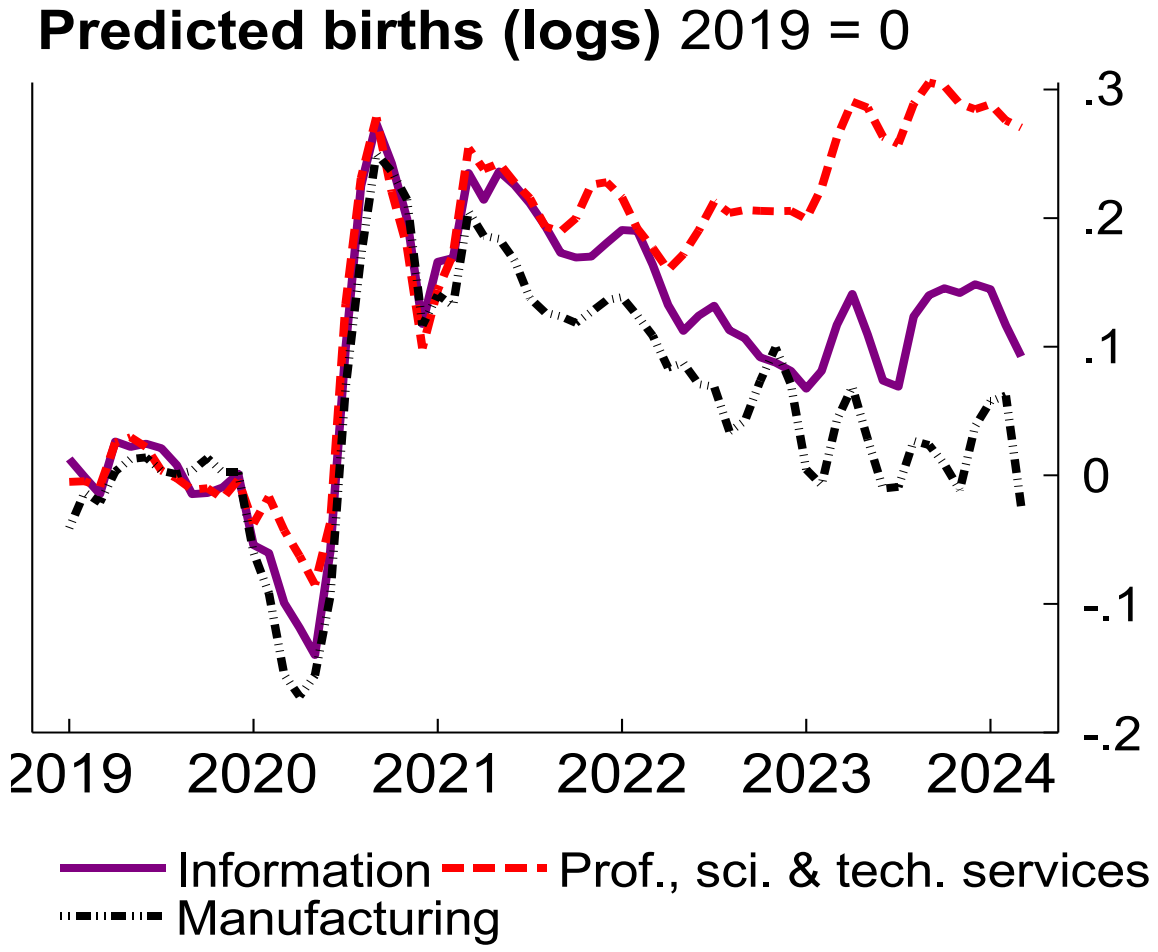
Tech estab. entry, incumbents vs. new firms



- **Top tech sectors** see more incumbent than new firm establishment birth surge, but new firm surge apparent as well

Tech estab. entry, incumbents vs. new firms

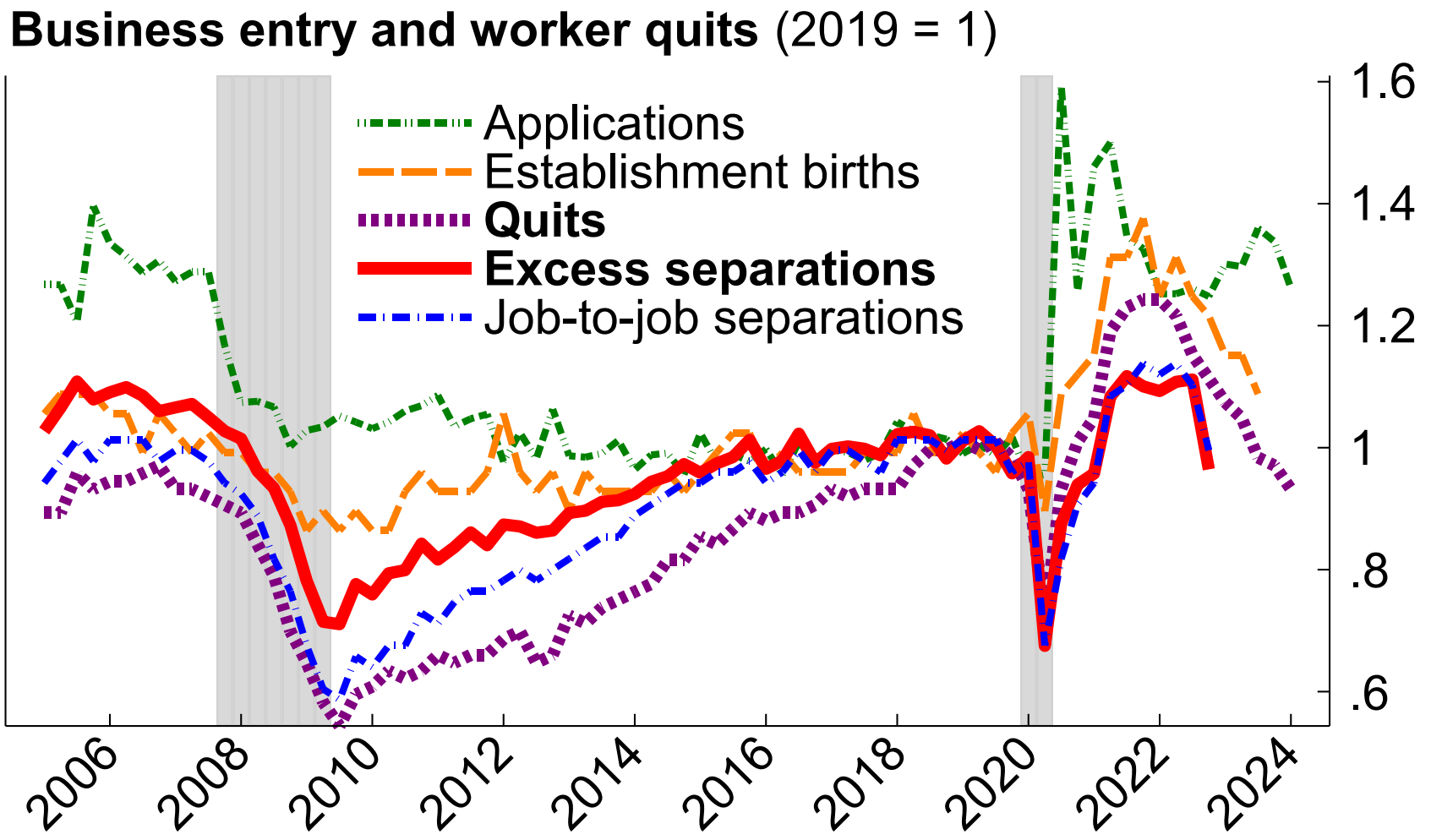




- **Top tech sectors** see more incumbent than new firm establishment birth surge, but new firm surge apparent as well
- BFS predicted firm births in prof/sci/tech still elevated -> points to more tech firm births in future

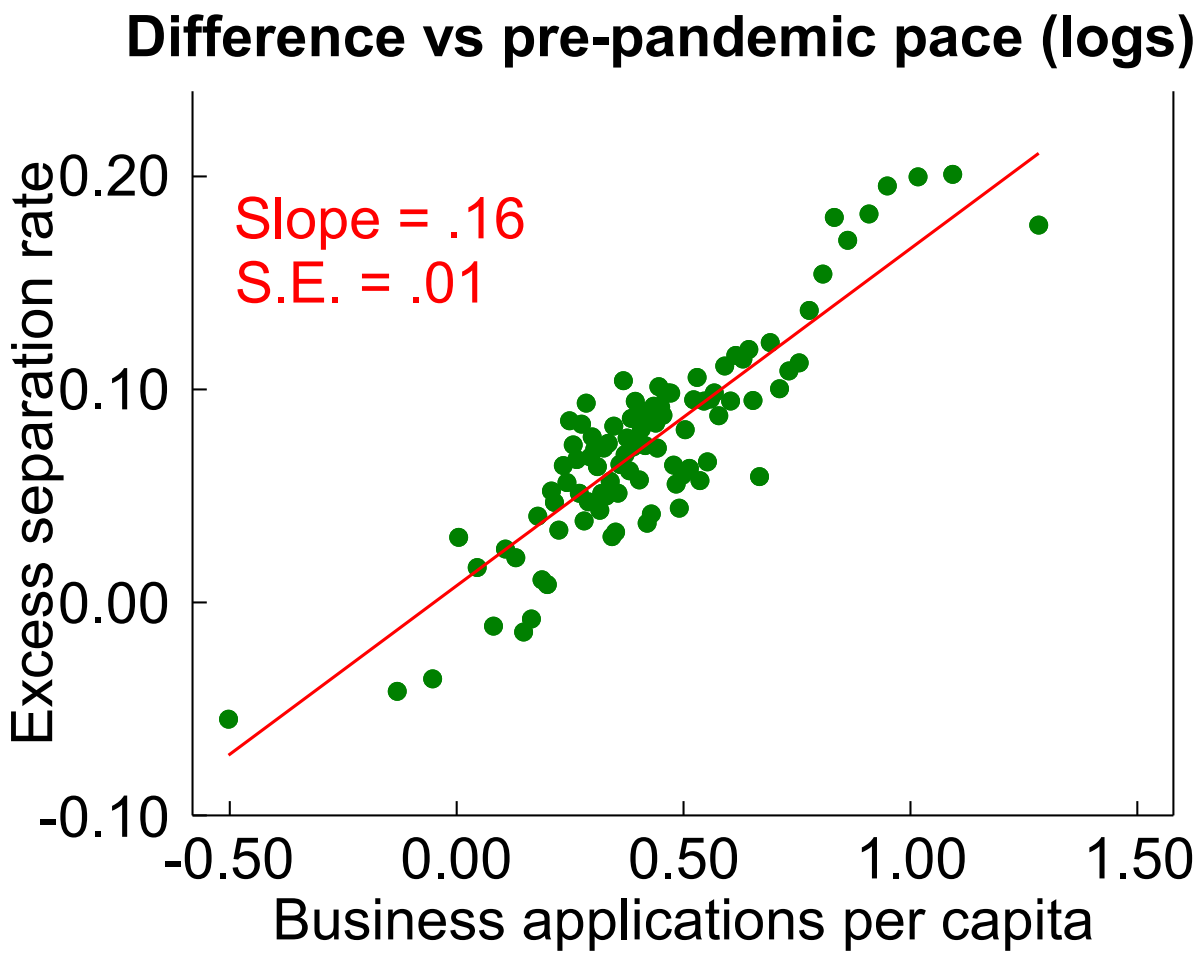
The “Great Resignation” and worker flows

Entry surge coincides with “Great Resignation”…



- Great Resignation: persistent surge in **quit rates**
- At county level, use proxy: **Excess separations** (separations in excess of job destruction)

…a relationship also found for county-level pandemic growth (vs. pre-pandemic).

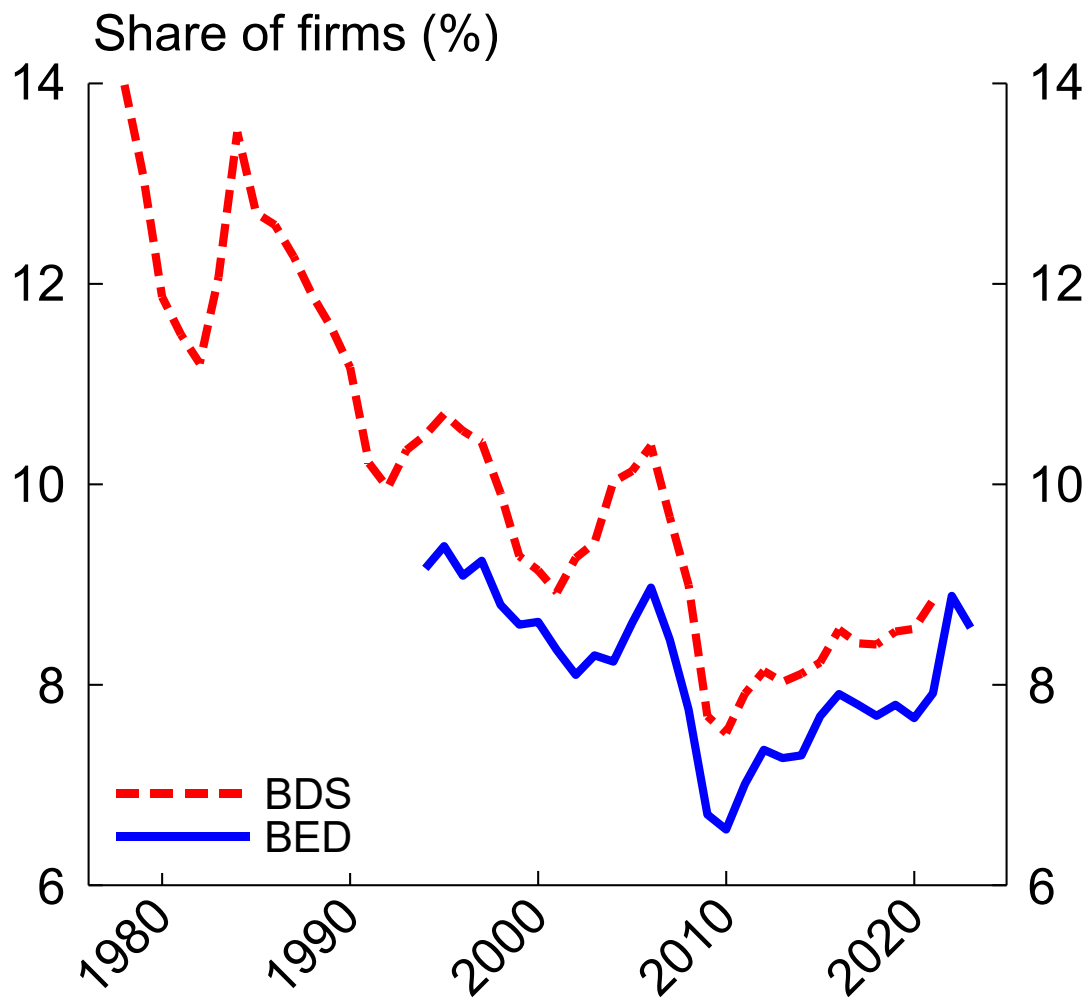


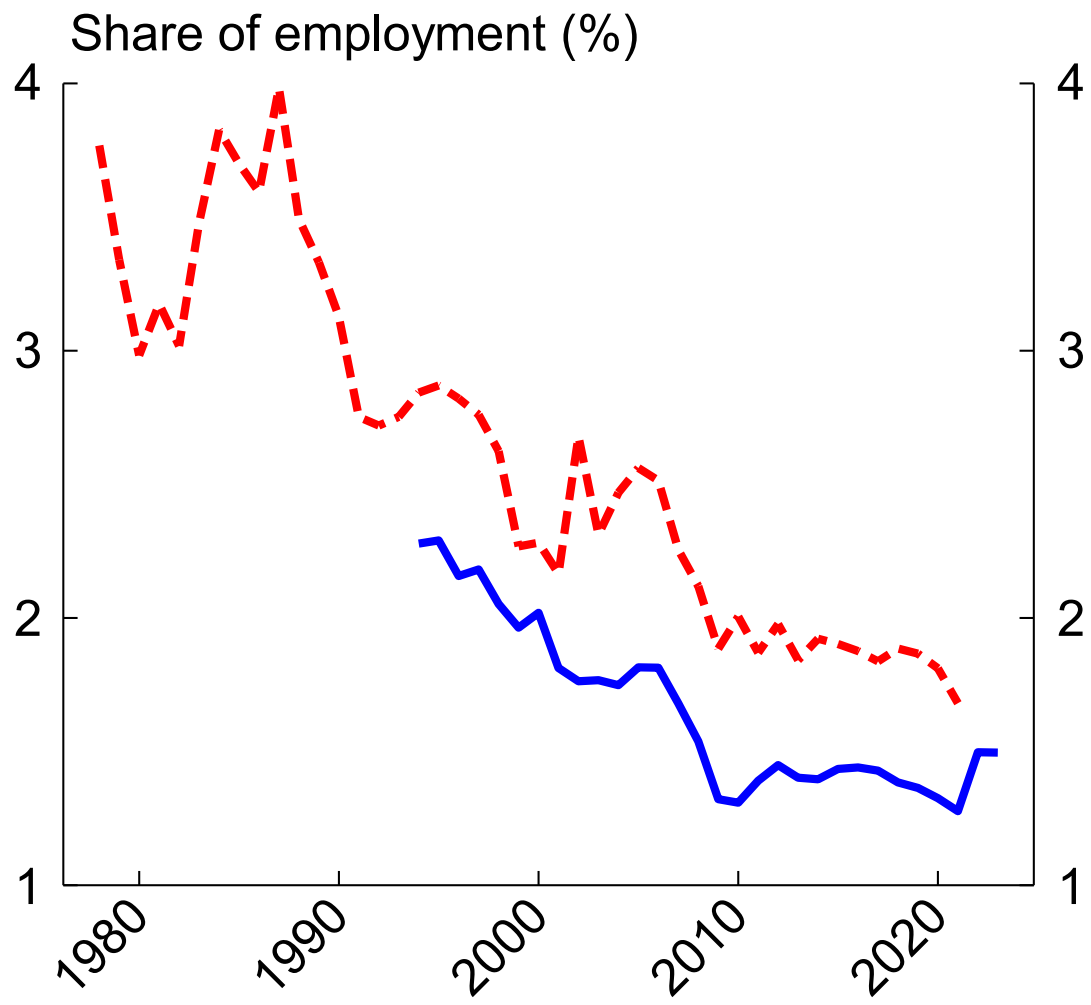
Note: 2020-2022 vs 2010-2019. County-level binscatter.

- Application surge tightly correlated with surge in quits (or proxy for quits)
- Not shown: Much weaker relationship for layoffs (or layoffs proxy), which had only an initial, short-lived spike
- What is the story?
  - Likely: Many workers quitting to join (or start) new businesses
  - Not/less likely: business formation surge explained by layoffs and weak labor market

Pre-pandemic trends

Pandemic firm entry surge vs. trend decline





Note: Firm entry rates. Right panel uses DHS denominator.
Source: Business Dynamics Statistics (BDS) and Business Employment Dynamics (BED).

Secular decline in business dynamism

- Large literature on secular decline in business "dynamism" (e.g., Decker et al. 2014)
  - Declining entry rates, job reallocation, worker reallocation, migration
  - Weaker productivity "selection" (correlation between firm/establishment productivity and growth) (Decker et al. 2020)
  - Rising average firm size/concentration
  - Implications for aggregate job creation (Haltiwanger, Jarmin, & Miranda 2013), productivity (Decker et al. 2017, 2020), business cycle (Pugsley & Sahin 2019)

Secular decline in business dynamism

- Causes/consequences explored in literature
  - Demographics (Pugsley, Karahan, & Sahin 2022; Hathaway & Litan 2014; Ozimek 2017)
  - Regulatory/business policy environment (Davis & Haltiwanger 2015; Autor, Kerr, & Kugler 2007; Goldschlag & Tabarrok 2018; Johnson & Kleiner 2020)
  - Change in business model (e.g., retail consolidation, Decker et al. 2016; shift to nonemployers Abraham et al. 2019, Bento & Restuccia 2022)
  - Rising market power (De Loecker, Eeckhout, Mongey 2022; Albrecht & Decker 2024; Foster et al. 2024)
  - Knowledge investment or diffusion (De Ridder 2021, Akcigit & Ates 2023)
  - Debates about "skewness" and whether the decline is real (Guzman & Stern 2020)

Trend reversal?

- Pause, small rebound relative to longer run trend
- But:
  - Pandemic entrants are small
  - Reallocation jump does not match pre-pandemic decline
  - Durable reversal of pre-pandemic trends requires continued entry surge, robust post-entry growth

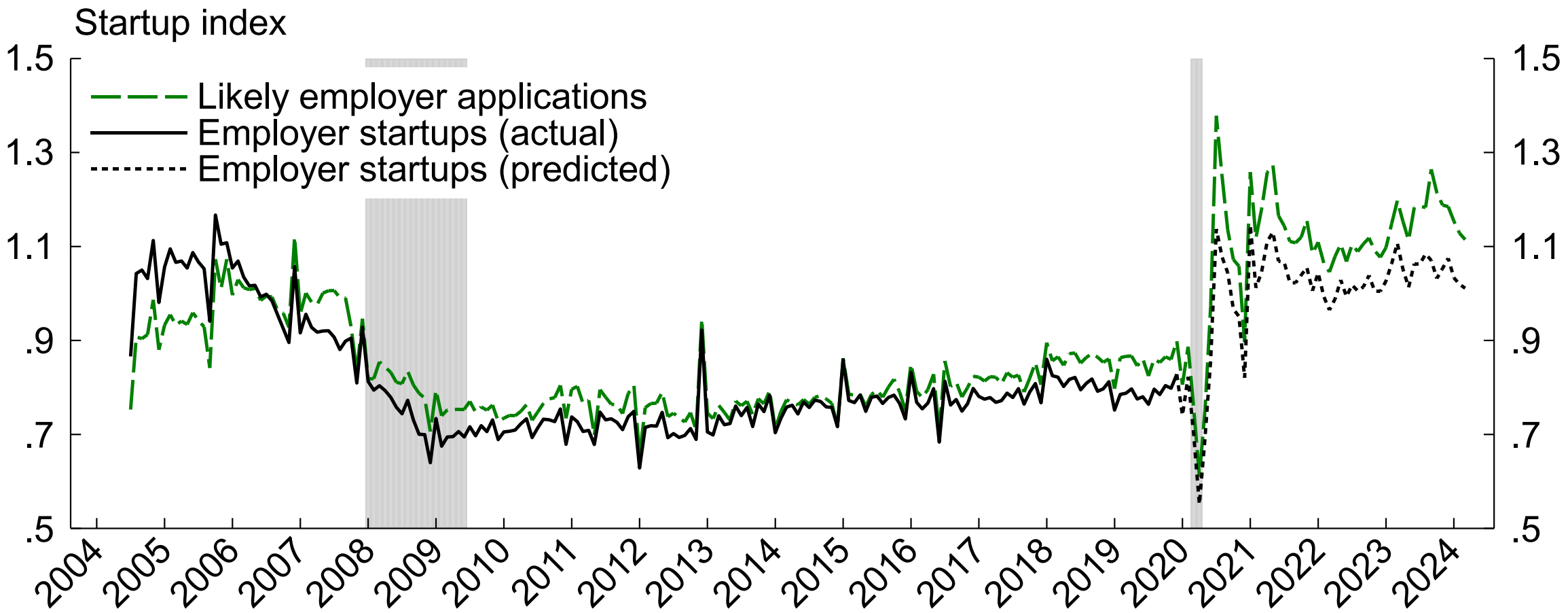
Wrapping up

- What happened in/since the pandemic?
  - Initial application wave: Short-lived in Summer 2020; Second wave: Started early in 2021, more resilient & coincides with employer entry
  - Potential entrepreneurs saw opportunities from change in patterns of consumption, work, lifestyle, and business—and went after the opportunities
  - Entry surge facilitated or followed broader pandemic economic restructuring across geography and industry
  - High tech industries saw large, disproportionate entry surge
  - Many “quitters” likely flowed to new businesses
- Result:
  - Changes to geographic and industry pattern of economic activity
  - A slightly younger firm age distribution, more activity at small firms
  - Pause in pre-pandemic trends… but future uncertain

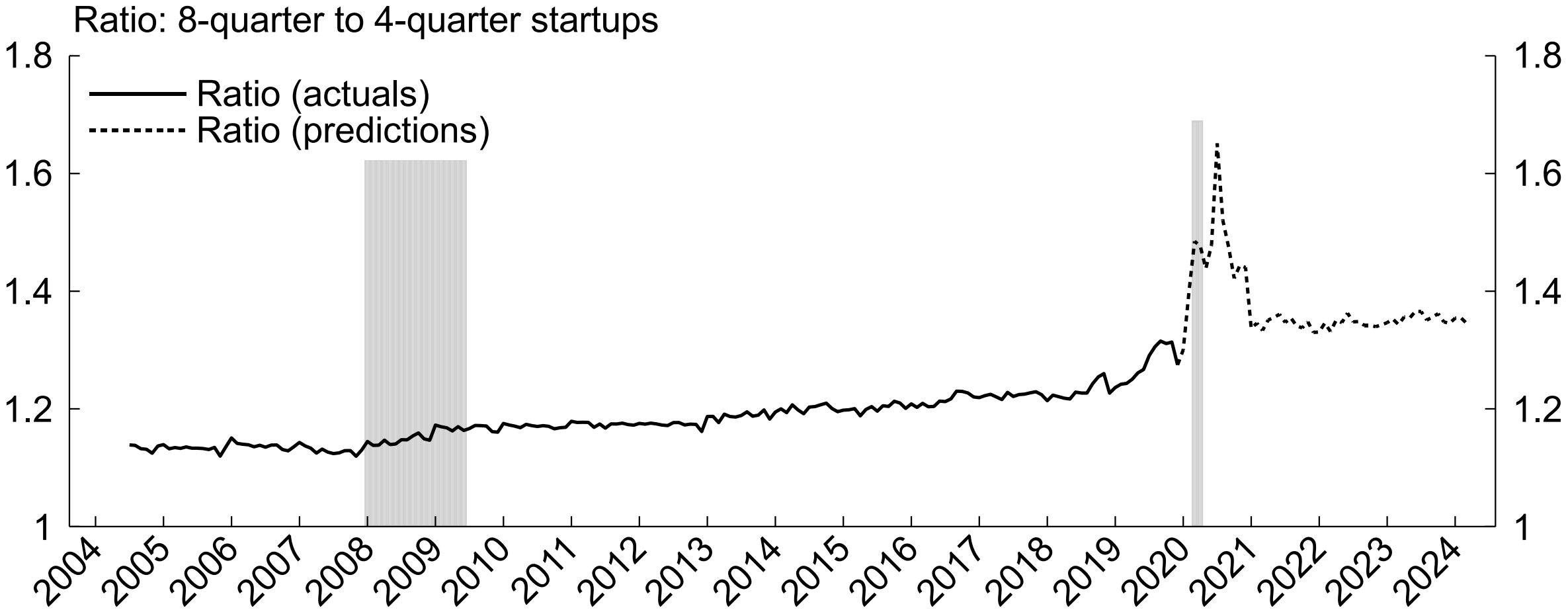
References and extra slides

References

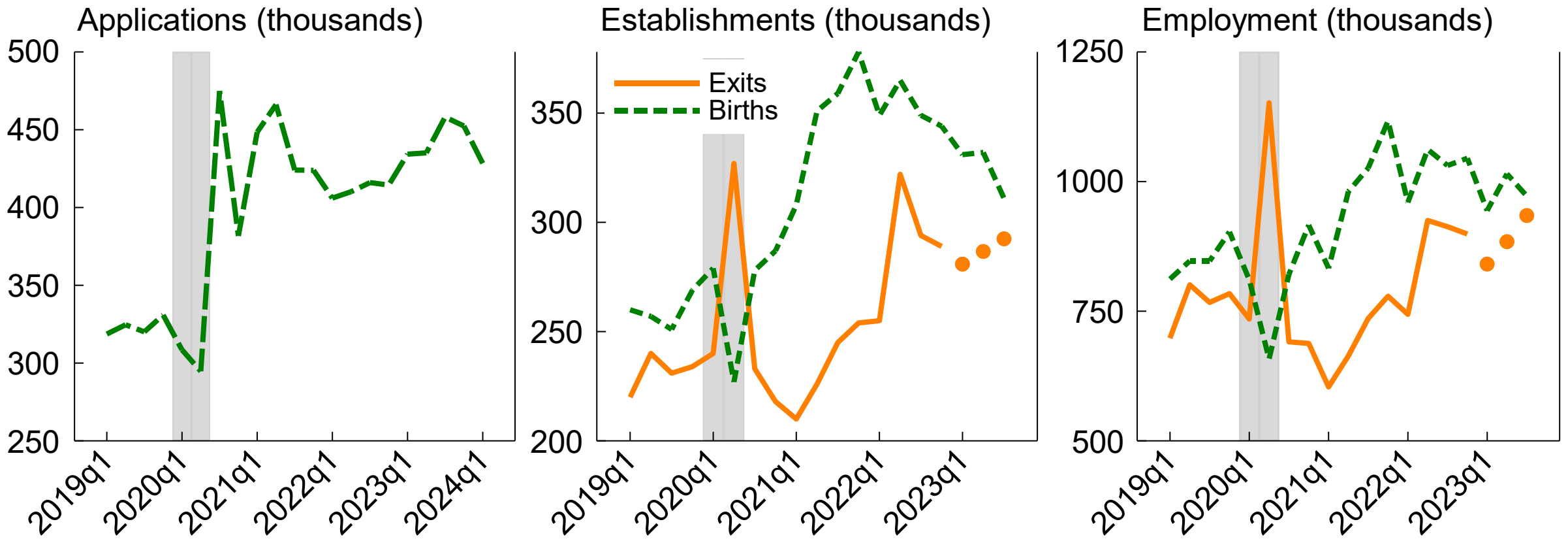
- Abraham, Katharine, John Haltiwanger, Kristin Sandusky, and James Spletzer. 2019. "The rise of the gig economy: Fact or fiction?" AEA Papers and Proceedings 109 (May):357-61.
- Akcigit, Ufuk and Sina Ates. 2023. "What happened to U.S. business dynamism." Journal of Political Economy 131 no. 8:2059-2124..
- Albrecht, Brian and Ryan Decker. 2024. "Rising markups and declining business dynamism: Evidence from the industry cross section." FEDS Notes, March 8. At https://www.federalreserve.gov/econres/notes/feds-notes/rising-markups-and-declining-business-dynamism-evidence-from-the-industry-cross-section-20240308.html.
- Alon, Titan, David Berger, Rob Dent, and Benjamin Pugsley. 2018. "Older and slower: The startup deficit's lasting impact on productivity growth." Journal of Monetary Economics 93 (January):68-85.
- Autor, David, William Kerr, and Adriana Kugler. 2007. "Does employment protection reduce productivity? Evidence from US states." The Economic Journal 117 (June):F189-F217.
- Bento, Pedro and Diego Restuccia. 2021. "The role of nonemployers in business dynamism and aggregate productivity." NBER Working Paper no. 25998.
- Davis, Steven and John Haltiwanger. 2015. "Labor market fluidity and economic performance." Paper presented at the 2014 Federal Reserve Bank of Kansas City Economic Symposium Conference in Jackson Hole, WY.
- De Loecker, Jan, Jan Eeckhout, and Simon Mongey. 2022. "Quantifying market power and business dynamism in the macroeconomy." Working paper.
- De Ridder, Maarten. 2021. "Market power and innovation in the intangible economy." Working paper.
- Decker, Ryan and John Haltiwanger. 2024a. "Surging Business Formation in the Pandemic: Causes and Consequences." Prepared for the Fall 2023 Brookings Papers on Economic Activity.
- Decker, Ryan and John Haltiwanger. 2024b. "High tech business entry in the pandemic era." FEDS Notes, April 19. At https://www.federalreserve.gov/econres/notes/feds-notes/high-tech-business-entry-in-the-pandemic-era-20240419.html.
- Decker, Ryan, John Haltiwanger, Ron Jarmin, and Javier Miranda. 2014. "The role of entrepreneurship in US job creation and economic dynamism." Journal of Economic Perspectives 28:3-24.
- Decker, Ryan, John Haltiwanger, Ron Jarmin, and Javier Miranda. 2016. "Where has all the skewness gone? The decline in high-growth (young) firms in the U.S." European Economic Review 86 (July):4-23.
- Decker, Ryan, John Haltiwanger, Ron Jarmin, and Javier Miranda. 2017. "Declining dynamism, allocative efficiency, and the productivity slowdown." American Economic Review: Papers & Proceedings 107 no. 5:322-326.
- Decker, Ryan, John Haltiwanger, Ron Jarmin, and Javier Miranda. 2020. "Changing business dynamism and productivity: Shocks vs. responsiveness." American Economic Review 110 no. 12:2952-2990.
- Duguid, James, Bryan Kim, Lindsay Relihan, and Chris Wheat. 2023. "The impact of work-from-home on brick-and-mortar retail establishments: Evidence from card transactions." Working paper.
- Fazio, Catherine, Jorge Guzman, Yupeng Liu, and Scott Stern. 2021. "How is COVID changing the geography of entrepreneurship? Evidence from the Startup Cartography Project." NBER Working Paper no. 28787.
- Fernald, John. 2015. "Productivity and potential output before, during, and after the Great Recession." NBER Macroeconomics Annual 2014 29 no. 1:1-51.
- Foster, Lucia, John Haltiwanger, and Cody Tuttle. 2024. "Rising markups or changing technology?" NBER Working Paper no. 30491.
- Goldschlag, Nathan and Javier Miranda. 2020. "Business dynamics of high tech industries." Journal of Economics & Management Strategy 29 no. 1:3-30.
- Goldschlag, Nathan and Alex Tabarrok. 2018. "Is regulation to blame for the decline in American entrepreneurship?" Economic Policy 33 no. 93:5-44.
- Guzman, Jorge and Scott Stern. 2020. "The state of American entrepreneurship: New estimates of the quantity and quality of entrepreneurship for 32 US states, 1988-2014." American Economic Journal: Economic Policy 12 no. 4:212-43.
- Haltiwanger, John, Ron Jarmin, and Javier Miranda. 2013. "Who creates jobs? Small versus large versus young." The Review of Economics and Statistics 95 no. 2:347-361.
- Hathaway, Ian and Robert Litan. "What's driving the decline in the firm formation rate? A partial explanation." Economic Studies at Brookings November 2013. At https://www.brookings.edu/wp-content/uploads/2016/06/driving_decline_firm_formation_rate_hathaway_litan.pdf.
- Hecker, Danie. 2005. "High-technology employment: A NAICS-based update." Monthly Labor Review 128 no. 7:57-72.
- Johnson, Janna and Morris Kleiner. 2020. "Is occupational licensing a barrier to interstate migration." American Economic Journal: Economic Policy 12 no. 3:347-73.
- Newman, Daniel and Kenan Fikri. 2023. "Economic prosperity is shifting toward the mountain west and southeast." Economic Innovation Group analysis. At https://eig.org/dci-change-over-time/.
- Newman, Daniel and Connor O'Brien. 2023. "Where are the country's most economically dynamic states coming out of the pandemic?" Economic Innovation Group analysis. At https://eig.org/most-dynamic-states-post-pandemic/.
- O'Brien, Connor. 2022. "More physical places of businesses open now than pre-pandemic, led by sun-belt metros." Economic Innovation Group analysis. At https://www.federalreserve.gov/econres/notes/feds-notes/high-tech-business-entry-in-the-pandemic-era-20240419.html.
- Ozimek, Adam. 2017. "Firm startups, population growth and domestic migration." Moody's Analytics Regional Financial Review. May. At https://adamozimek.com/admin/pdf/startups.pdf.
- Pugsley, Benjamin, Faith Karahan, and Aysegul Sahin. Forthcoming. "Demographic origins of the startup deficit." American Economic Review.
- Pugsley, Benjamin and Aysegul Sahin. 2019. "Grown-up business cycles." The Review of Financial Studies 32 no. 3:1102-47.



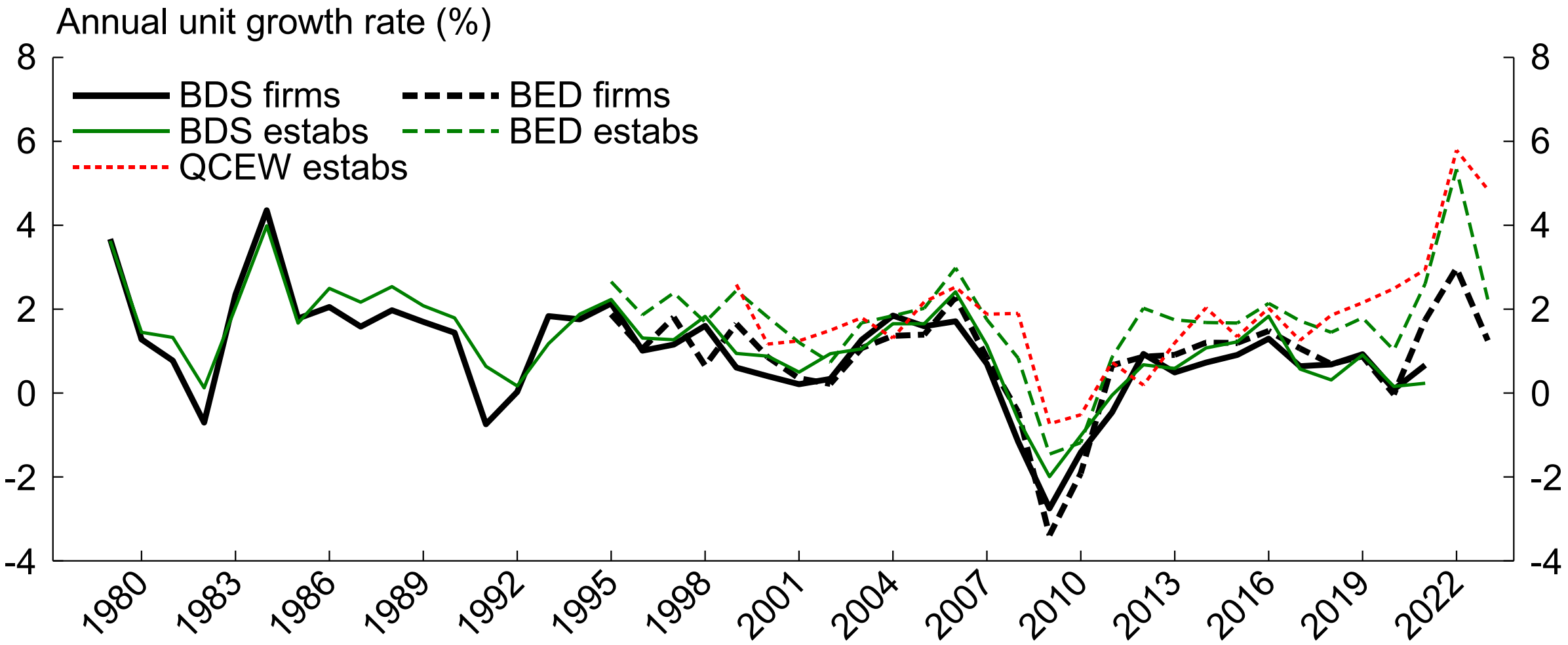
Note: Startups within 8 quarters. Seasonally adjusted. Normalized by average 2006 levels.
Shaded areas indicate NBER recession dates.
Source: Census Bureau Business Formation Statistics.



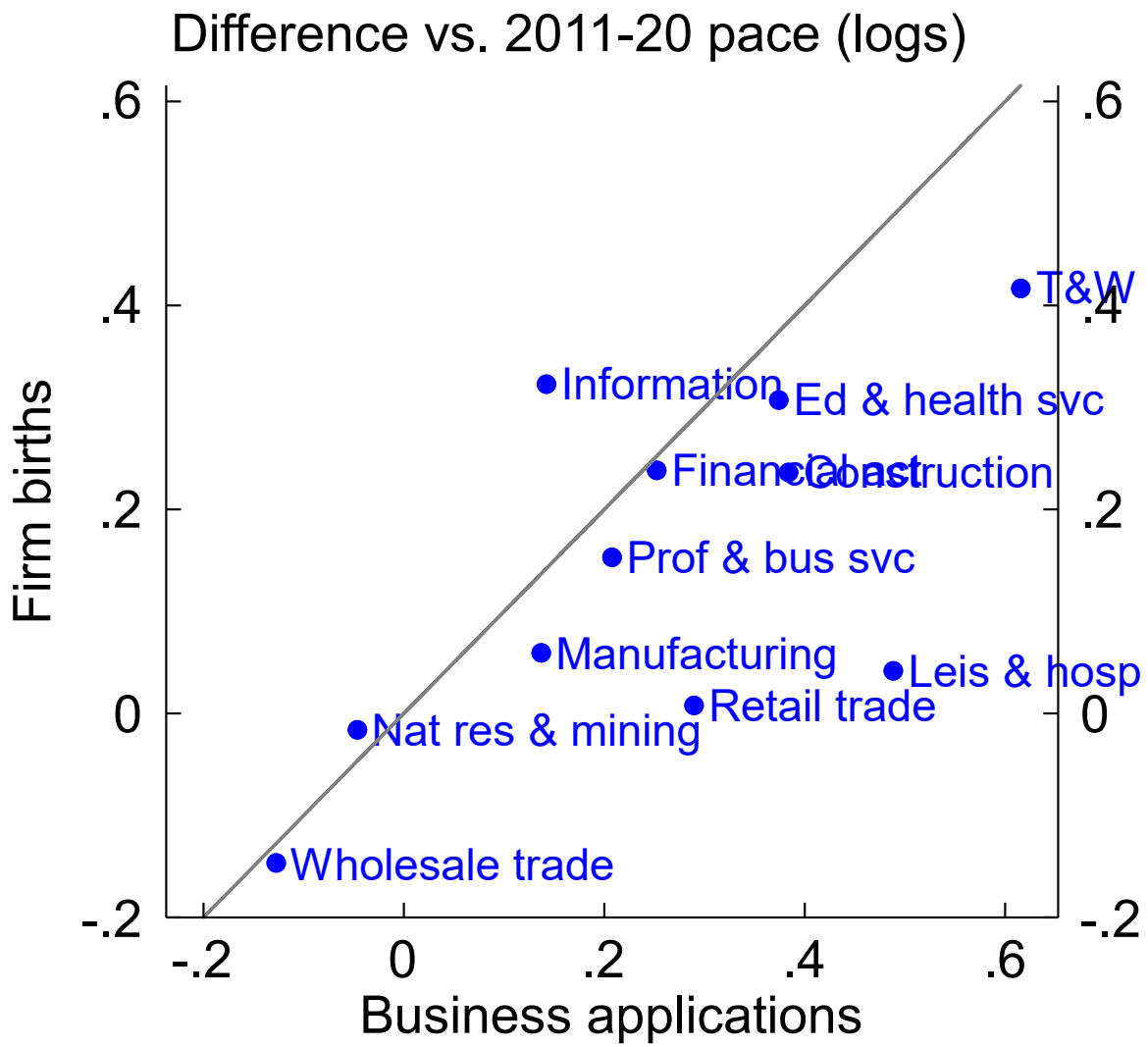
Note: Ratio of startups within 8 quarters of application to startups within 4 quarters of application. Seasonally adjusted before calculation. Shaded areas indicate NBER recession dates.
Source: Census Bureau Business Formation Statistics.

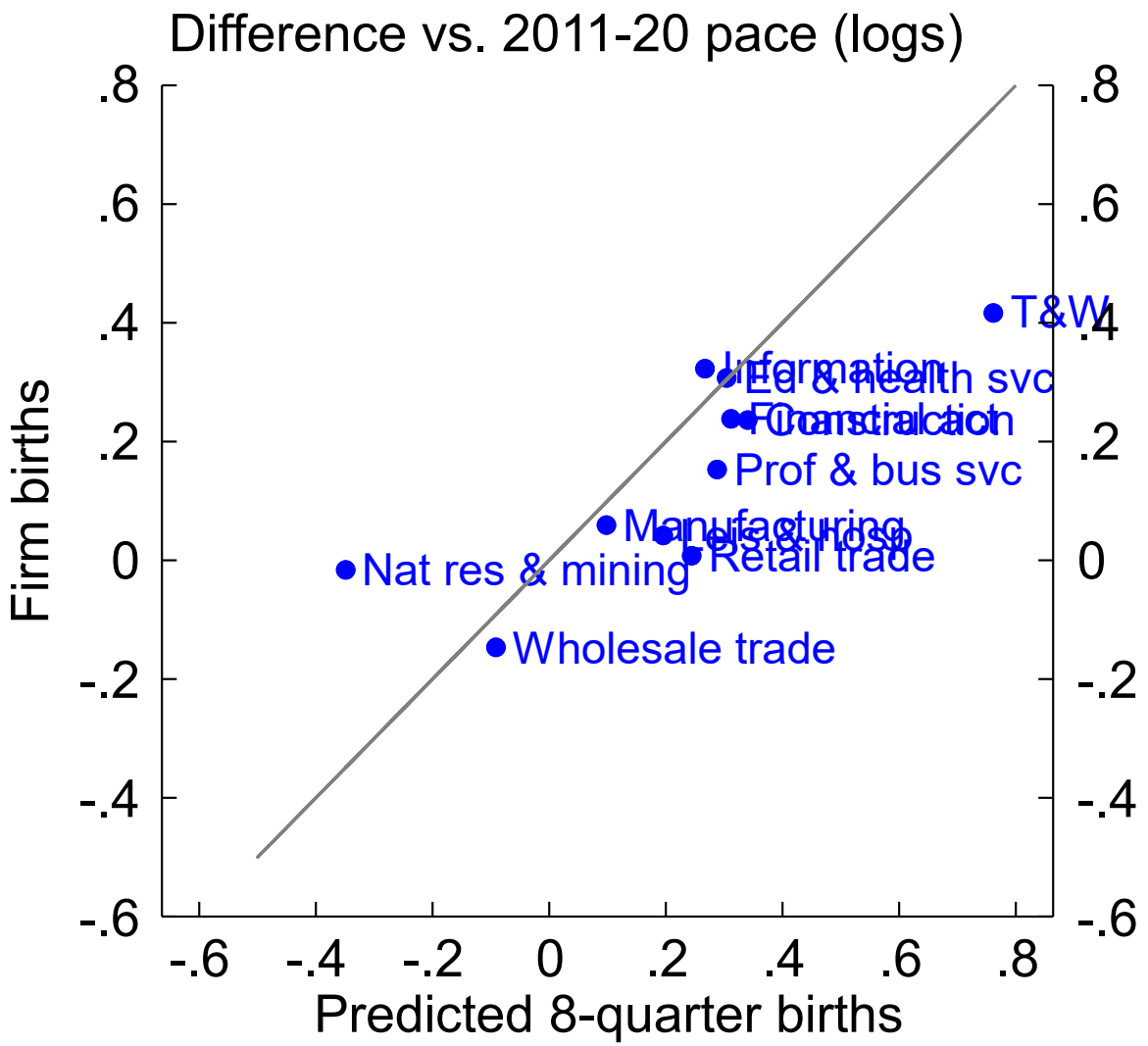


Note: Seasonally adjusted. Y axes may not start at zero. Shaded areas indicate NBER recession dates. High-propensity applications. Exits after 2022q4 projected based on most recent share of exits in closures (orange dots).
Source: Census Bureau Business Formation Statistics (BFS) and BLS Business Employment Dynamics.

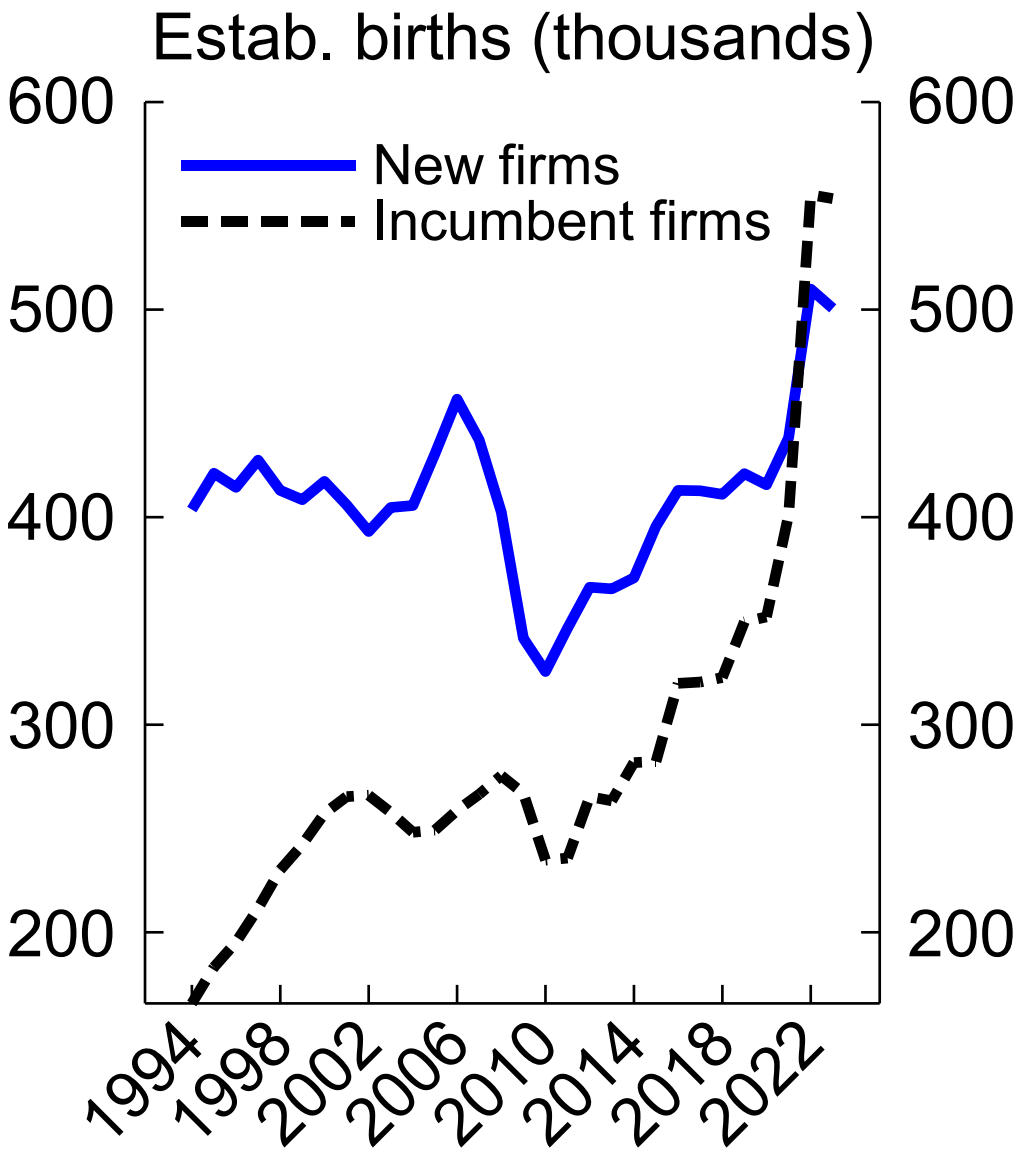


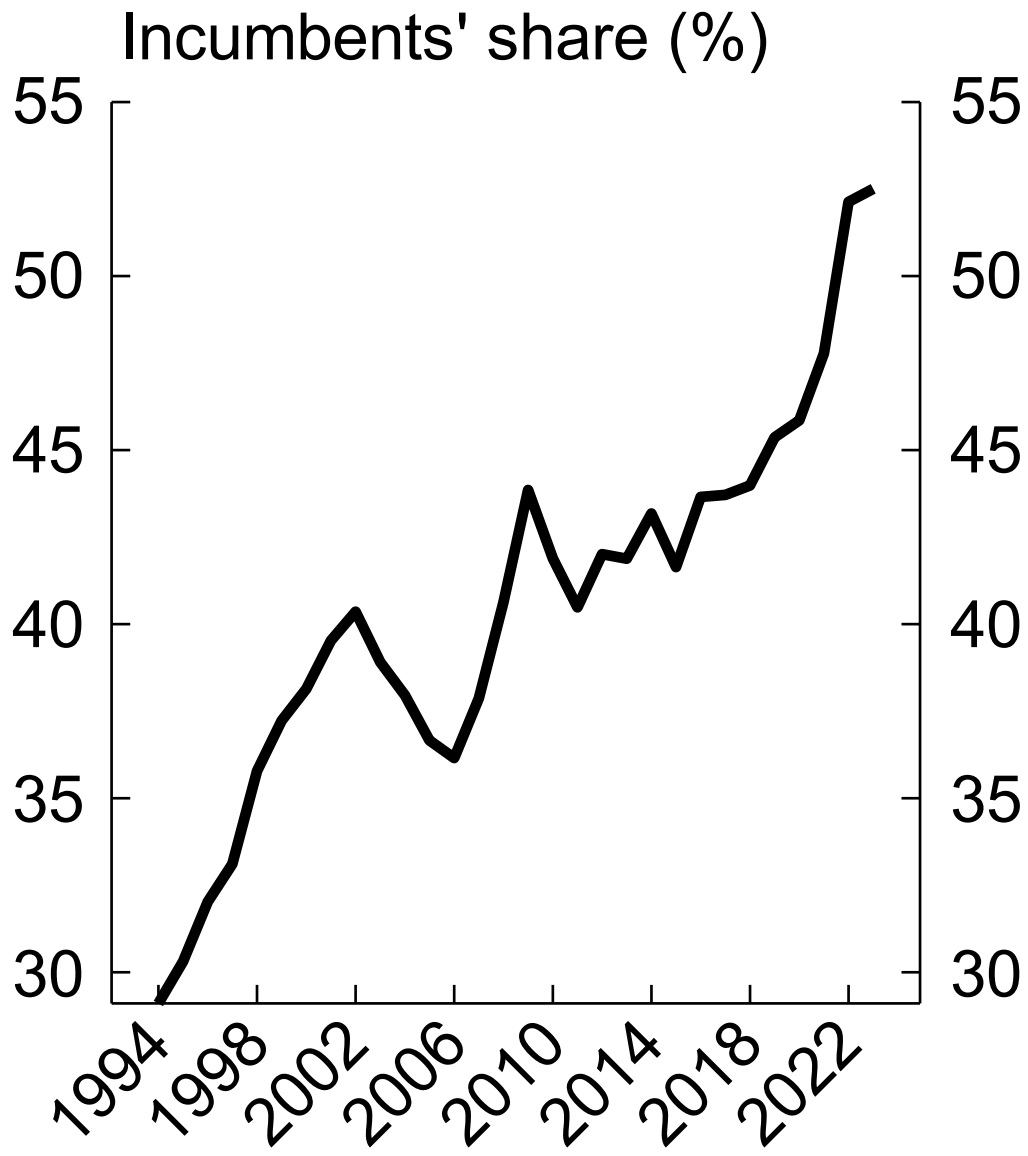
Note: Annual DHS growth rate of unit counts, Q1 versus year earlier.
Source: BDS, BED, QCEW.



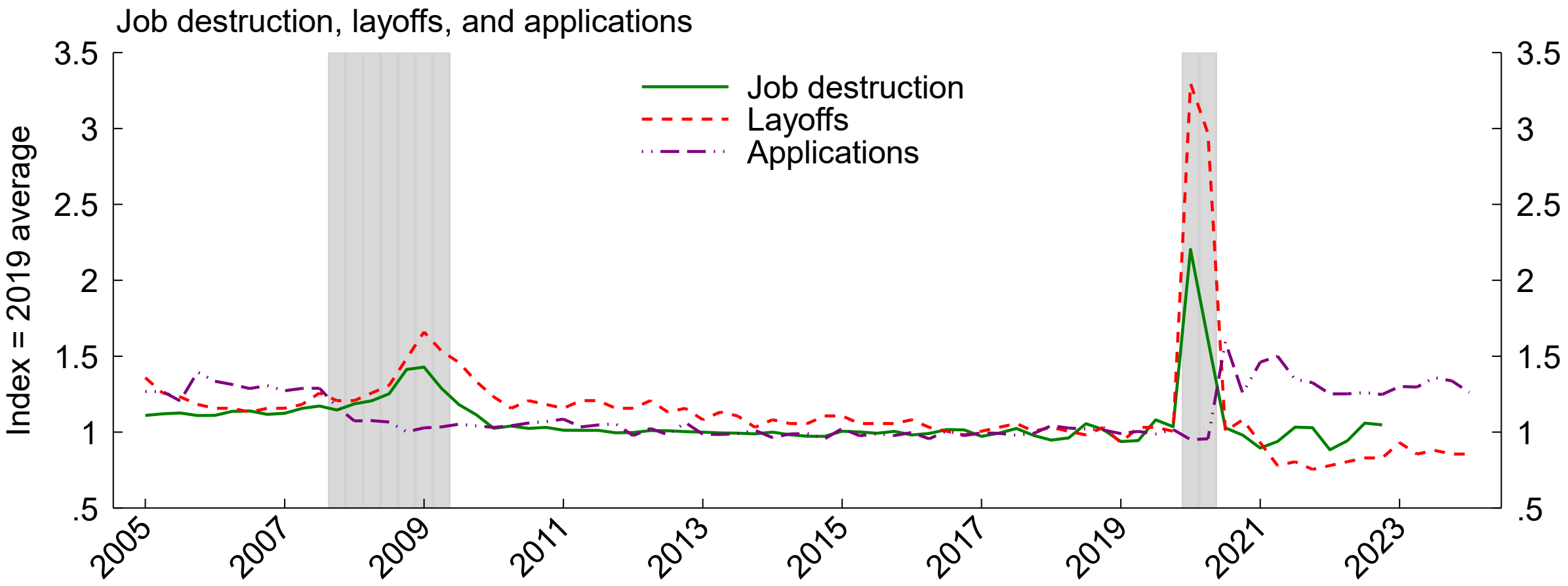


Note: 2021-2023. Solid line is 45-degree line. T&W is transportation & warehousing. Years end in March.
Source: Business Employment Dynamics (BED), Business Formation Statistics (BFS).

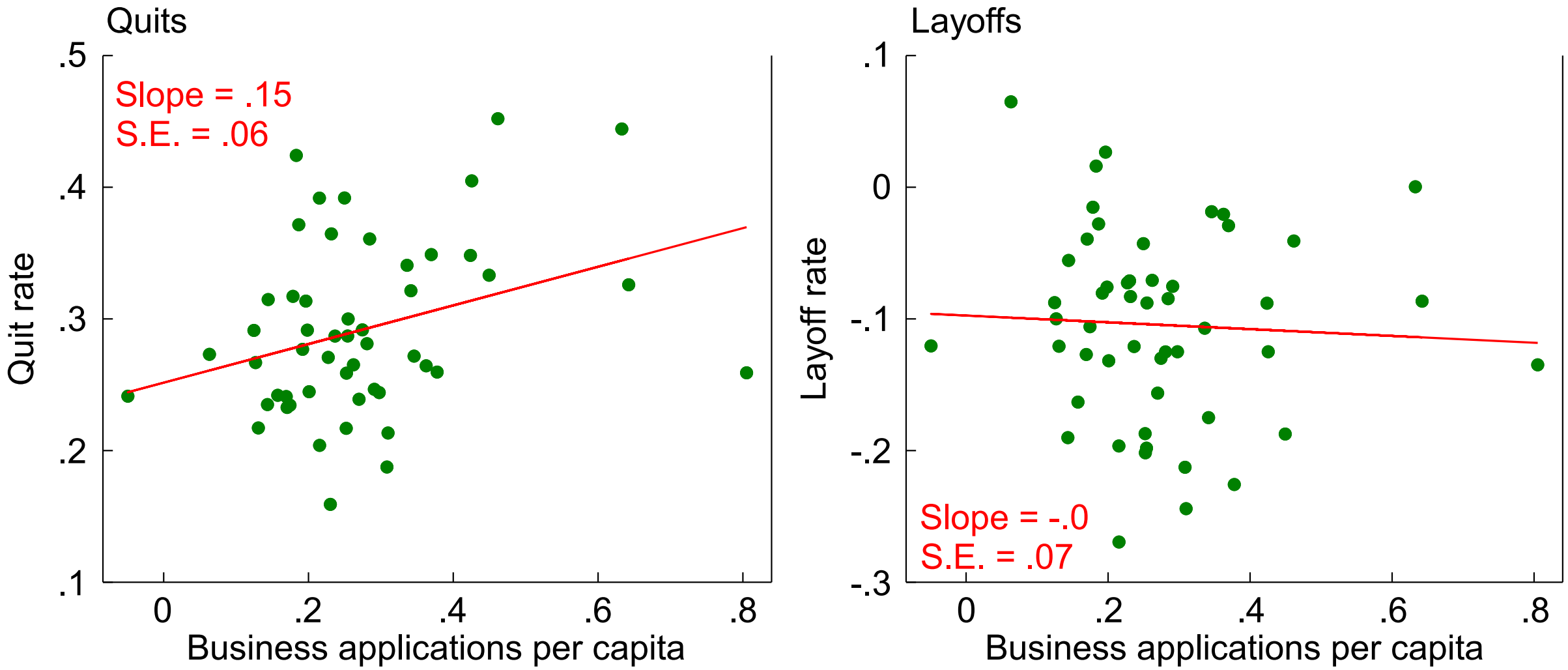




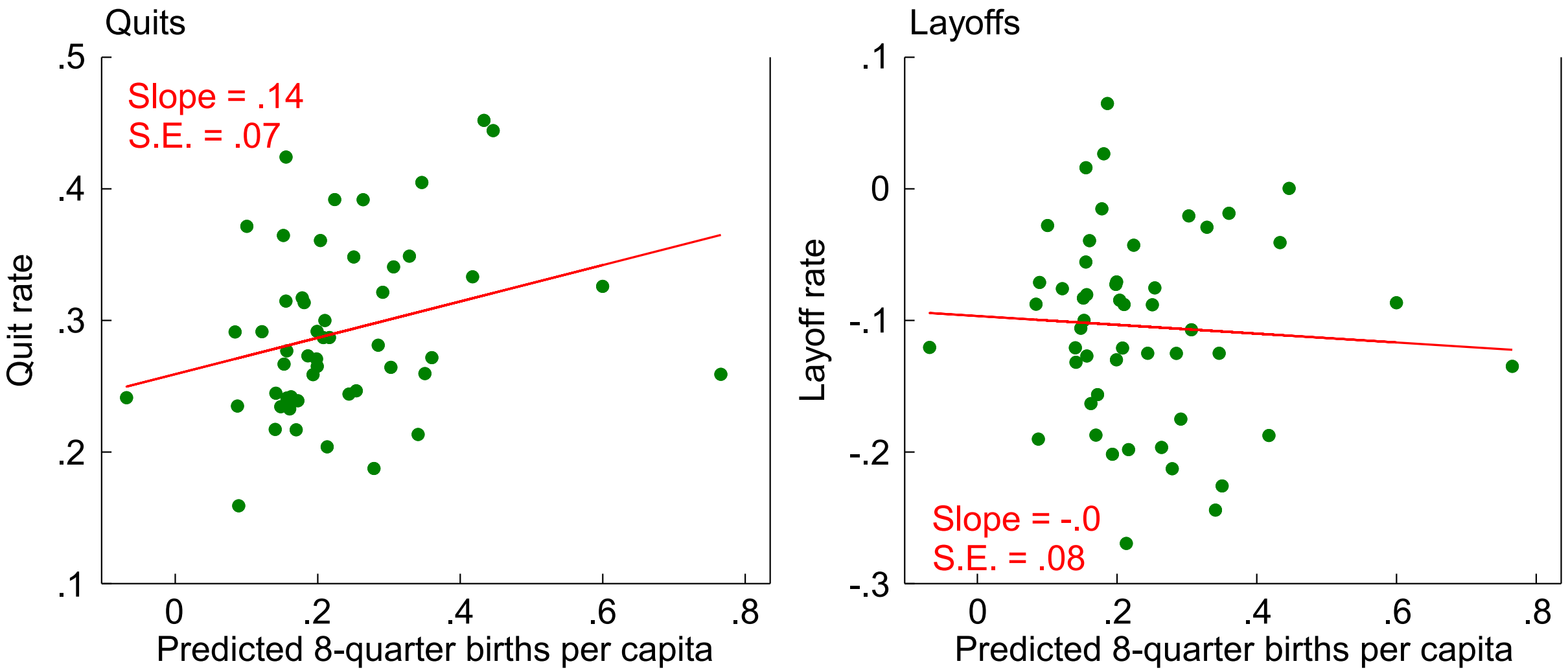
Note: Y axes may not start at zero.
Source: Business Employment Dynamics (BED).



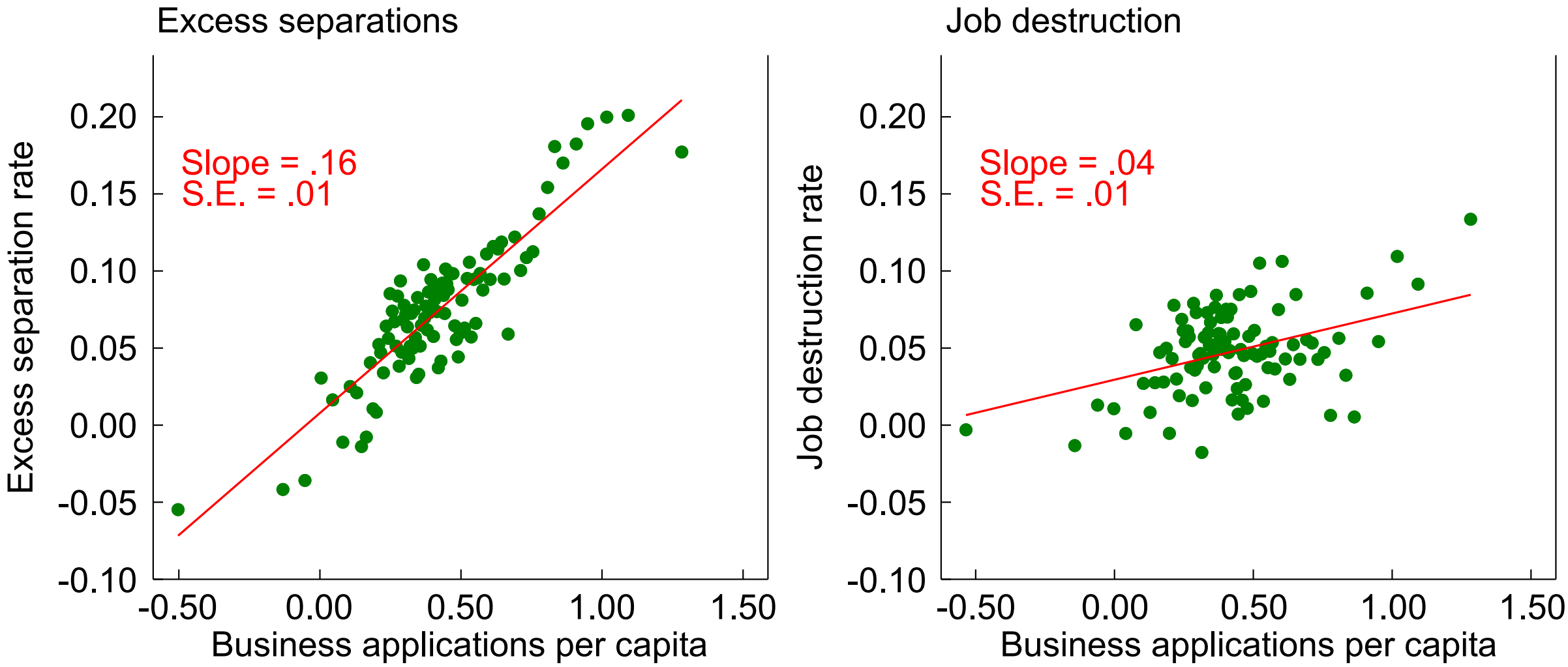
Note: Index of series expressed relative to employment or, for births, to establishments; seasonally adjusted. Applications are likely employers (HBA). Shaded areas indicate NBER recession dates.
Source: QWI, JOLTS, BED, BFS, and CES.



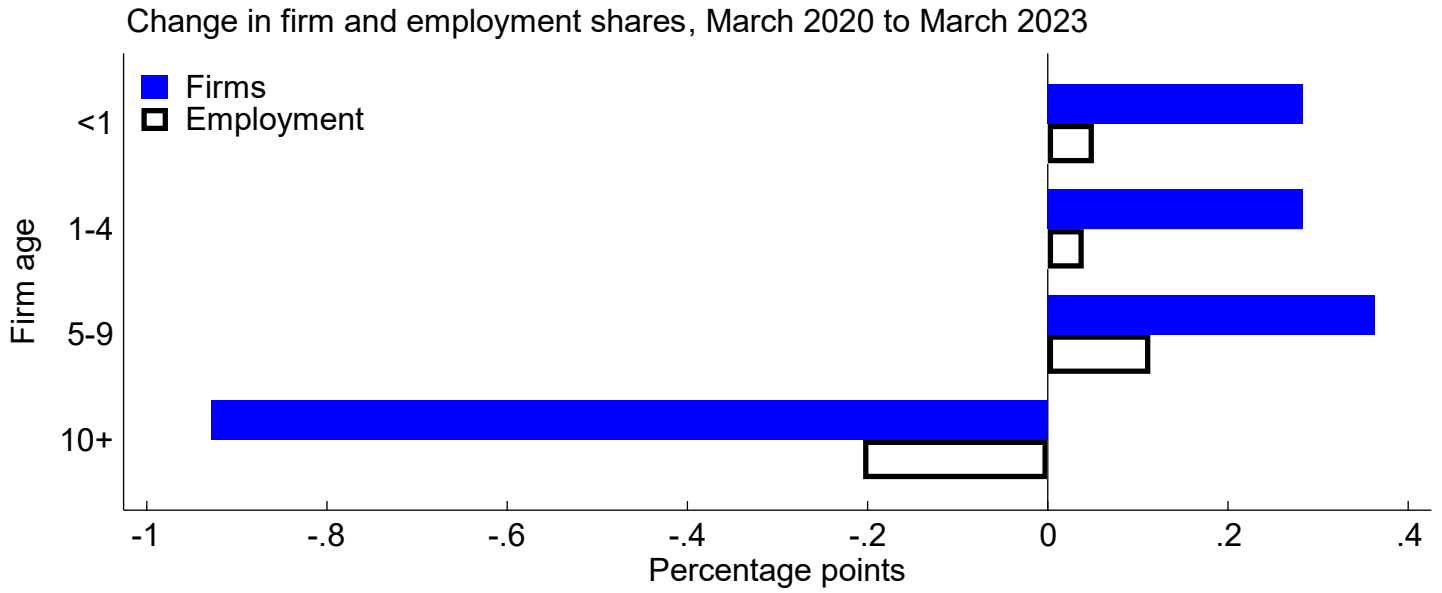
Note: State-level log differences of 2020-2023 vs. 2010-2019 seasonally adjusted pace. Red line is regression line with reported slope and standard error. Data through March 2024.
Source: JOLTS, Business Formation Statistics (BFS).

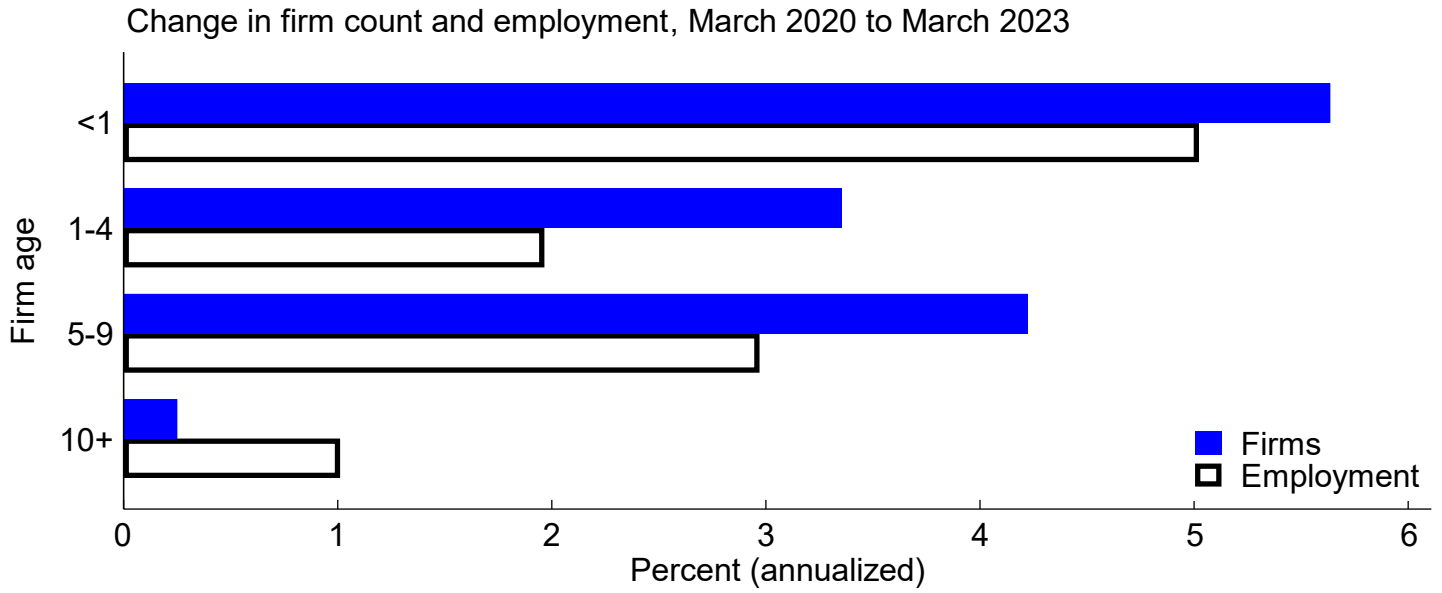


Note: State-level log differences of 2020-2023 vs. 2010-2019 seasonally adjusted pace. Red line is regression line with reported slope and standard error. Data through December 2023.
Source: JOLTS, Business Formation Statistics (BFS).

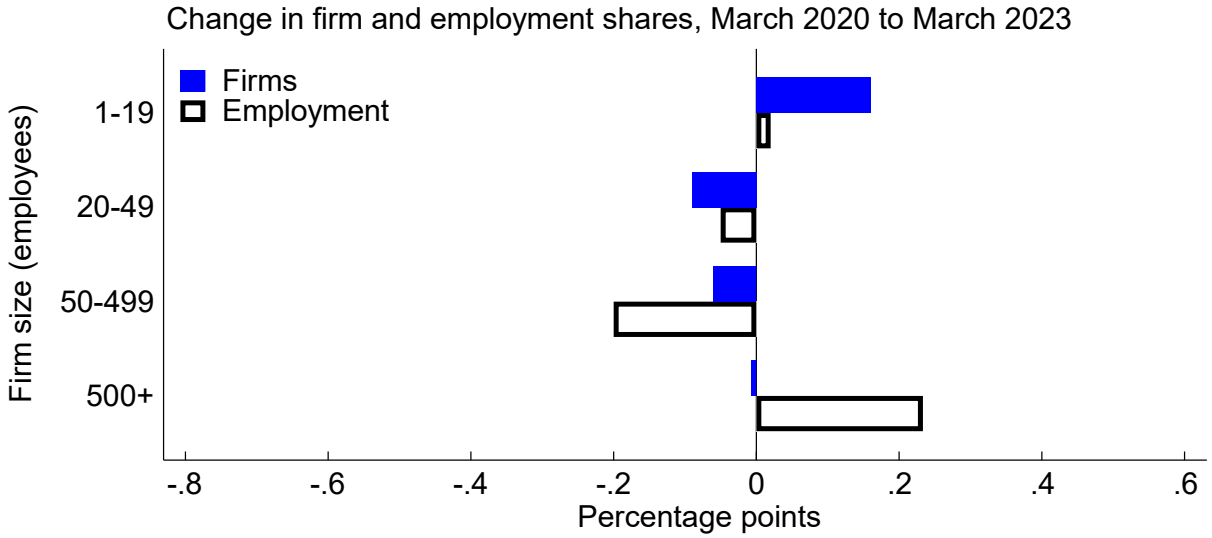


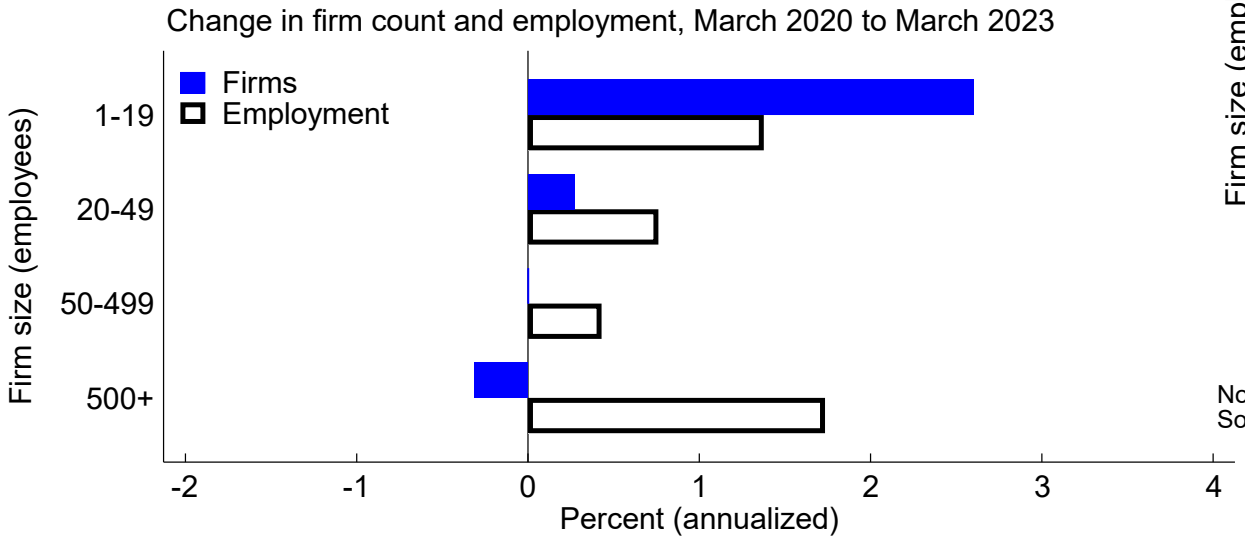
Note: County-level log differences of 2020-2022:Q4 vs. 2010-2019 seasonally adjusted pace. Red line is regression line with reported slope and standard error. Binscatter with 100 bins.
Source: Quarterly Workforce Indicators (QWI), Business Formation Statistics (BFS).

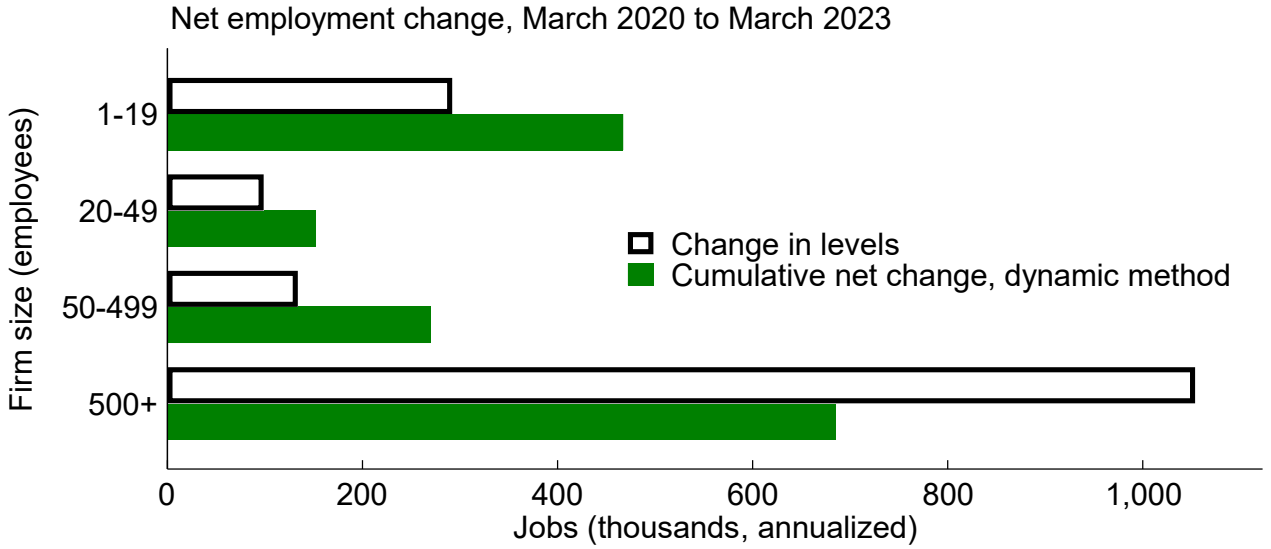




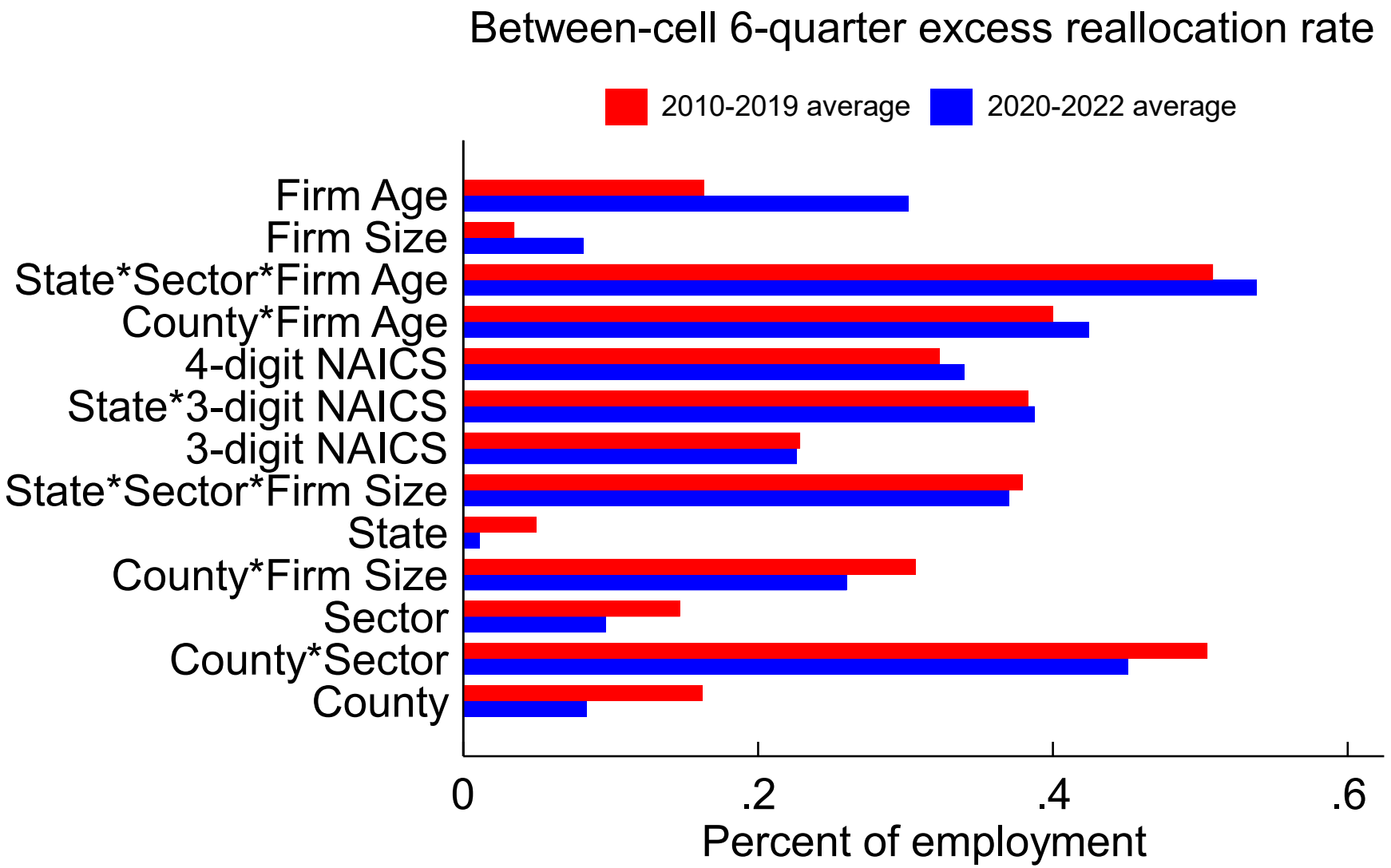
Note: Firms and firm age defined by EIN.
Source: BLS Business Employment Dynamics (BED).



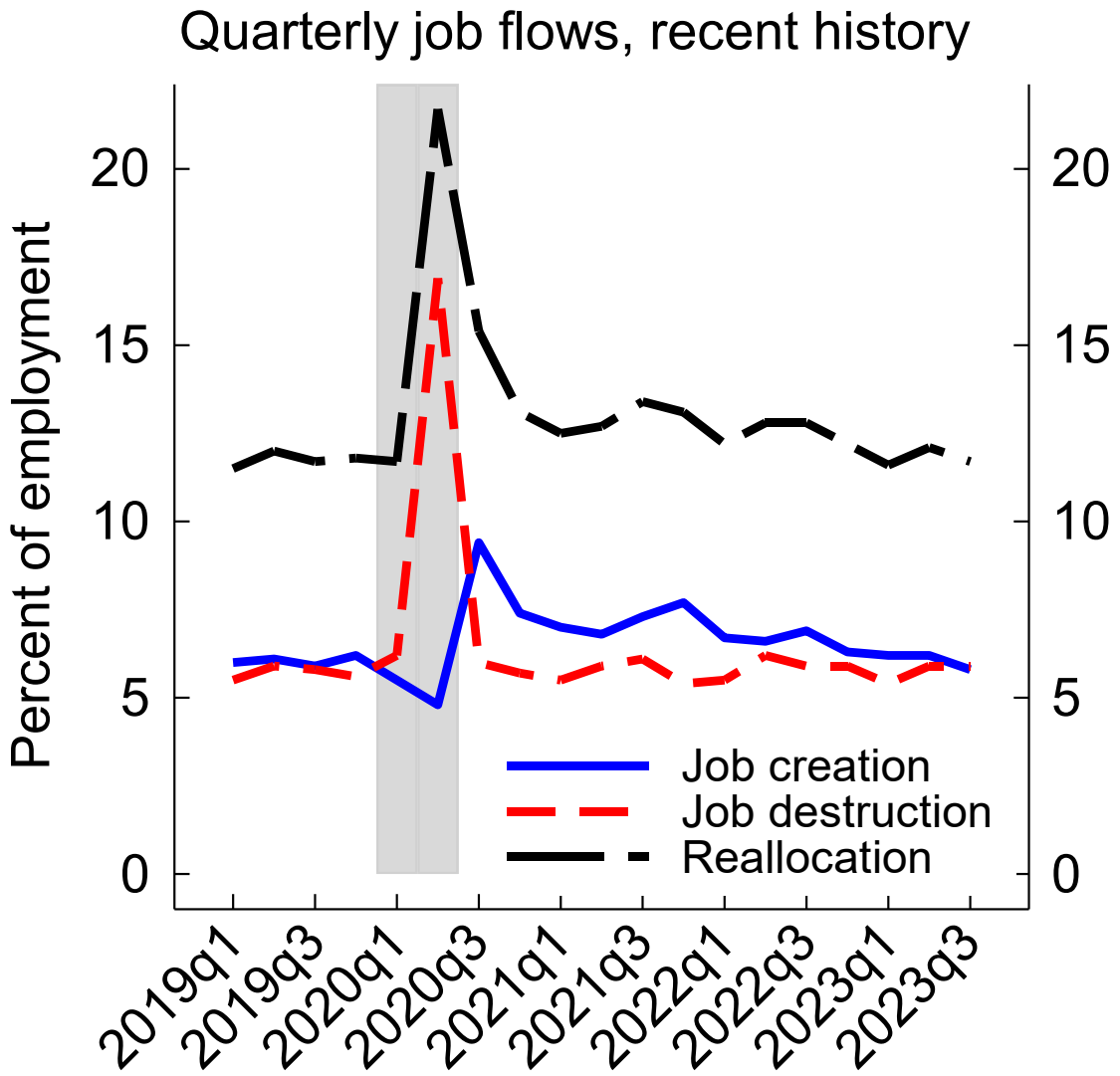


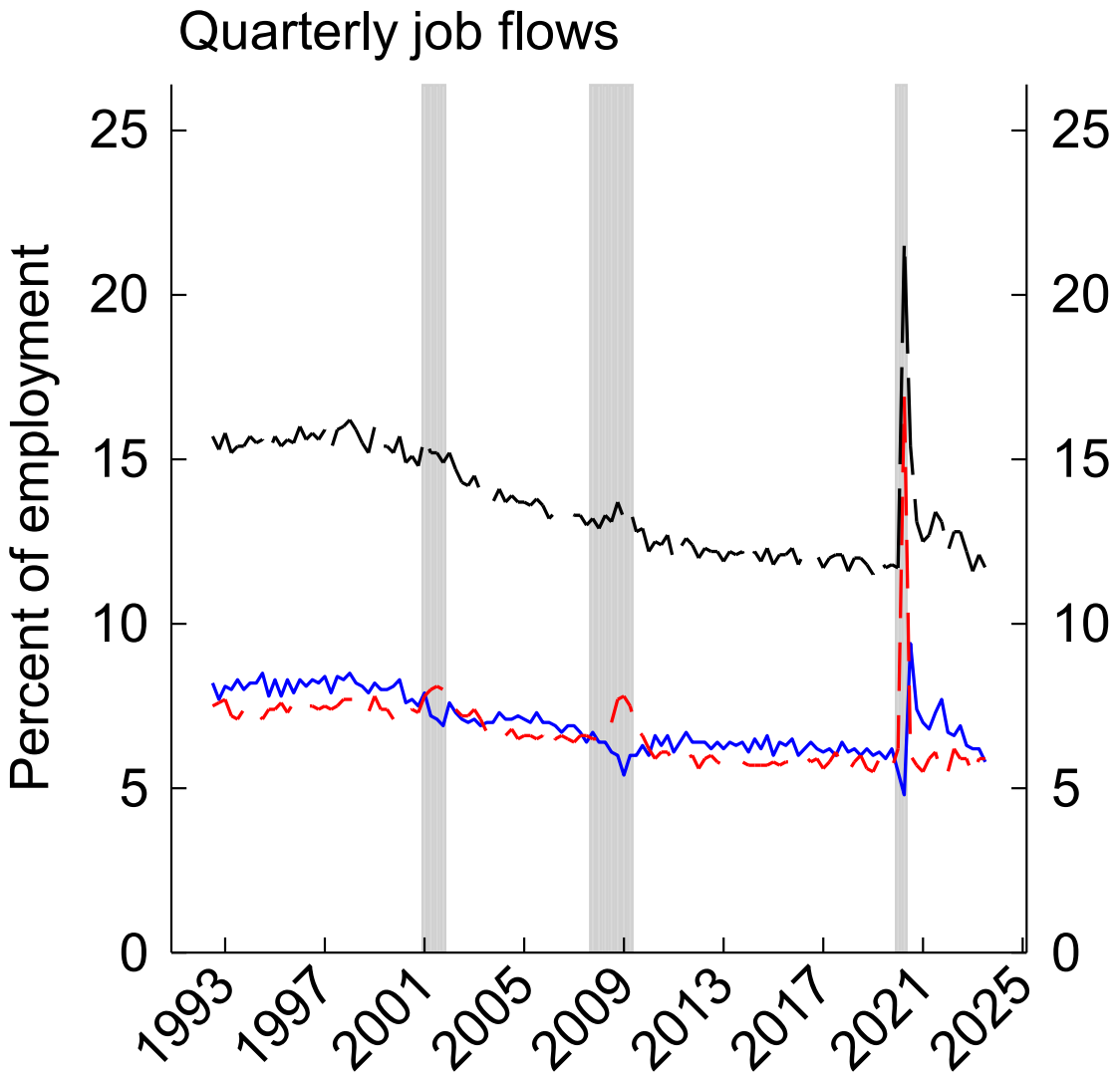


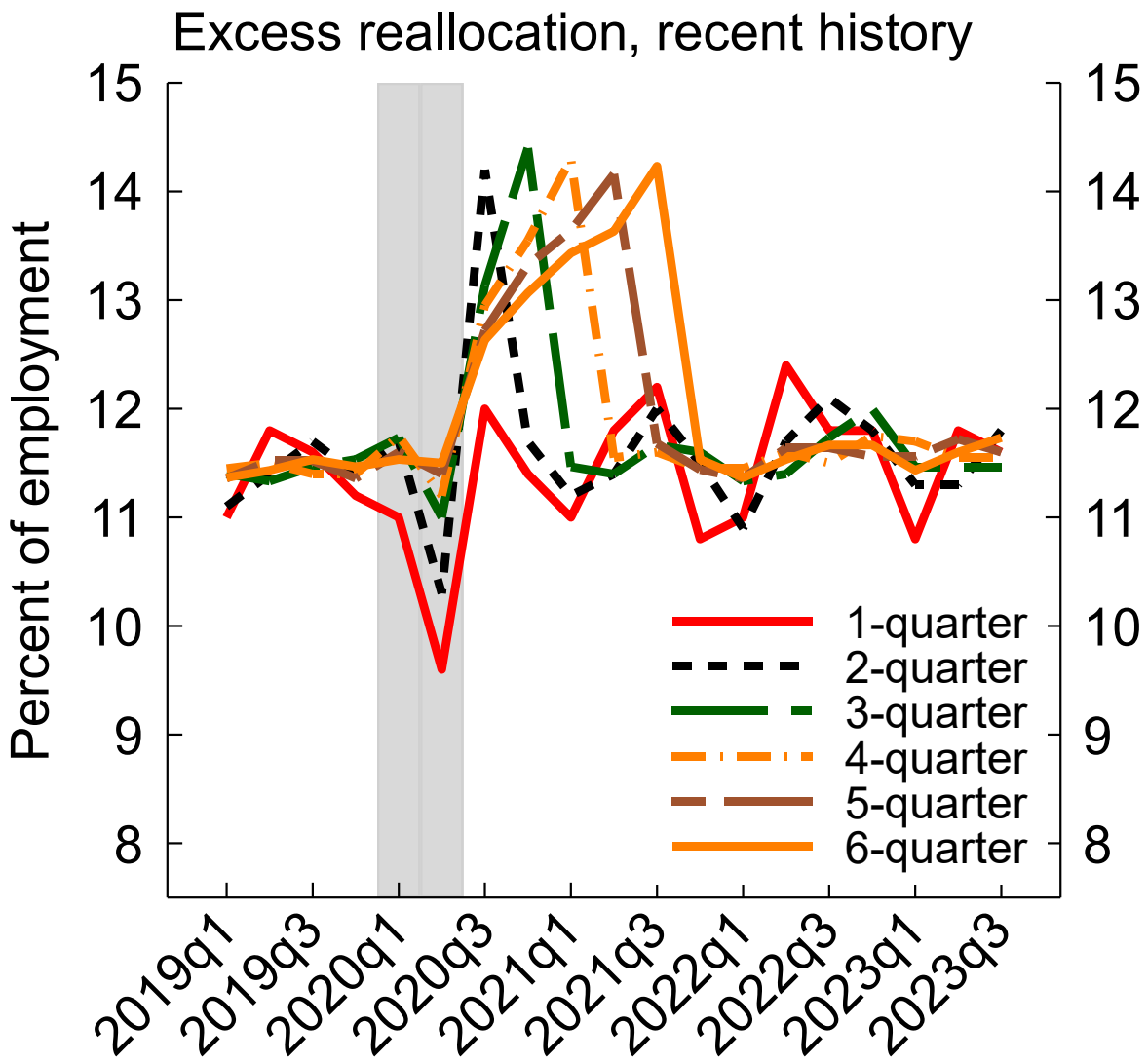
Note: Firms defined by EIN. Dynamic method distributes net growth across size categories in which it occurs.
Source: BLS Business Employment Dynamics (BED).

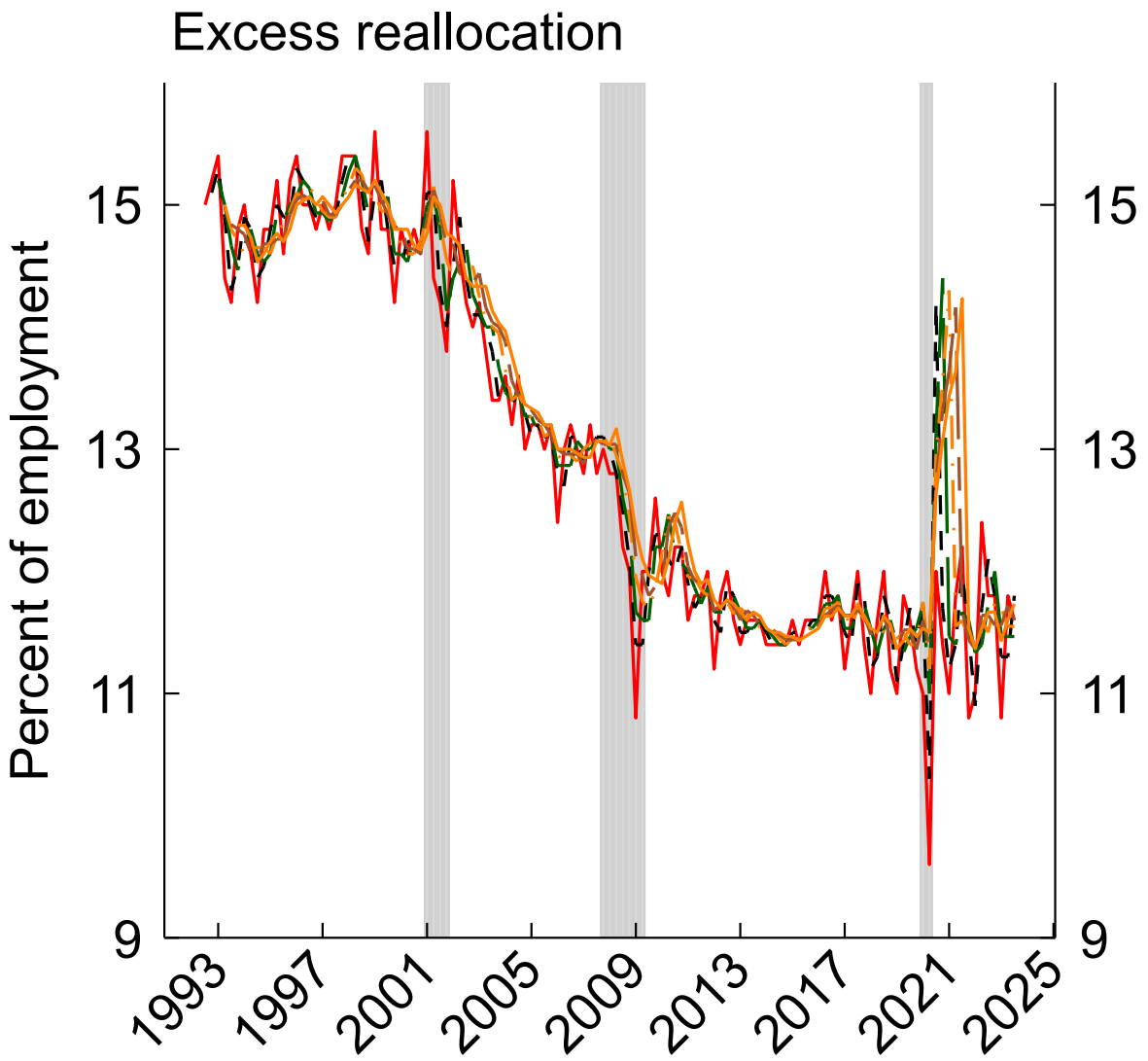


Note: Averages of quarterly seasonally adjusted data through 2022q4.
Sorted (descending) by change 2010-2019 to 2020-2022.
Source: Census Bureau Quarterly Workforce Indicators (QWI)
and author calculations.


Quarterly job flows, recent history
Percent of employment
20
15
10
5
0
Job creation
Job destruction
Reallocation
2019q1
2019q3
2020q1
2020q3
2021q1
2021q3
2022q1
2022q3
2023q1
2023q3


Quarterly job flows
Percent of employment
25
20
15
10
5
0
1993
1997
2001
2005
2009
2013
2017
2021
2025



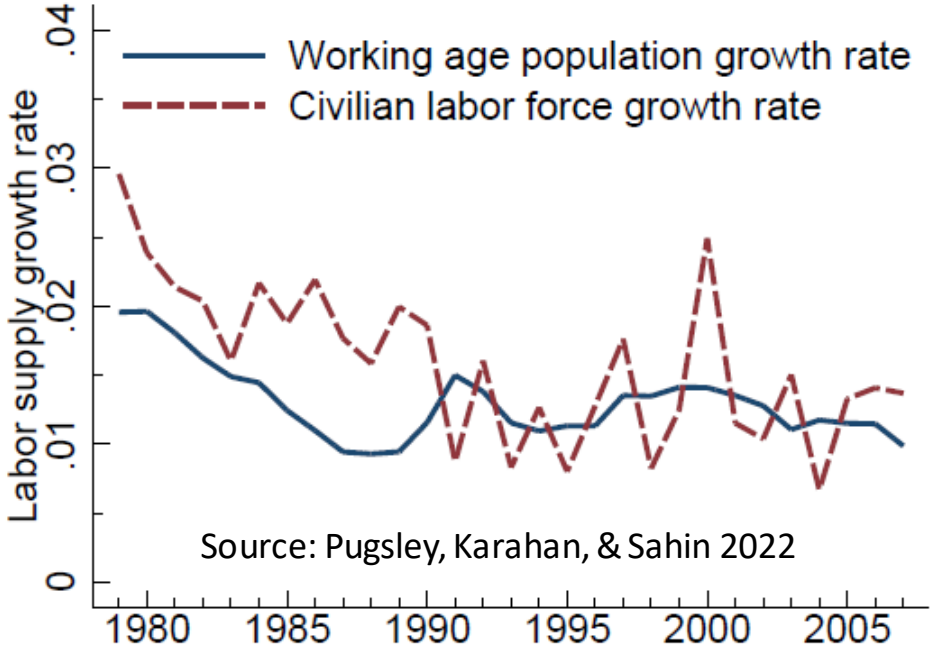


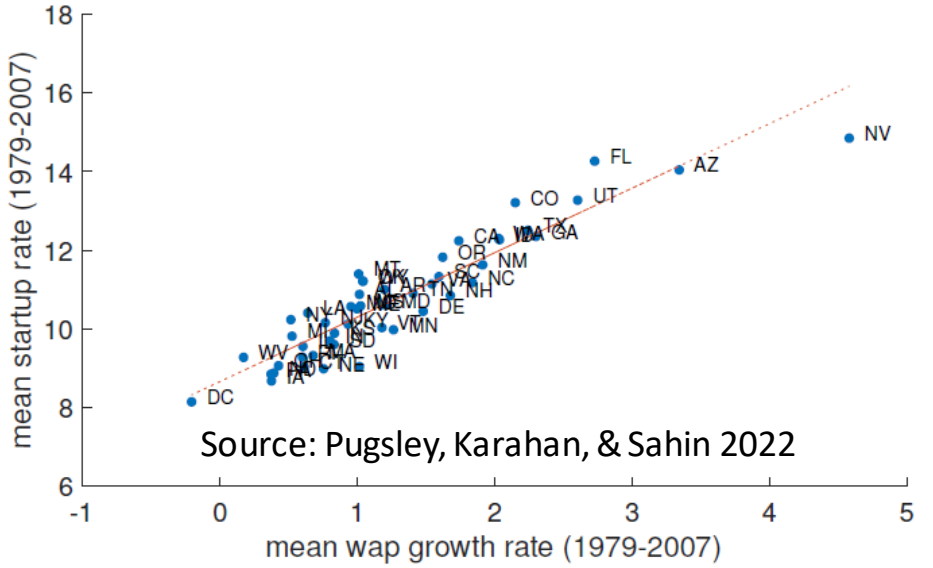
Note: Reallocation is JC+JD. Excess reallocation is JC+JD-|JC-JD|, with JC and JD averaged over indicated horizon. Seasonally adjusted. Shaded areas indicate NBER recession dates.
Source: Business Employment Dynamics (BED).

Extra slides: the pre-pandemic dynamism decline

Demographics

- In standard models, business entry is facilitated by labor force growth:
  - Slow population growth → Slow labor force growth → less entry (Pugsley, Karahan, & Sahin forthcoming)
  - But note: labor force growth decline concentrated in the 1980s
- Other potential population-related mechanisms: Hathaway & Litan (2014); Ozimek (2017)

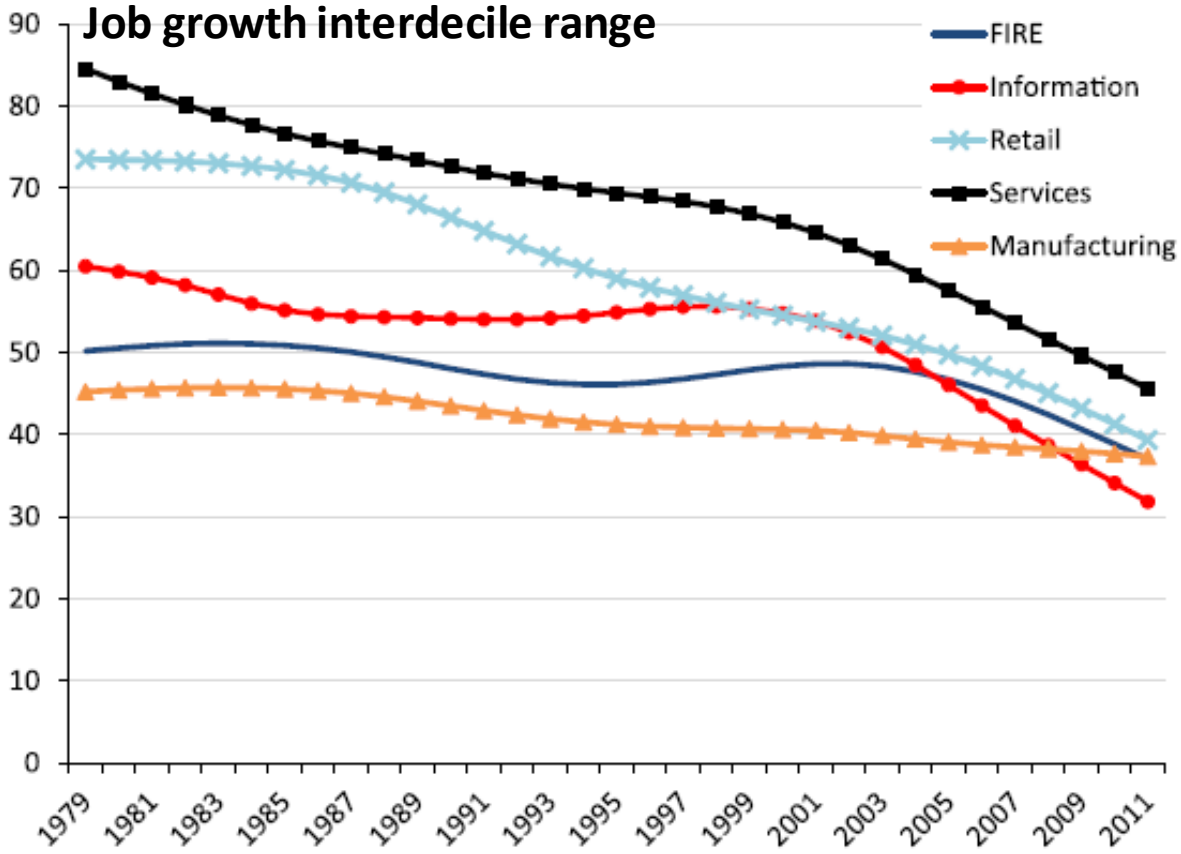


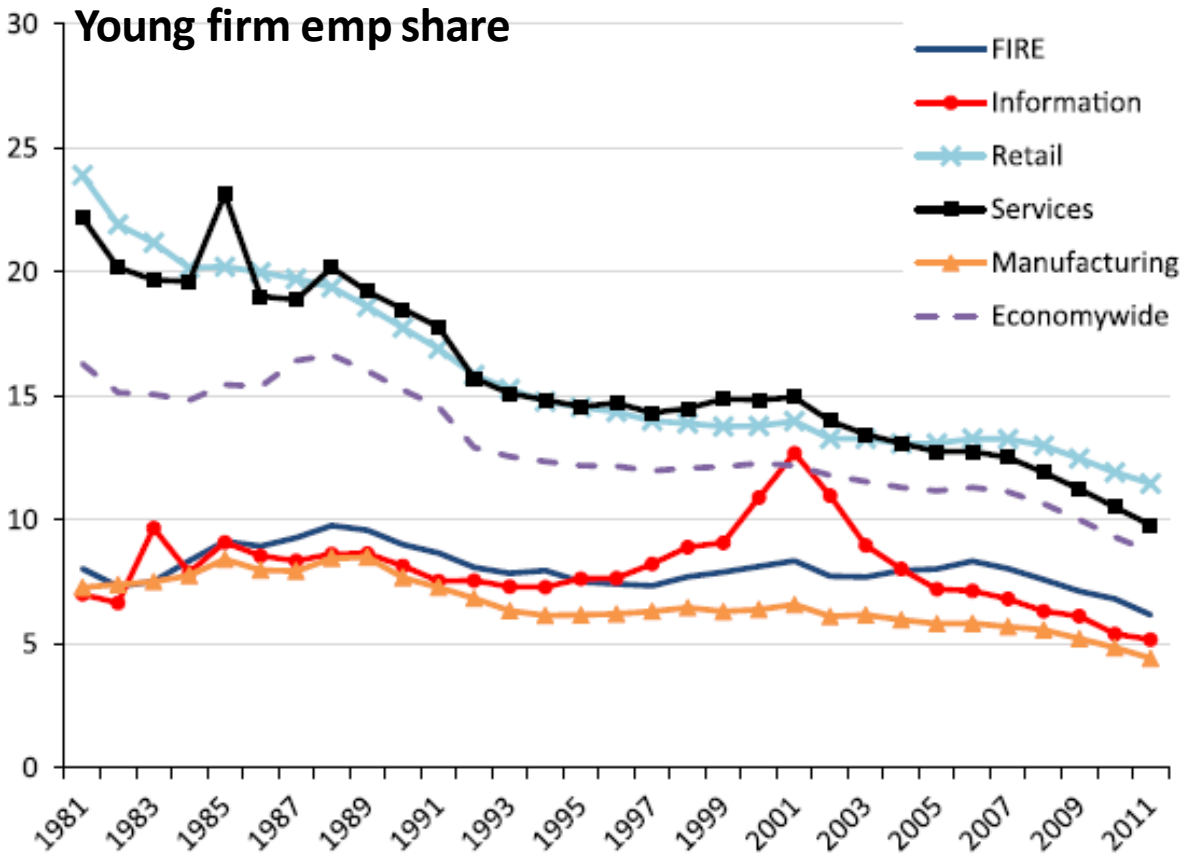


Regulatory environment

- “Death by 1000 cuts” (e.g., Davis & Haltiwanger 2015)
  - Unlawful discharge (Autor, Kerr, & Kugler 2007)
  - Occupational licensing (Johnson & Kleiner 2020)
  - Zoning & other limits on mobility
  - Federal regulation count? No clear relationship with estab. formation (Goldschlag & Tabarrok 2018)

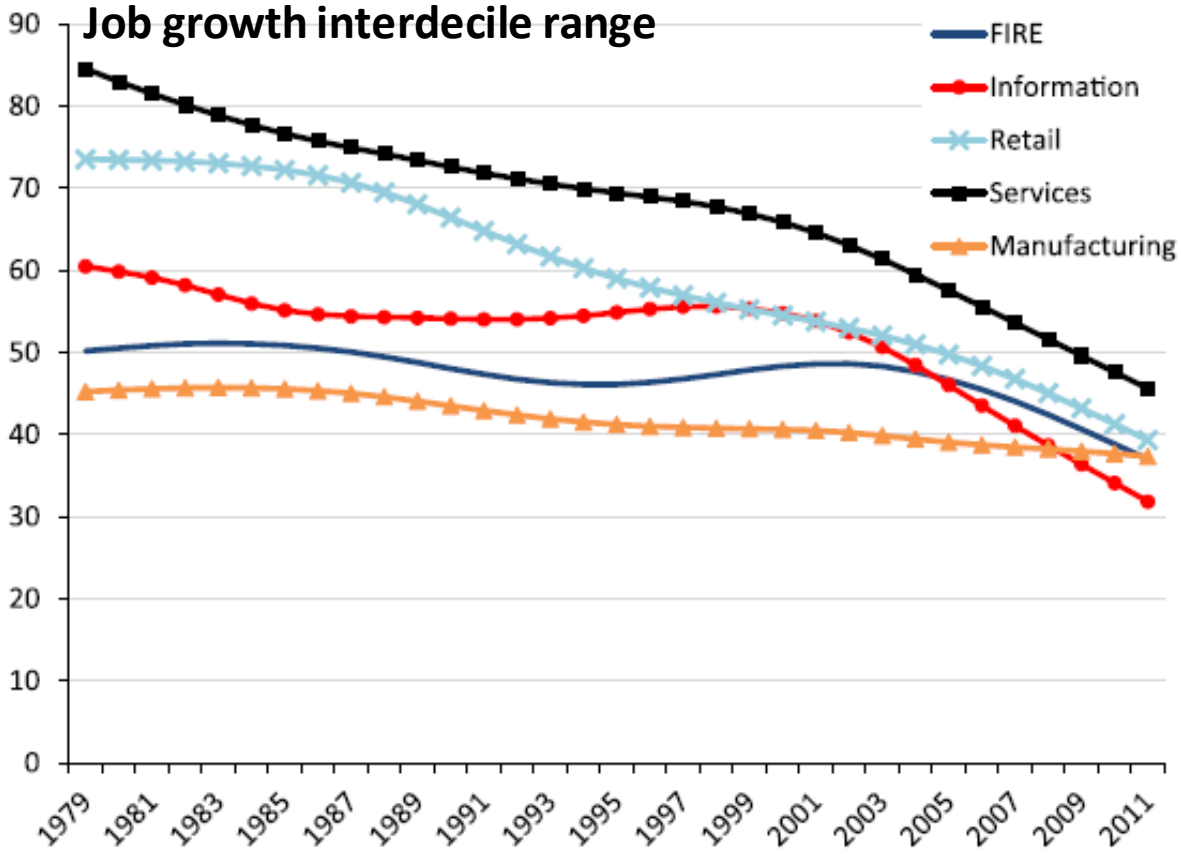
Changing business models



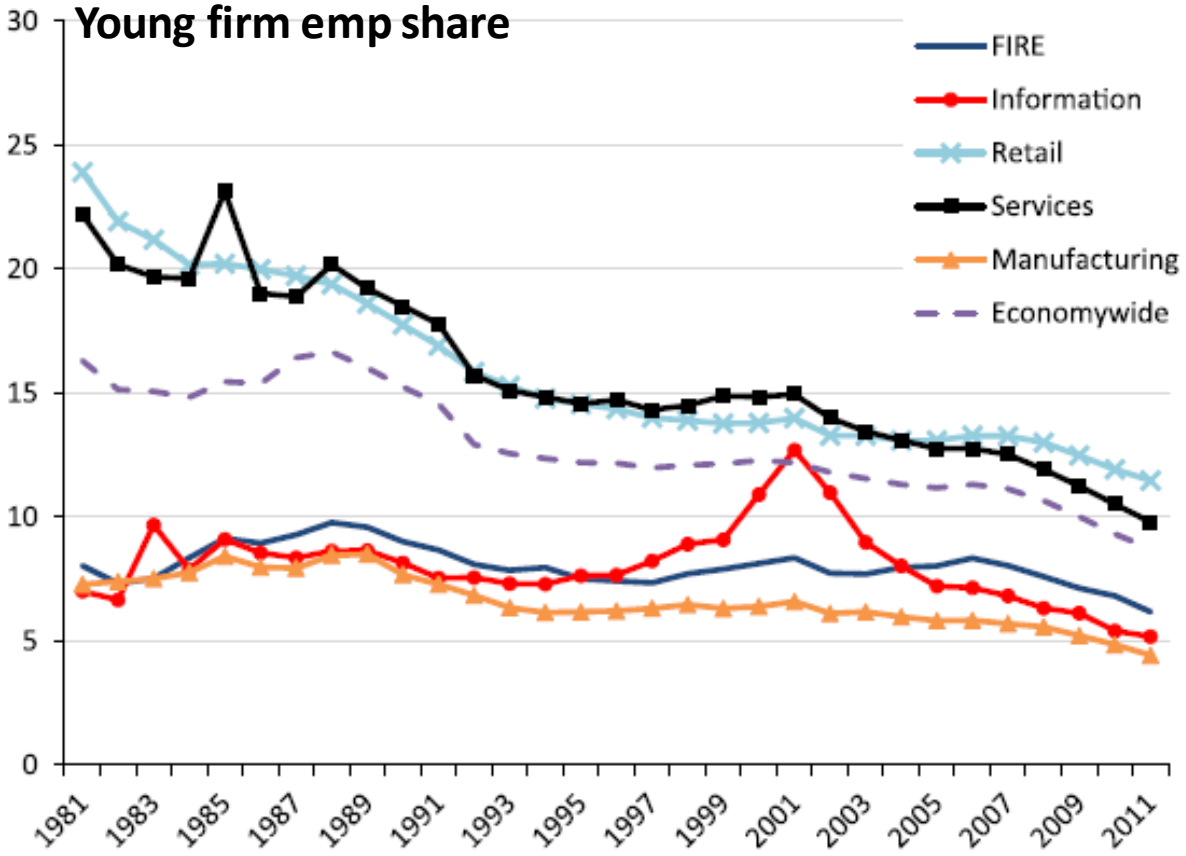


Source: Decker, Haltiwanger, Jarmin, & Miranda (2016) EER

Changing business models

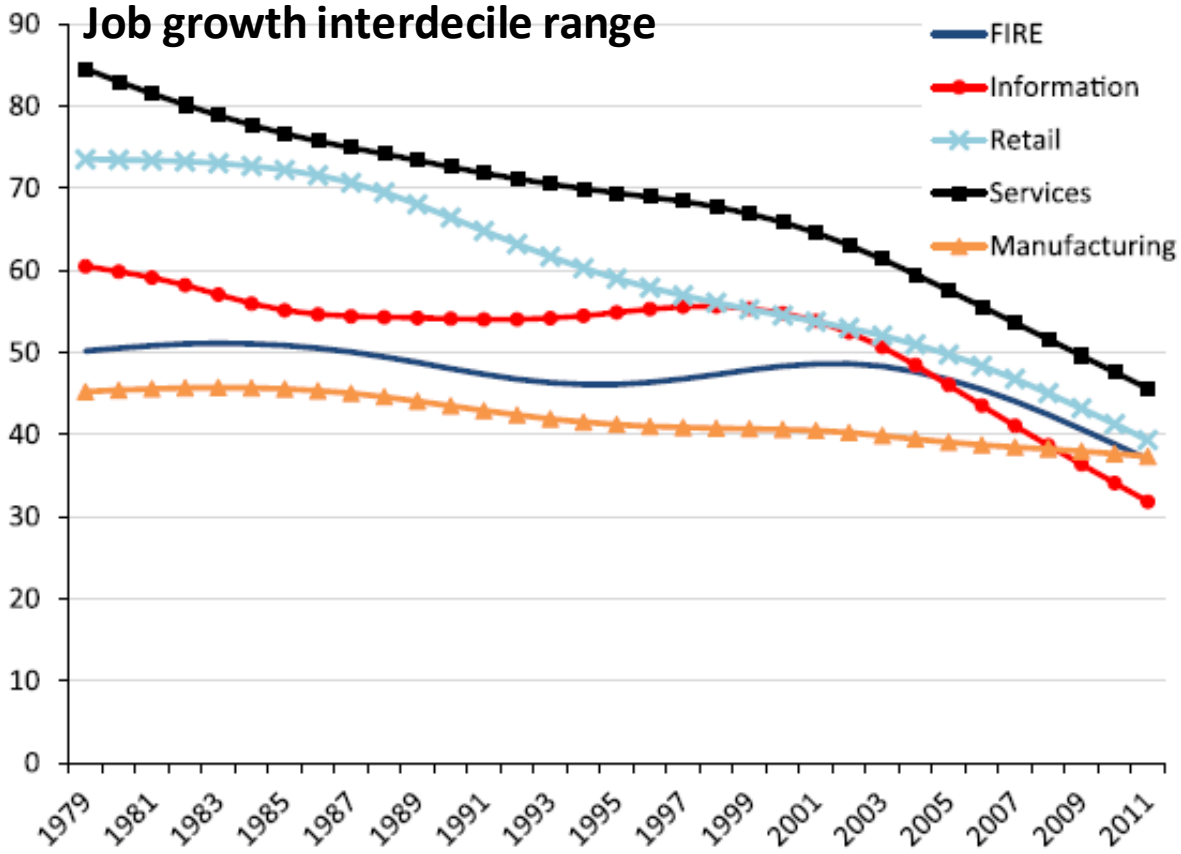


- Retail: decline of "mom and pop" entrepreneurship in favor of "big box" retailers.
  - 1980s-1990s retail consolidation (rise of "big box" retail) was productivity enhancing (Foster et al. 2006, 2016)



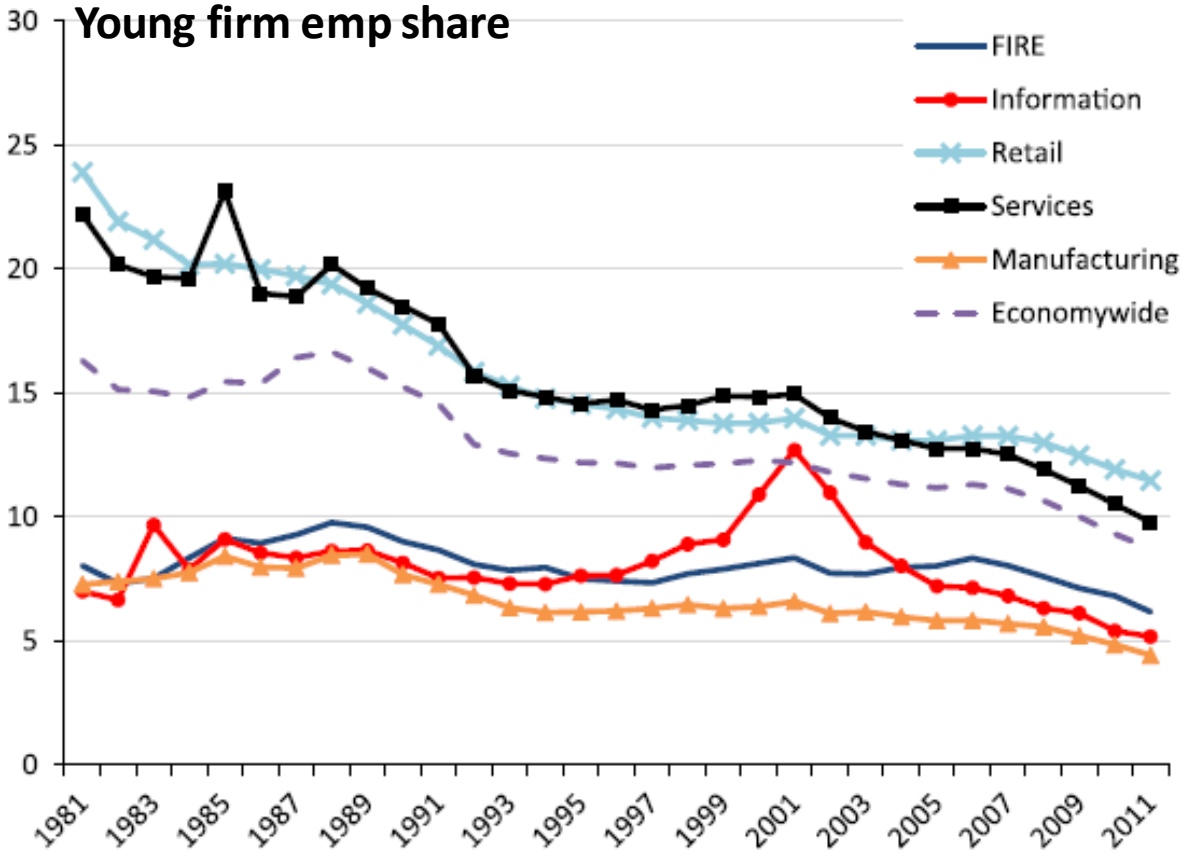
Source: Decker, Haltiwanger, Jarmin, & Miranda (2016) EER

Changing business models



- Tech, information decline starts after ~2000

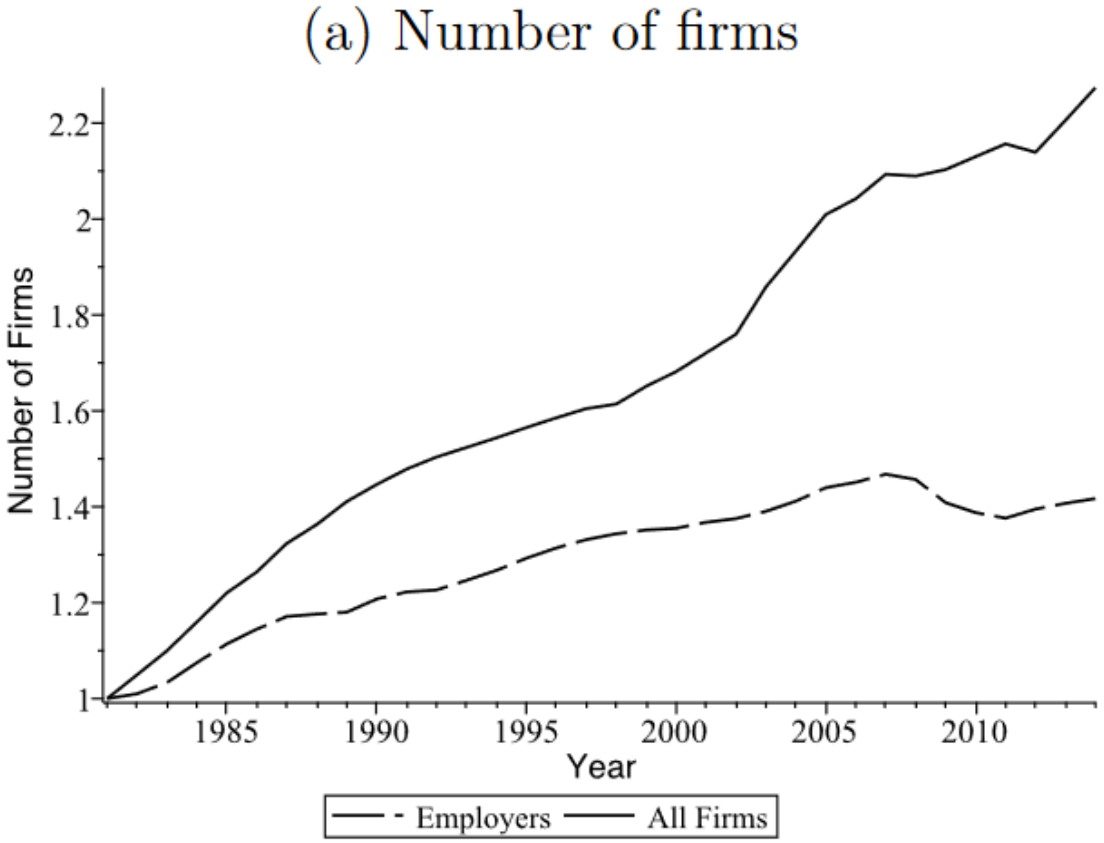
- Retail: decline of "mom and pop" entrepreneurship in favor of "big box" retailers.
  - 1980s-1990s retail consolidation (rise of "big box" retail) was productivity enhancing (Foster et al. 2006, 2016)



Source: Decker, Haltiwanger, Jarmin, & Miranda (2016) EER

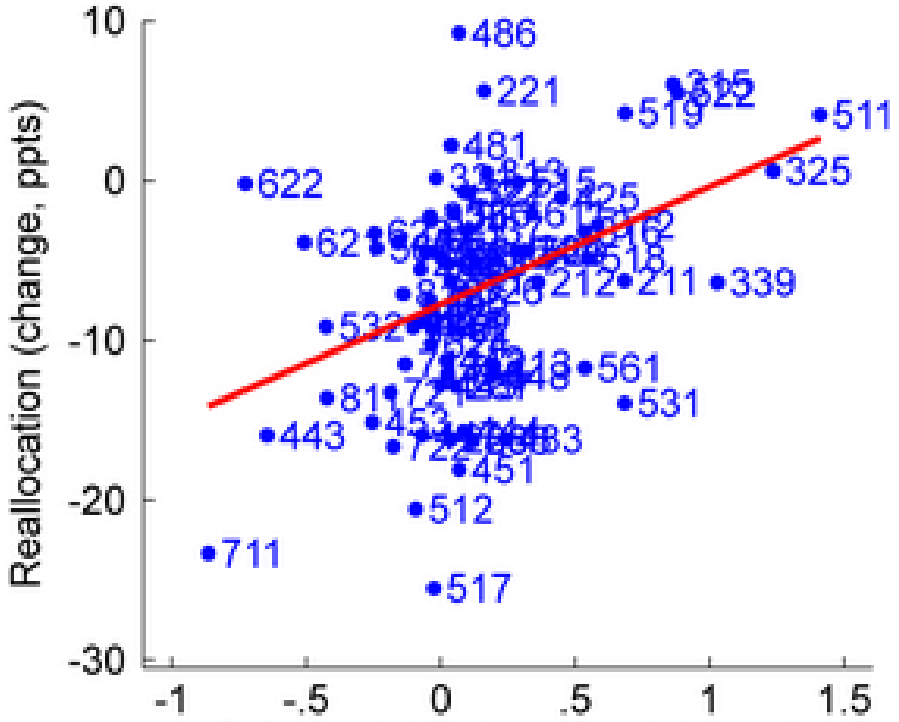
Changing business models (2)

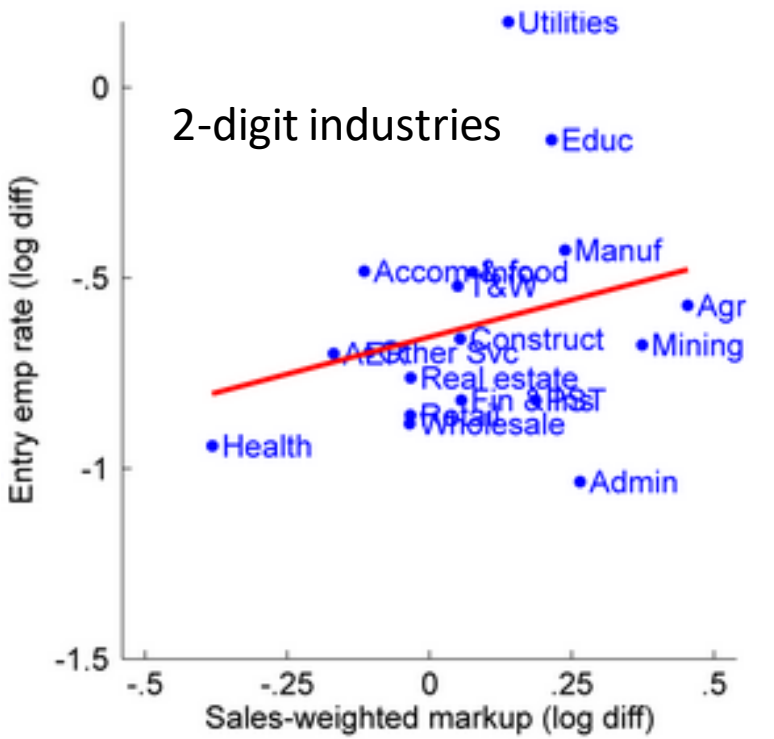
- Shift to nonemployer entrepreneurship (Bento & Restuccia 2022)
- Rise of “gig” economy?
  - Perhaps limited to transportation sector (Abraham et al. 2019)

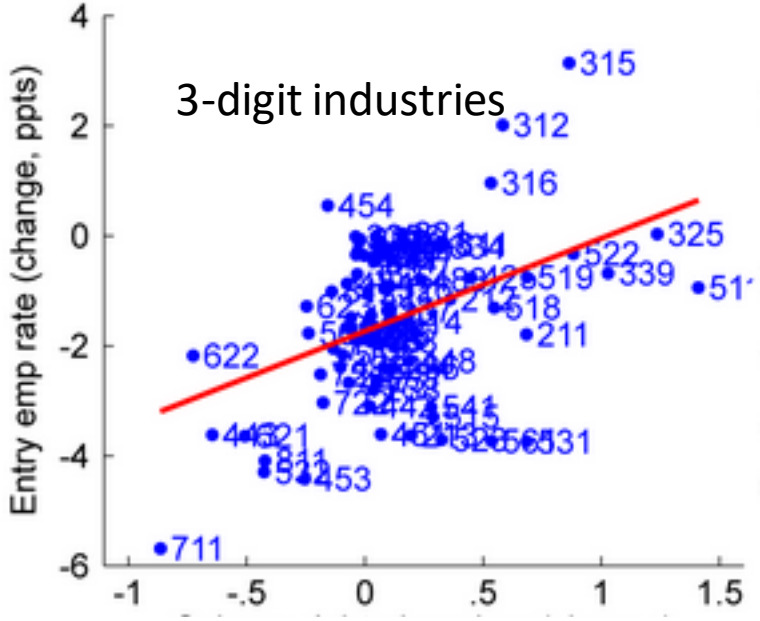


Market power

- Rising market power/monopolies (De Loecker, Eeckhout, & Mongey 2023)
  - Market power makes firms less responsive to shocks (↓ reallocation), deters entry
  - Not evident in cross-industry patterns (Albrecht & Decker 2024)







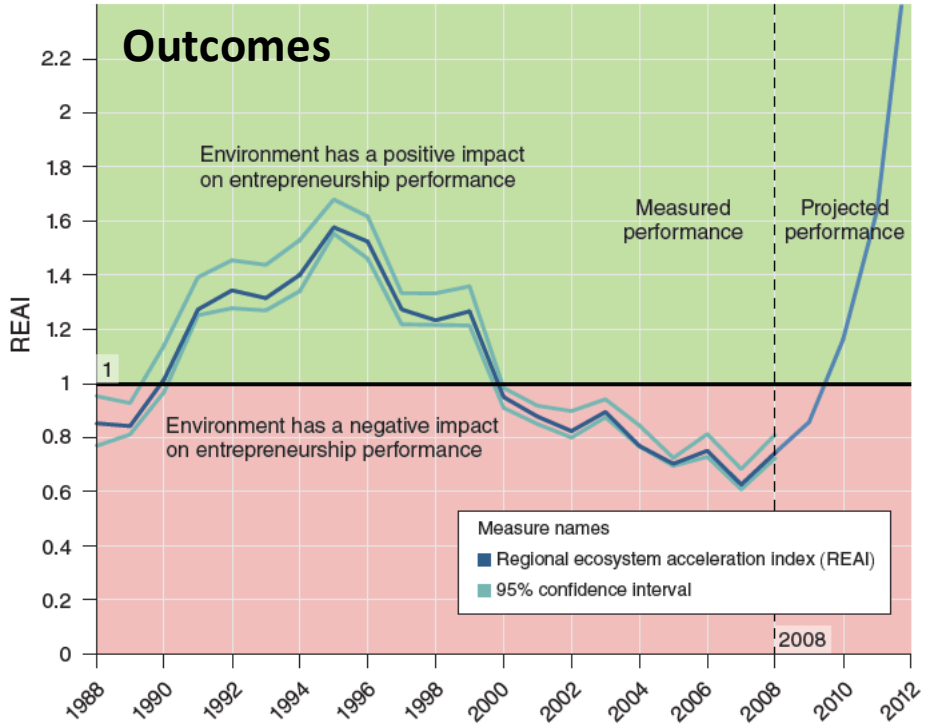
Source: Albrecht & Decker 2024

Knowledge investment or diffusion

- Higher entry costs due to rising importance of intangible capital (De Ridder 2021)
- Declining pace of knowledge diffusion from superstar firms (Akcigit & Ates 2023; Autor et al. 2020; Andrews, Criscuolo, & Gal 2016)
  - Perhaps more relevant for post-2000 decline of high growth young firms, less relevant in pre-2000 period?

Is the decline real?

- Guzman & Stern (2020): Model for identifying high-potential entrepreneurs at (or shortly after) founding



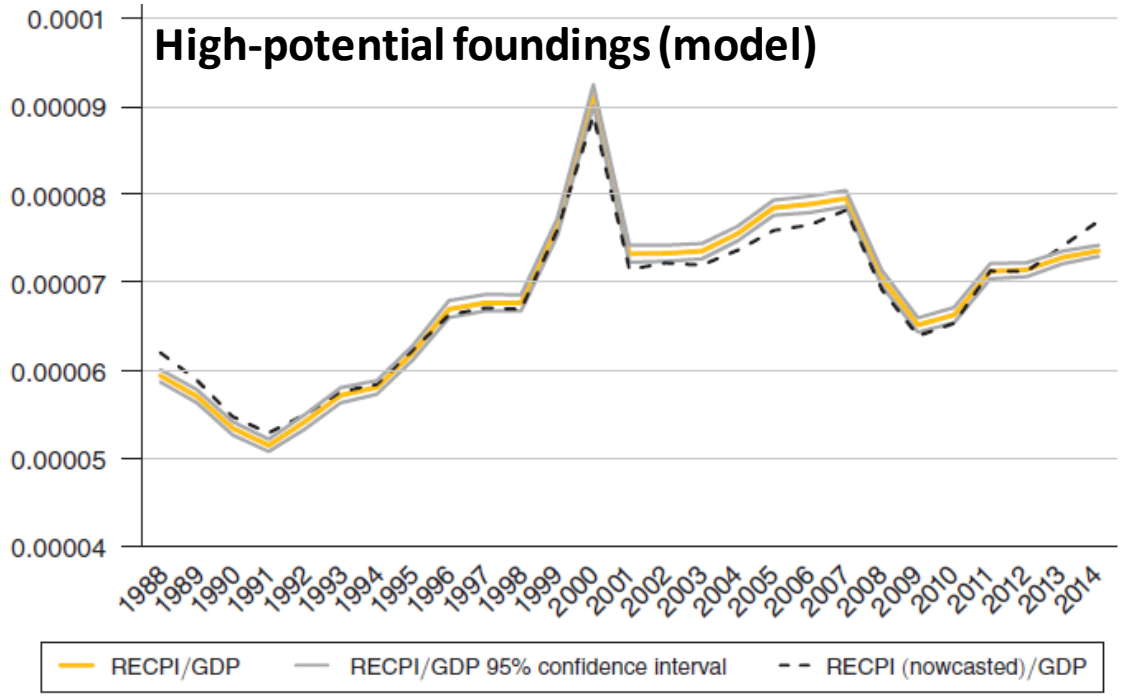


FIGURE 3. US AGGREGATE ENTREPRENEURSHIP REGIONAL ENTREPRENUERSHIP COHORT POTENTIAL INDEX (RECPI) BY YEAR

- Model says: High-potential foundings still robust after 2000
- But… outcomes lower than model expects
  - Consistent with post-2000 decline in high-growth firms & tech documented elsewhere

Explaining the (pre-pandemic) decline in dynamism

- Demographics (1980s?), regulation likely play some role
- Changing business models
  - Retail consolidation apparent in pre-2000 period—productivity enhancing
  - Shift to nonemployers?
- Market power story matches aggregate time series; less apparent in industry cross section
  - Some debate over markup measurement; e.g. Bond et al. (2021); Foster, Haltiwanger, & Tuttle (2024)
- Slowing knowledge diffusion, rising intangibles—potential stories especially for post-2000 decline of high-growth startups
- High-potential foundings (Guzman & Stern 2020) can still be robust without converting to growth outcomes

There is likely no single explanation for the 40-year dynamism decline.