

Whither Business Dynamism and Productivity

By

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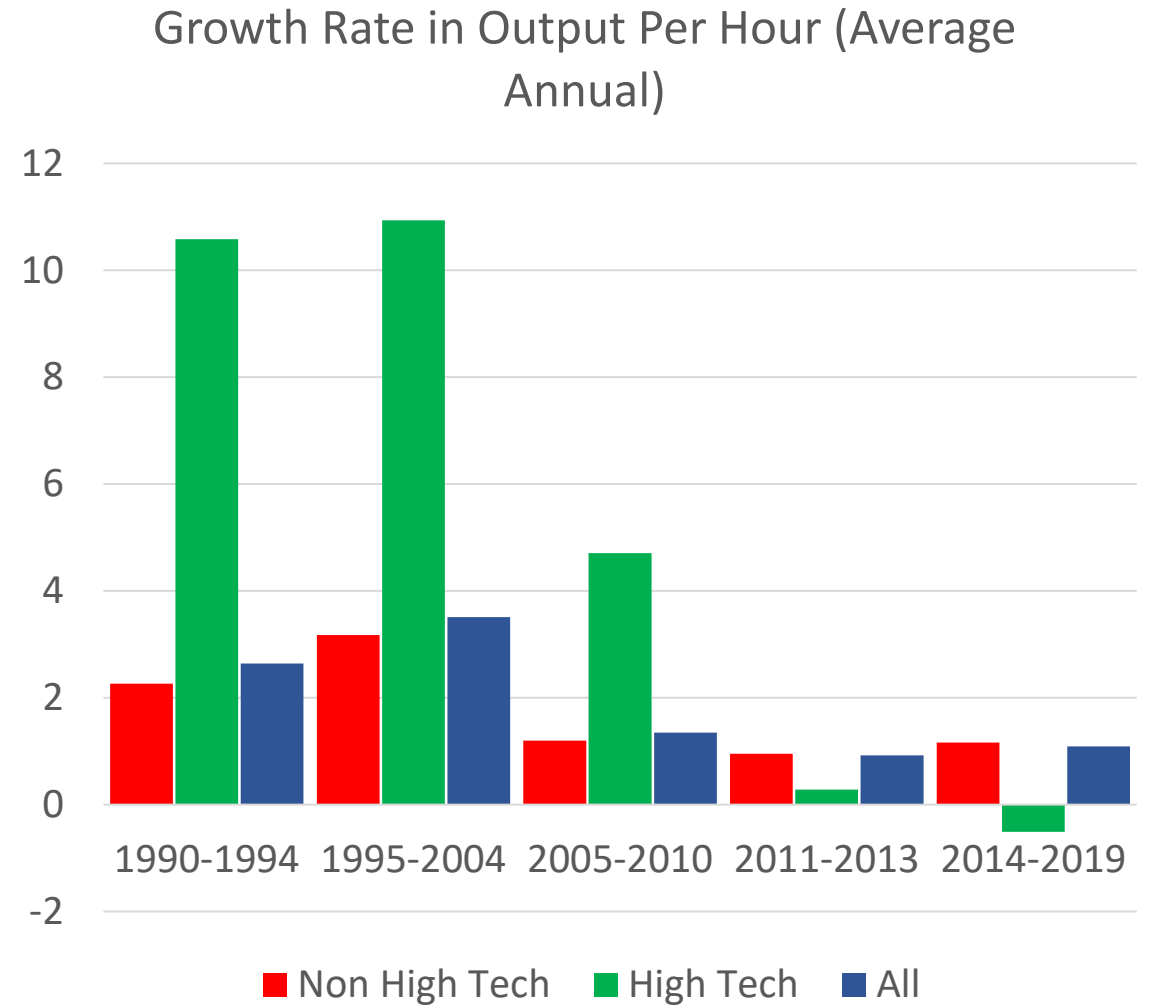
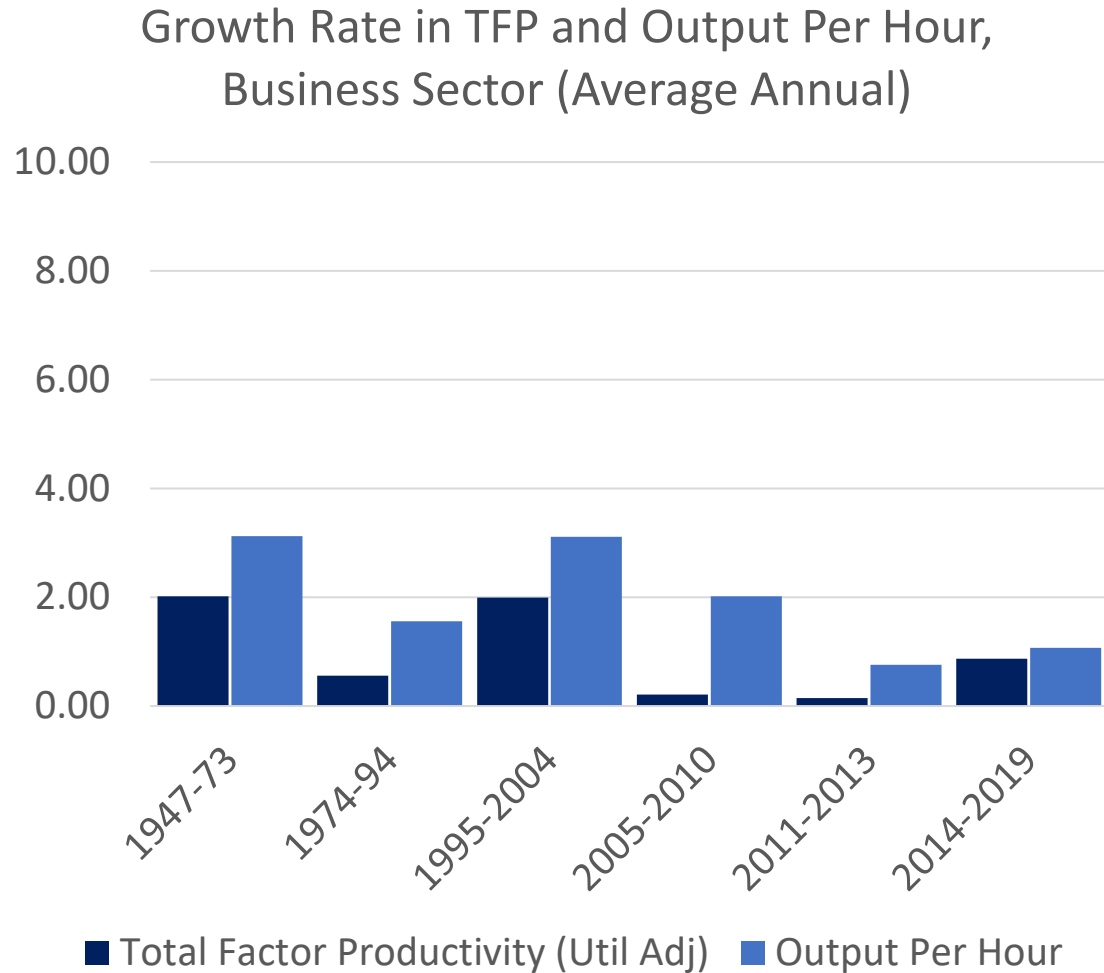
December 2022

*Without implication, this talk draws heavily on collaborative work with a large number of co-authors. Citations to the relevant papers are provided on the slides. Any opinions and conclusions expressed herein are my own.

Overview

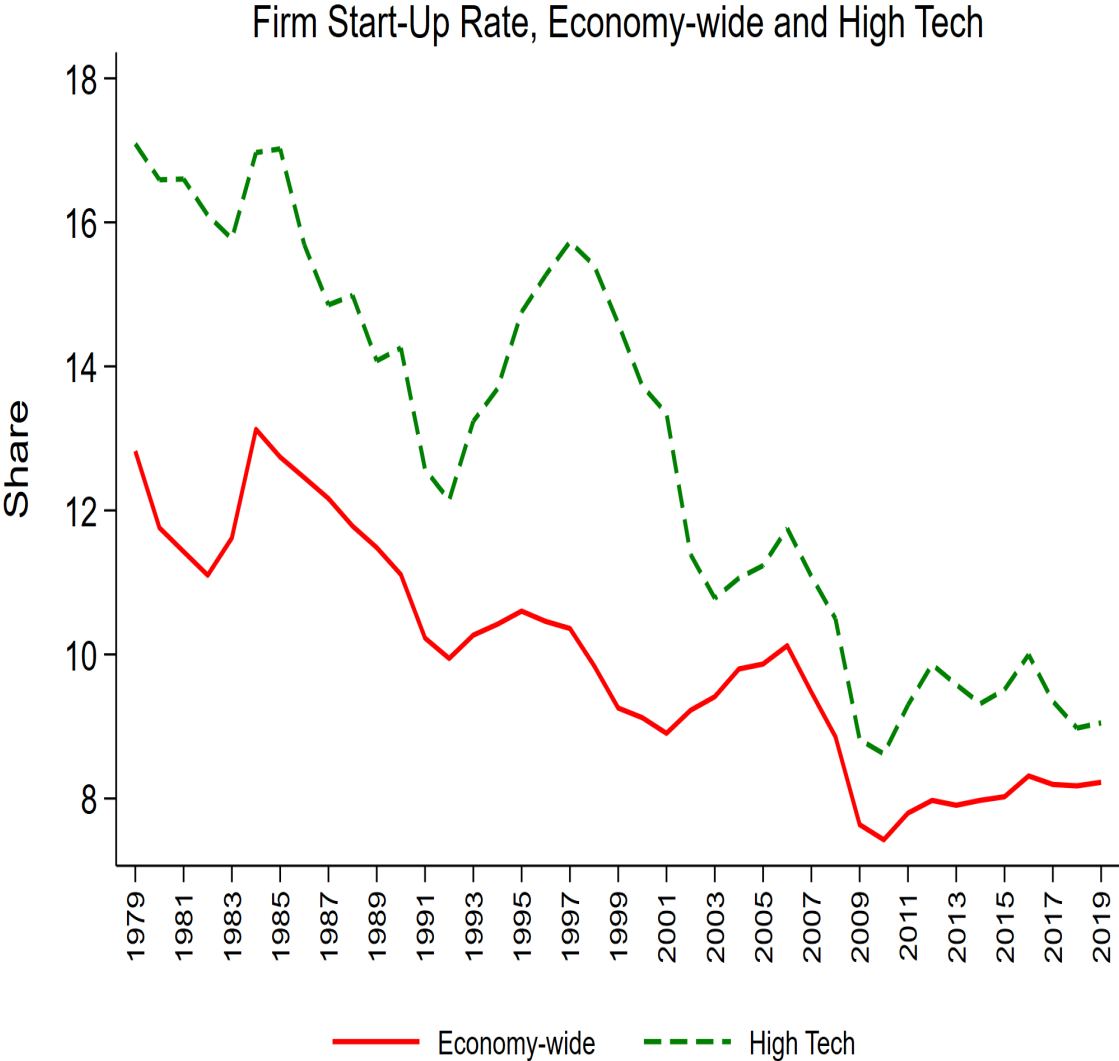
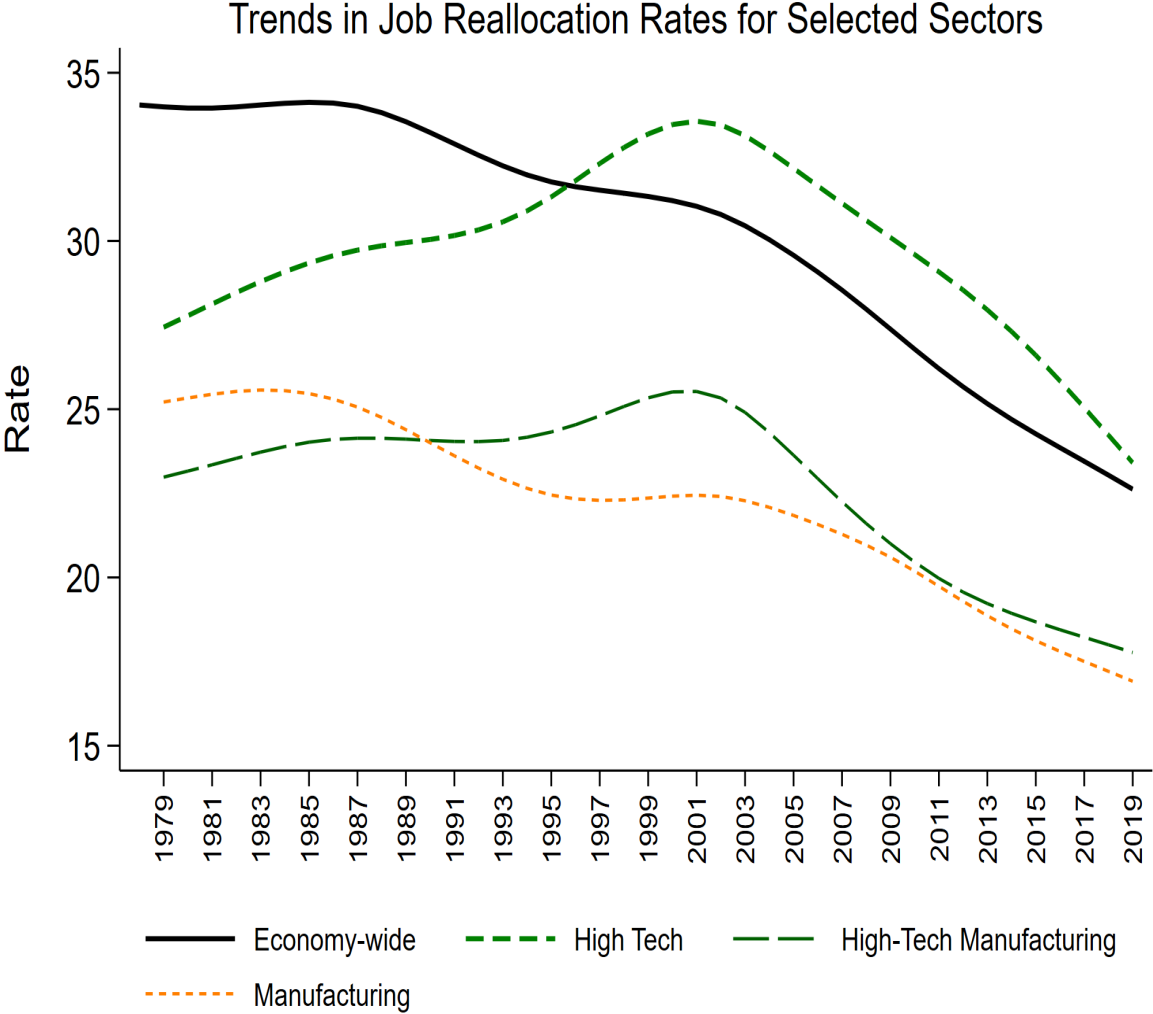
- Much evidence that new employer startups contribute disproportionately to job creation, innovation and productivity growth
 - Entrepreneurs inherently induce and drawn to innovation.
 - Play a critical role in experimentation
- More generally reallocation facilitates productivity growth
- Pre-pandemic:
 - Declining productivity, entrepreneurship and dynamism in post 2000 period.
 - Rising revenue productivity dispersion and declining responsiveness to productivity shocks
 - Rising concentration and markups as well.
- The pandemic has led to a surprising surge in applications for new businesses
 - Patterns suggest spatial and sectoral reallocation induced by pandemic
 - Implications for productivity ?

Surge and Slowdown in Productivity dominated by High Tech (ICT) .



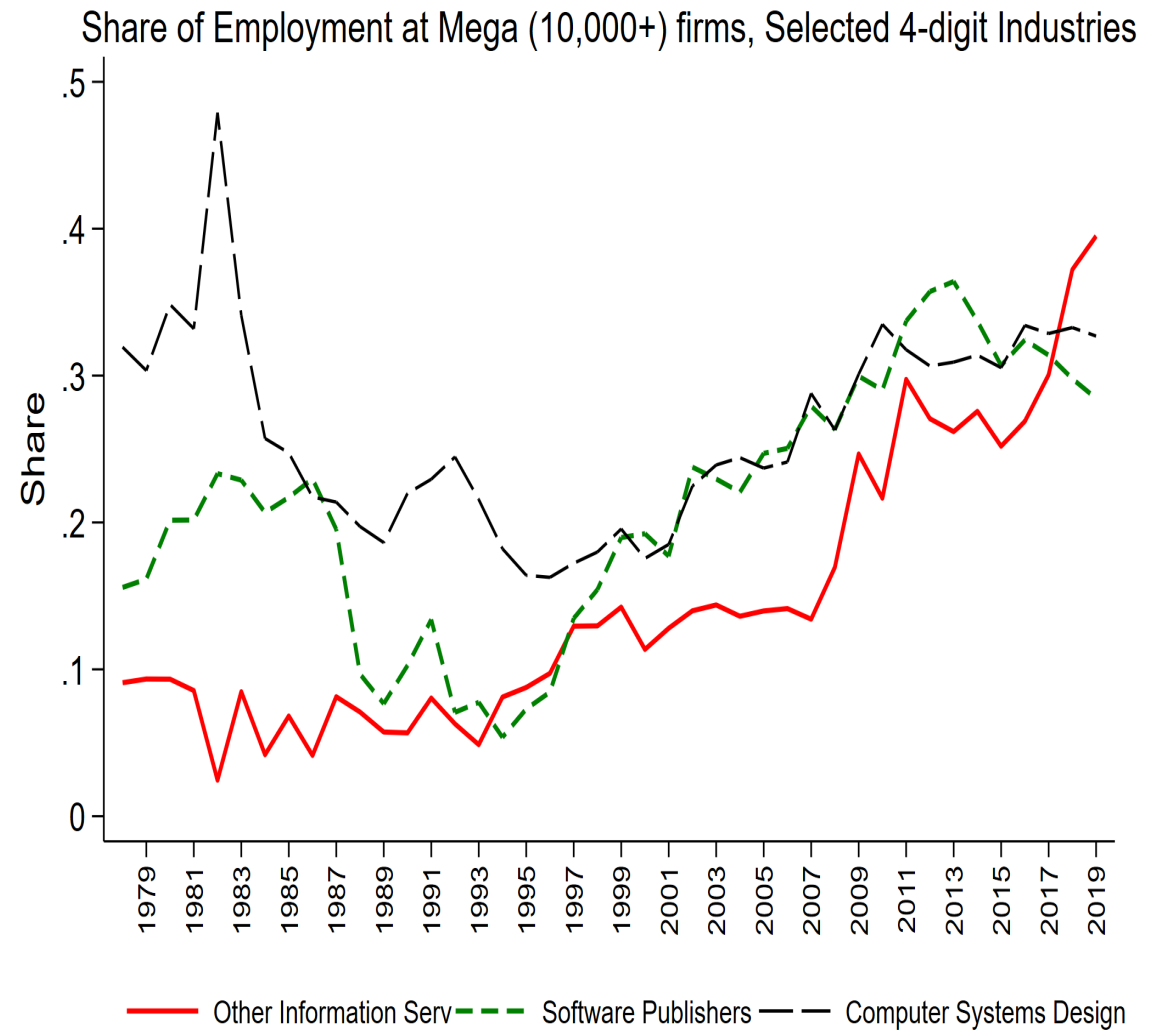
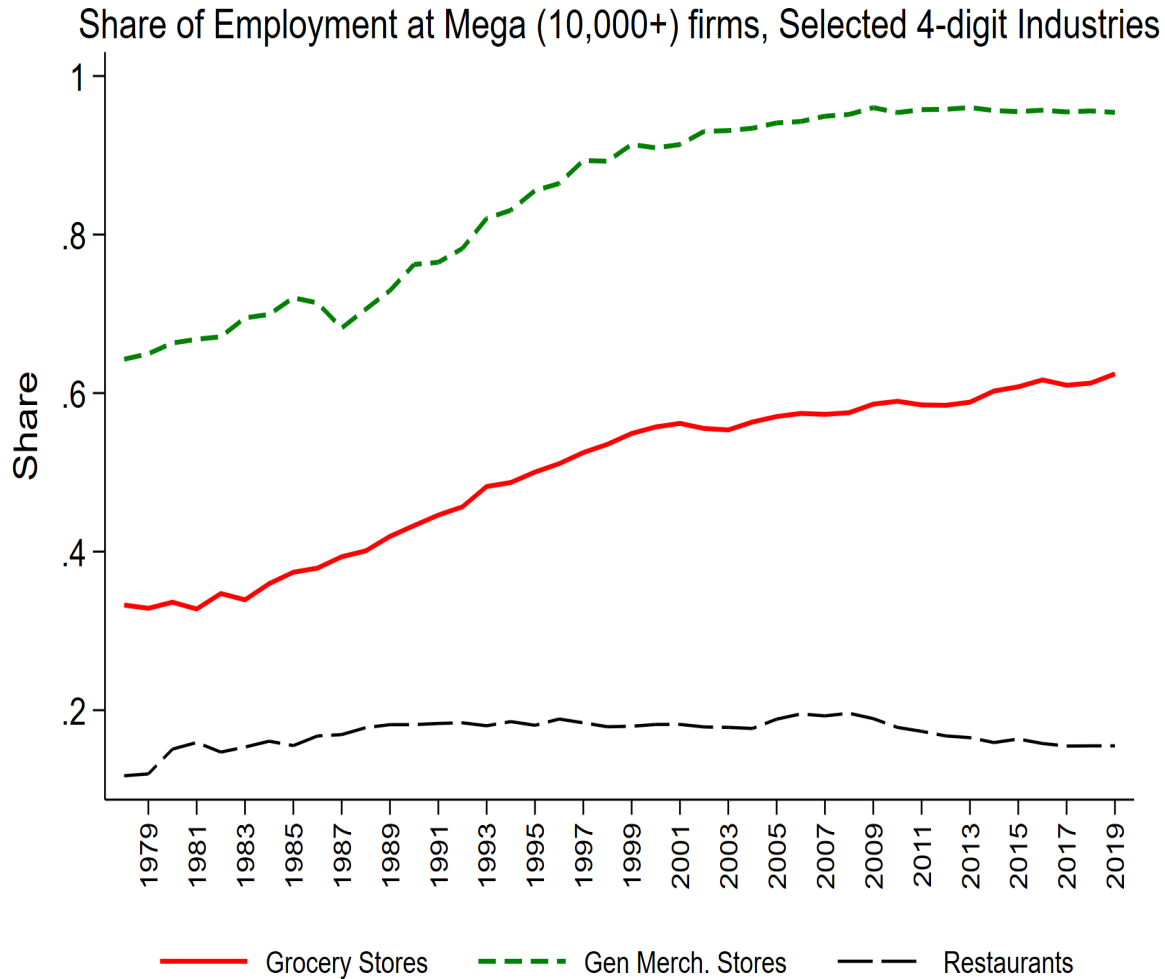
Source: Left Panel from Fernald, SF Fed. Right Panel from Aggregated 4-digit industries from BLS

Declining Dynamism



Source: Business Dynamic Statistics (BDS)

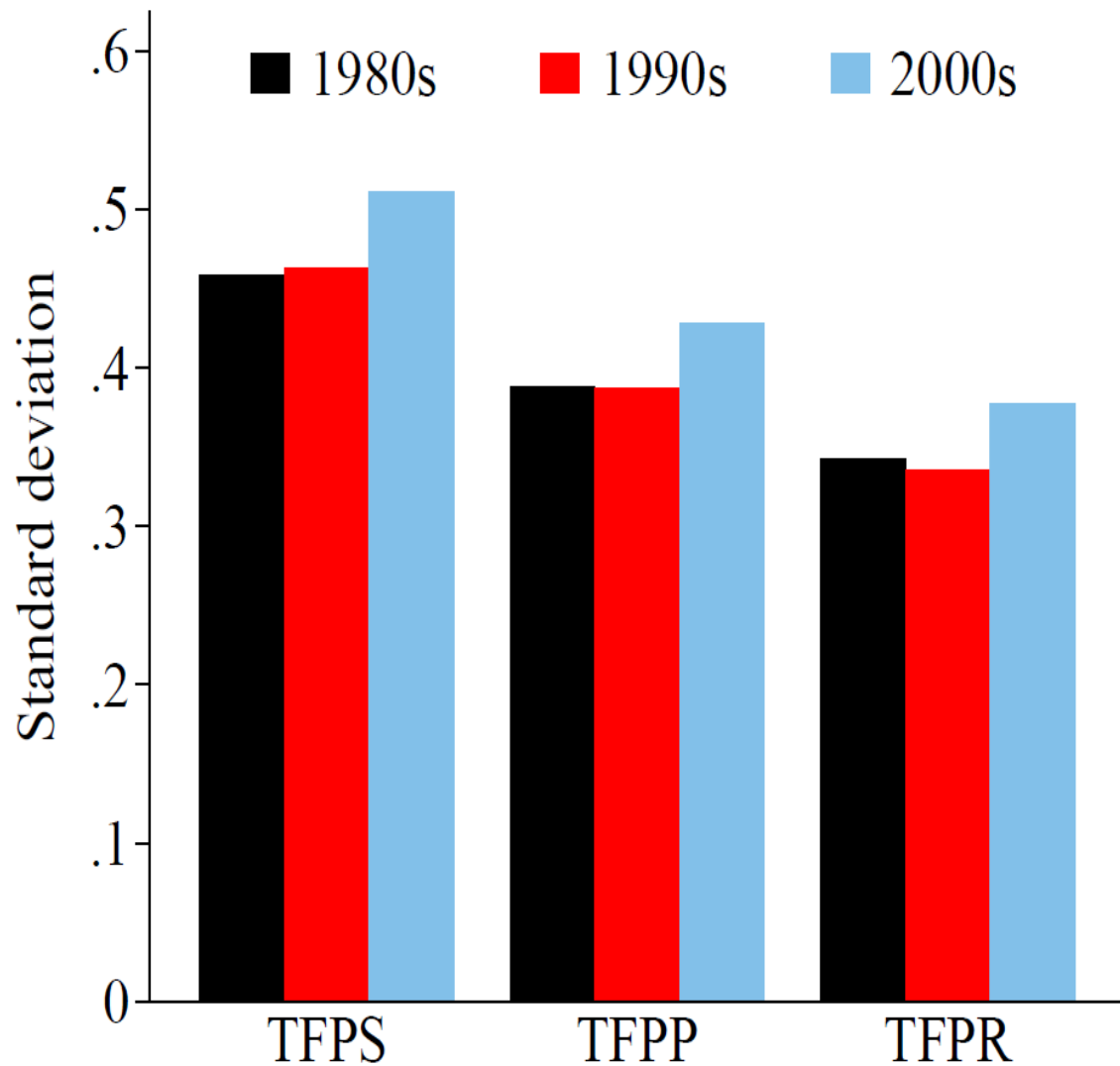
Rising Share of Employment in Mega Firms ...note differences in timing....



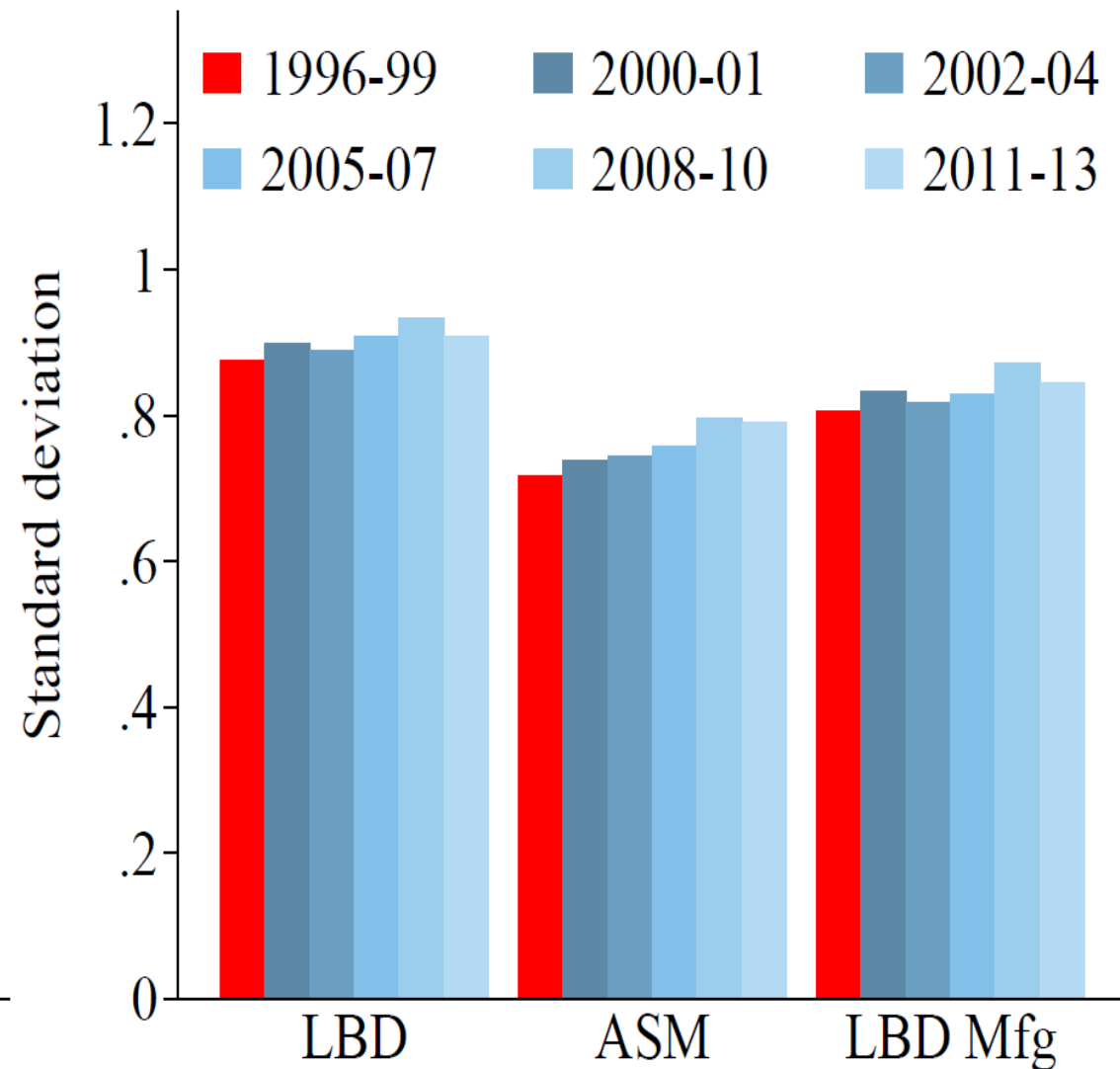
Source: Business Dynamic Statistics (BDS)

Rising Dispersion of Productivity (TFP, TFPR and Revenue labor productivity)

a. Dispersion, TFP



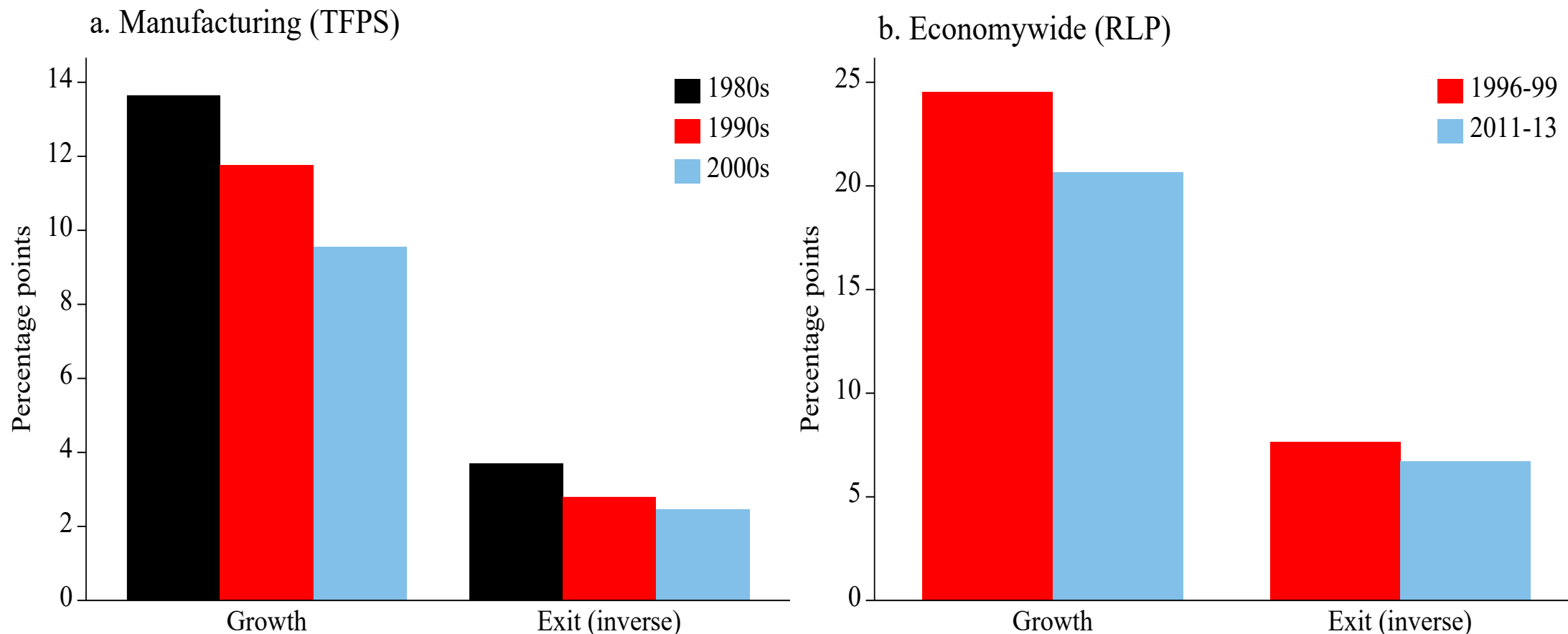
b. Dispersion, labor productivity (RLP)



Source: Decker et. al. (2020) using tabulations from LBD/ASM/CM

**Consistent with theory, businesses with positive shocks grow and are more likely to survive.
But this responsiveness has dampened over time.**

Figure 4: Job growth and exit have become less responsive to productivity



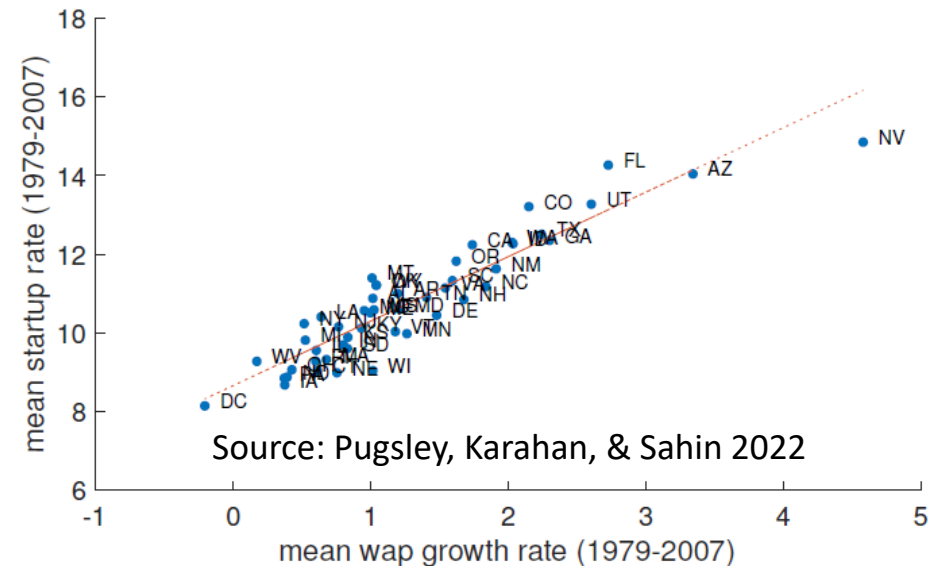
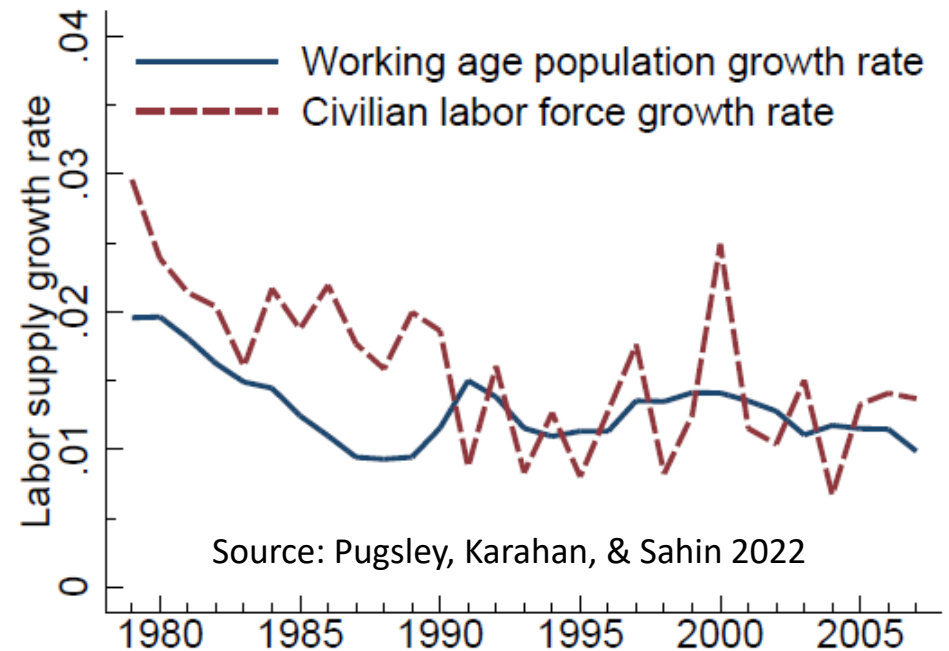
Note: Compares employment growth rate or (inverse) exit probability of establishment or firm that is one standard deviation above its industry-year mean productivity, versus the mean. Source: ASM-CM (panel a); RE-LBD (panel b).

Why the decline in business dynamism?

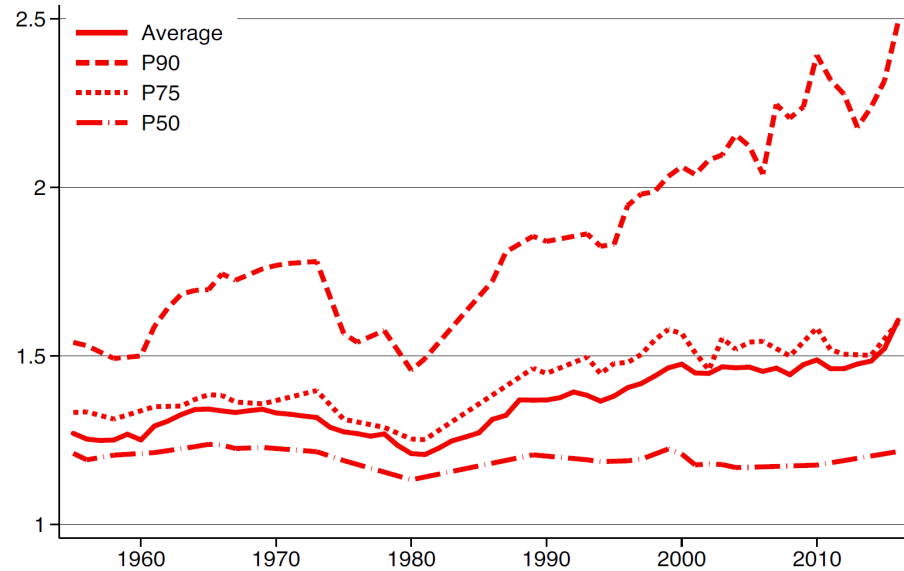
- Not fully understood, but various theories with some supporting evidence
 - Demographics
 - Timing issues? Population growth decline mostly from 1980-2000
 - Regulatory environment
 - Occupational licensing, employment at will, zoning restrictions
 - Consistent with rising adjustment frictions yielding declining responsiveness
 - Quantitatively sufficient? Measurement Challenges
 - Change in business model
 - Declines within firm age, firm size, industry cells
 - Rising market power
 - Evidence on markups still under debate
 - Knowledge investment and/or diffusion
 - Difficult to distinguish from rising adjustment frictions or correlated wedges/distortions

Demographics

- In standard models, business entry is facilitated by labor force growth:
 - Slow population growth \rightarrow Slow labor force growth \rightarrow less entry (Pugsley, Karahan, & Sahin 2022)
 - But note: labor force growth decline concentrated in the 1980s
 - Also, declining reallocation within firm age cells? That is, declining dynamism about more than declining startups.



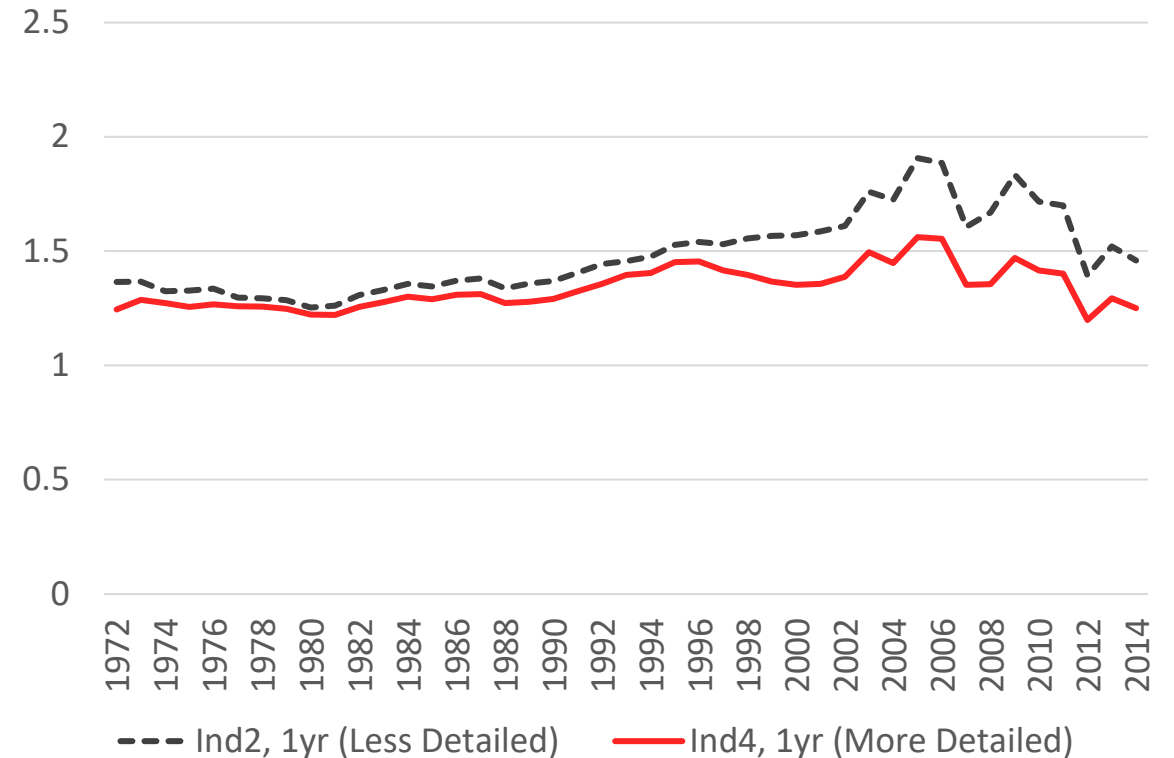
Market Power (or changing technology?) $\mu_{it} = \frac{\theta_{it}}{\alpha_{it}}$



(B) Percentiles markup distribution (revenue weight)

FIGURE III

The Distribution of Markups μ_{it}



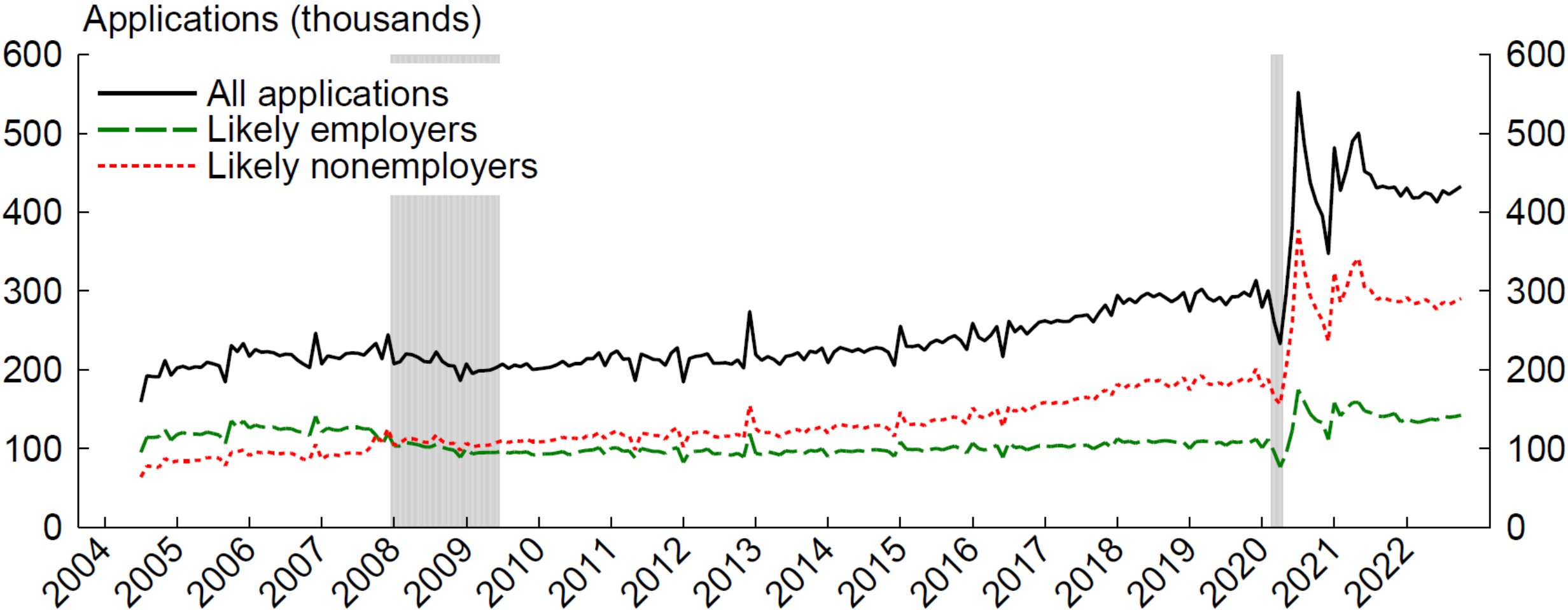
Left Panel: De Loecker et al. (2020), COMPUSTAT, 2-digit by year output elasticities using Cobb-Douglas

Right Panel: Foster et. al. (2022) CMP data from ASM, using Cobb-Douglas

A turning point – the pandemic?

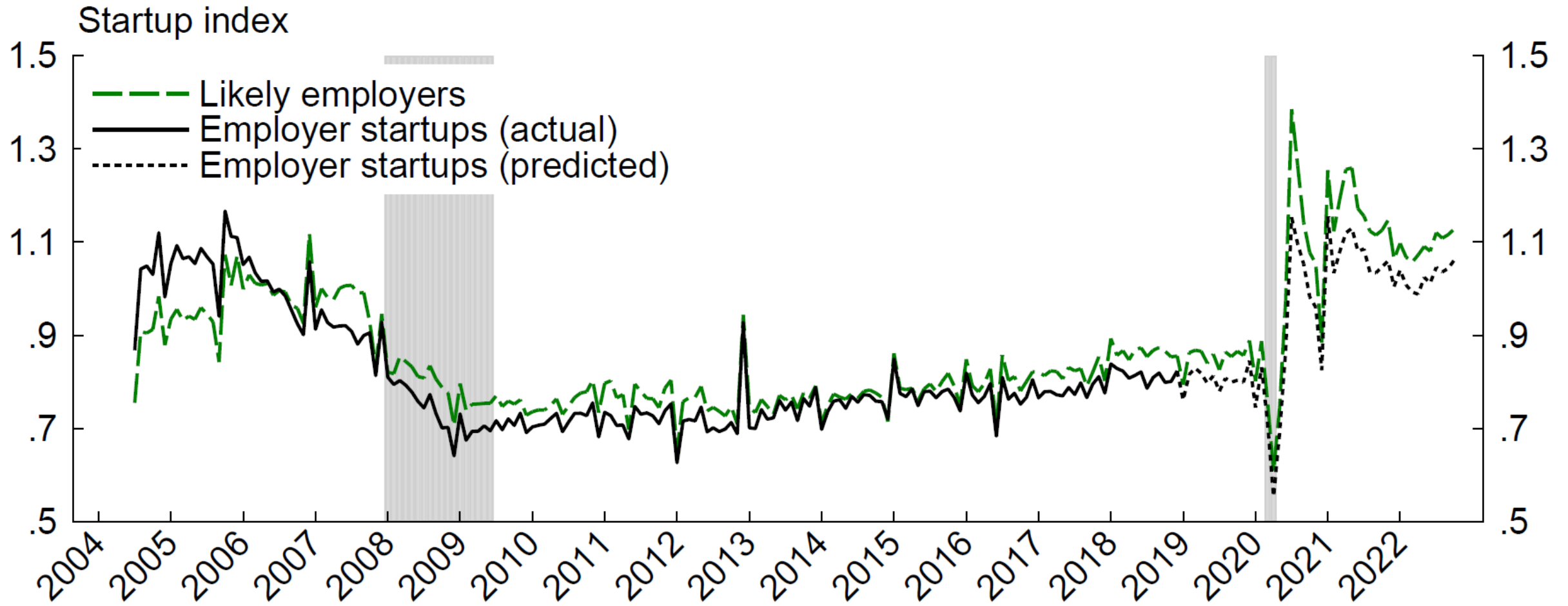
- Early in pandemic new business applications from BFS for likely employer business startups fell sharply
- But surprisingly: New business applications have surged since June 2020
 - 2020-22 is highest on record
 - Applications remain at historical highs through October 2022
- Patterns consistent with spatial and sectoral reallocation
- Next several slides draw from Decker and Haltiwanger (2022)

Growth has been resilient through October 2022. For HBA, avg monthly 2022 is about 30% higher than in 2019.



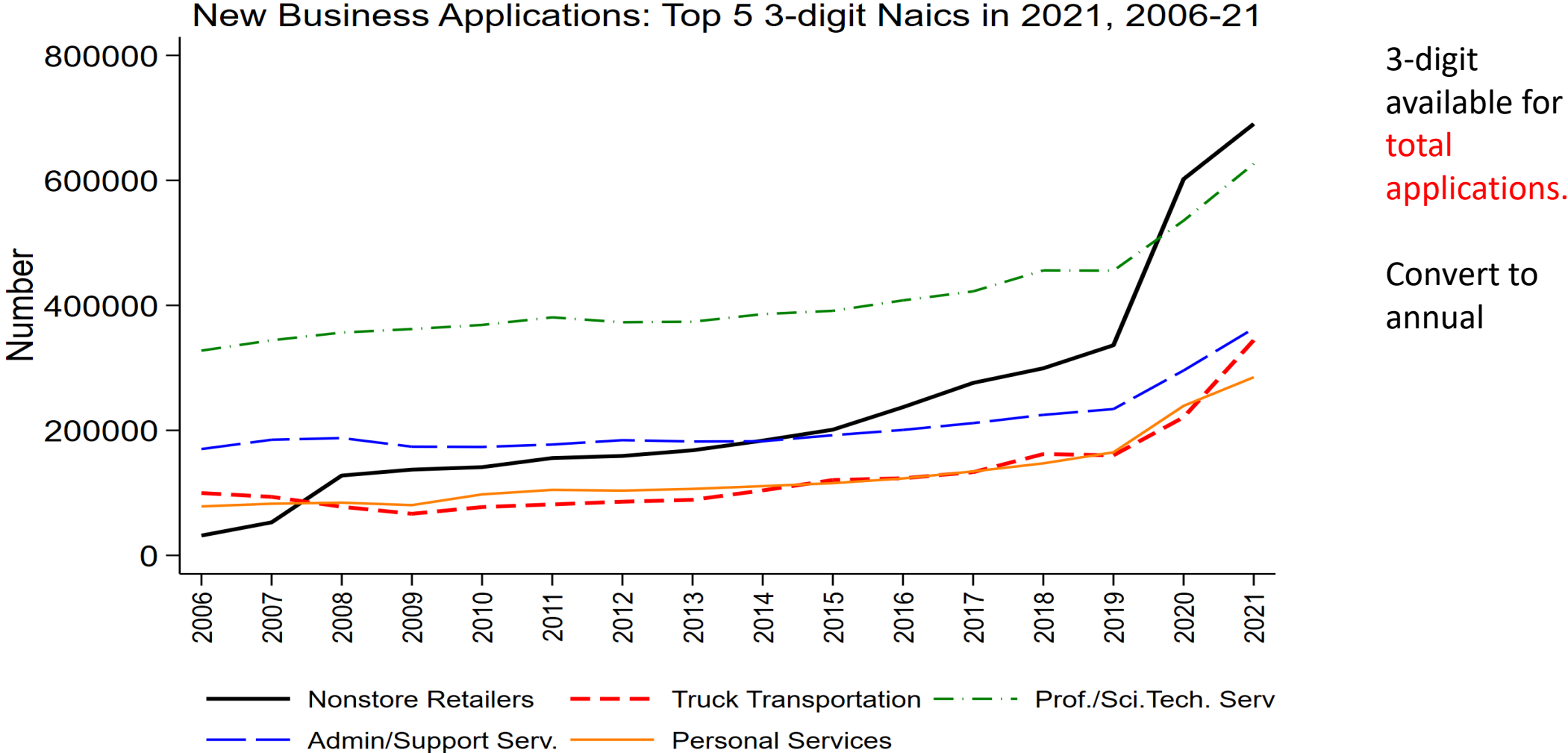
Note: Seasonally adjusted. All applications = BA series; likely employers = HBA series; likely nonemployers is residual. Shaded areas indicate NBER recession dates.
Source: Census Bureau Business Formation Statistics.

Corr(Likely Employers, Actual Startups)=0.93



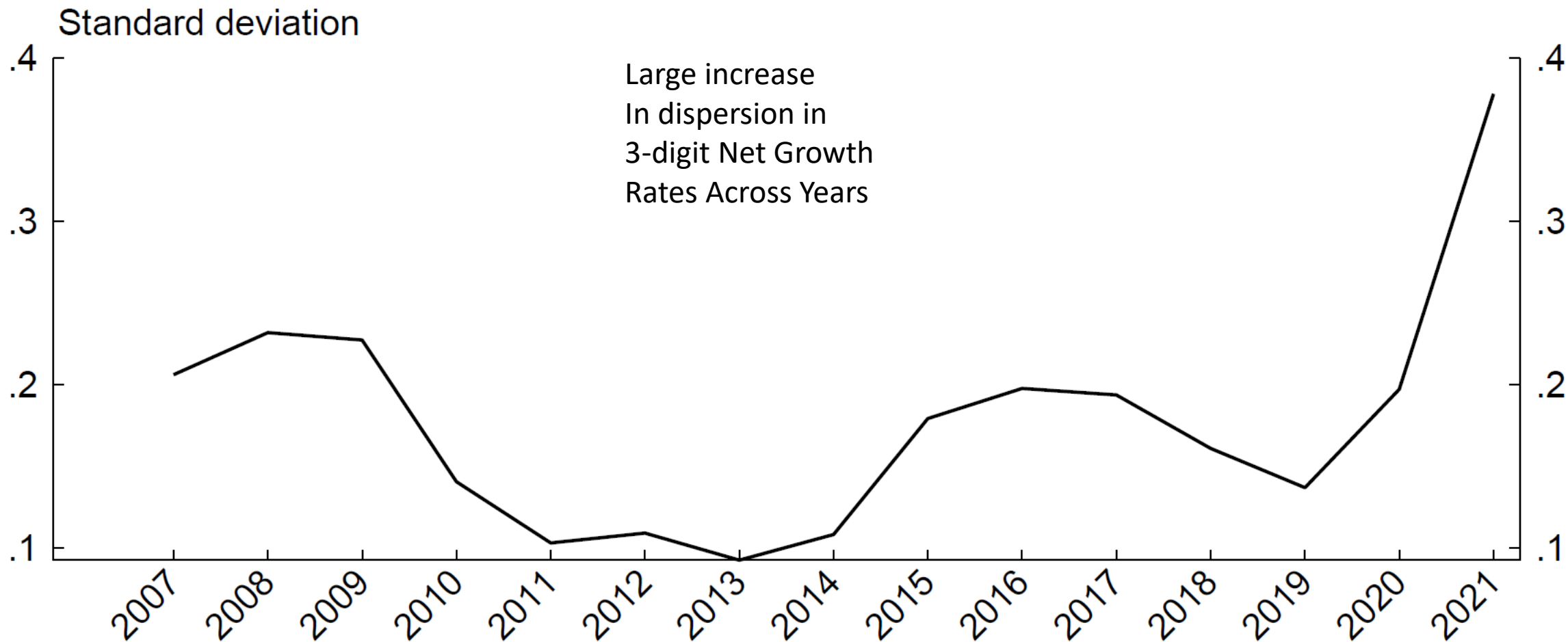
Note: Startups within 8 quarters. Seasonally adjusted. Normalized by average 2006 levels.
Shaded areas indicate NBER recession dates.
Source: Census Bureau Business Formation Statistics.

Five 3-digit (NAICS) sectors account for 50% of Surge in Overall Applications



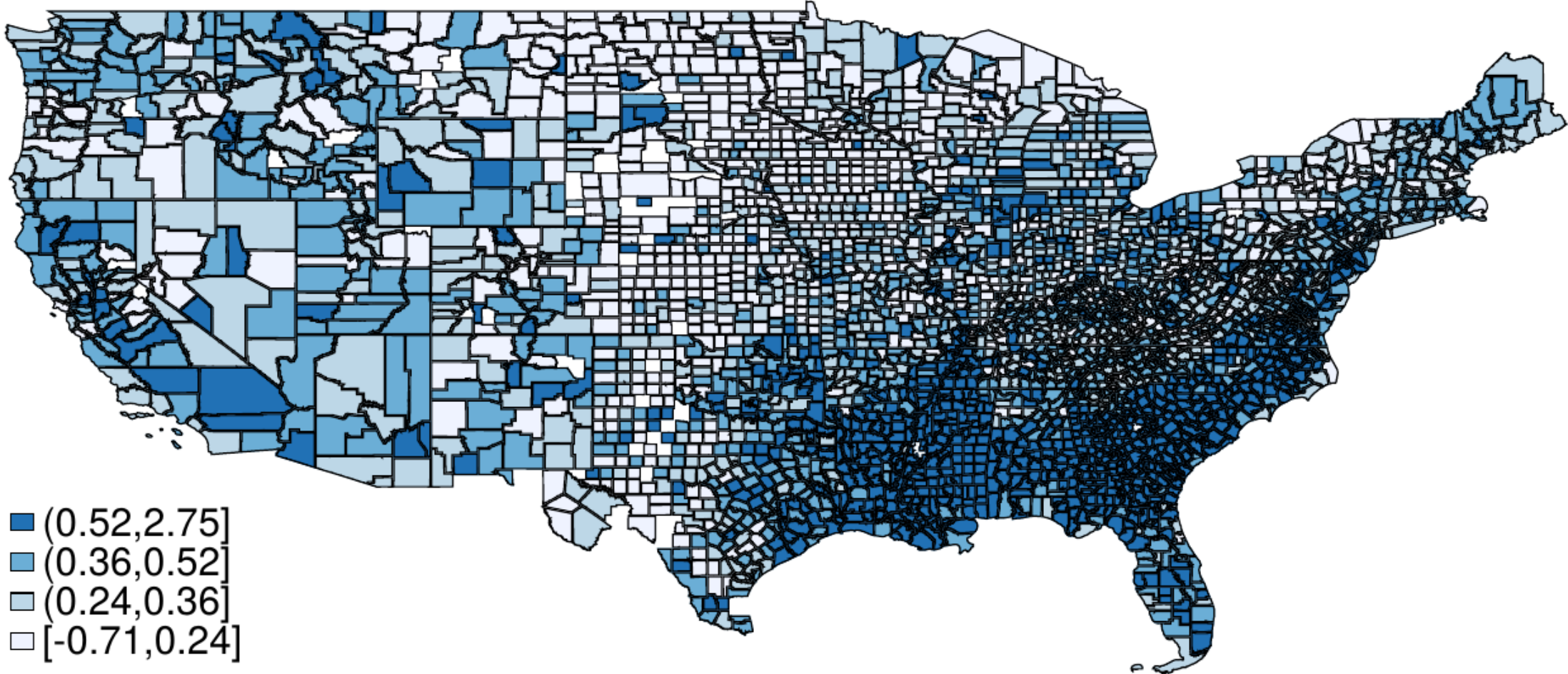
Source: Tabulations from the BFS.

Total applications: Dispersion in 3-digit sector net growth rates



Note: Standard deviation of annual growth rate of all applications at 3-digit NAICS level.
Source: Census Bureau Business Formation Statistics.

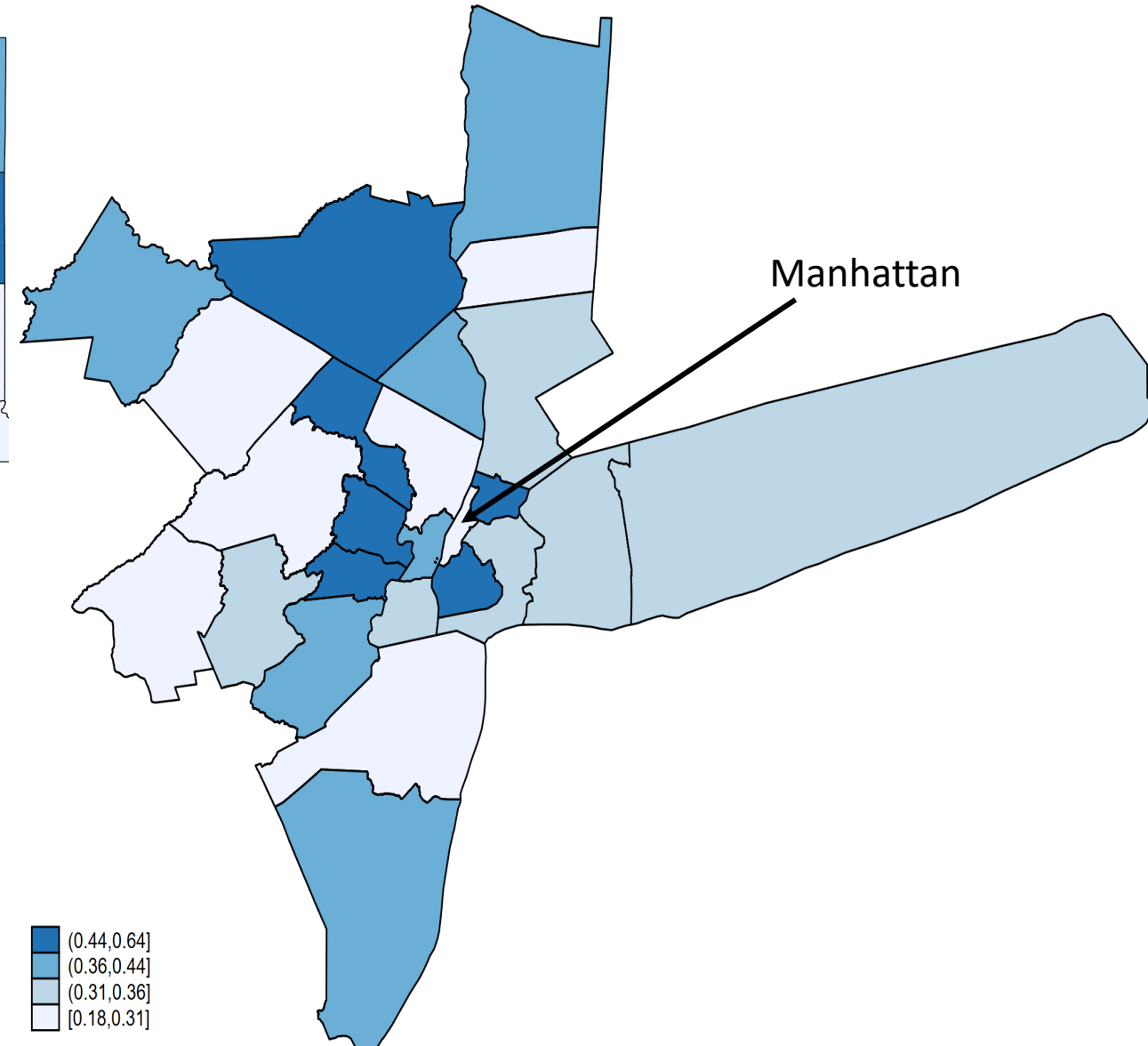
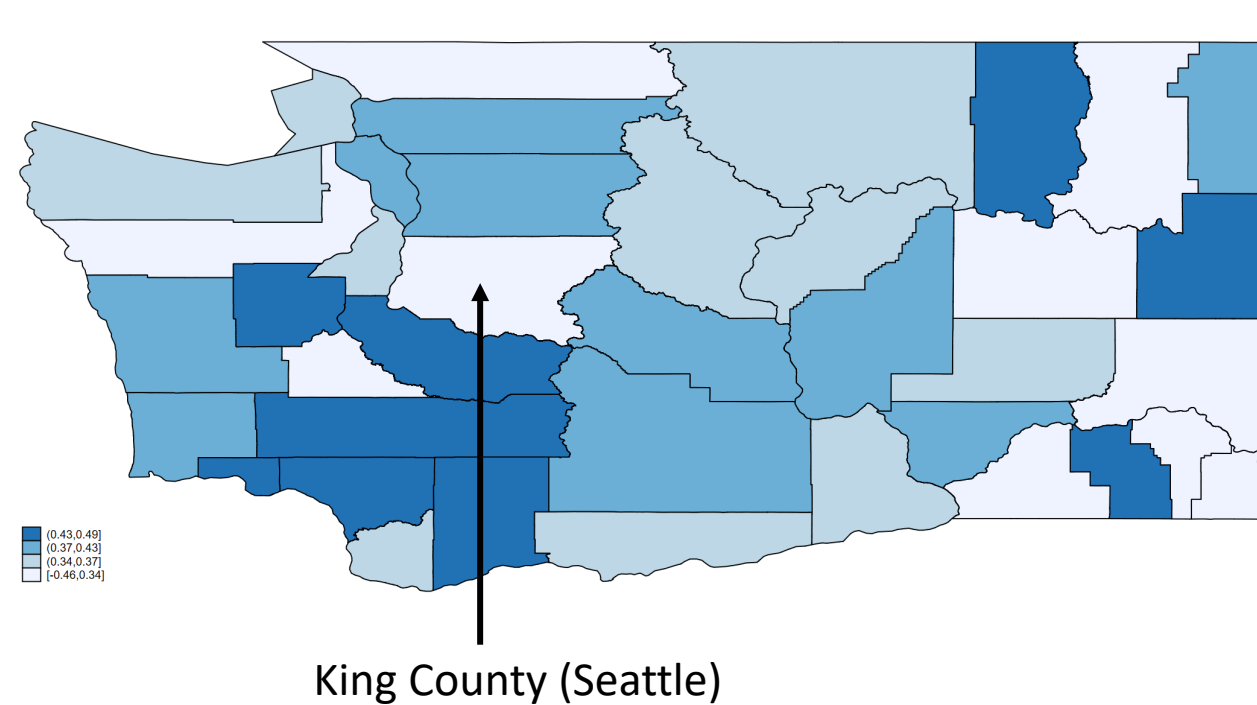
Log Differences in Applications Per (1000) Capita Between Pre-Pandemic (2010-19) and Pandemic (2020-21).



Note: Difference of average (log) all applications per capita, 2020-2021 vs. 2010-2019.
Source: Census Bureau Business Formation Statistics and population estimates.

Top counties increase by 52 log points up to 275 log points. Caution: All applications not just HBA.

“Donut” effects in cities? (Darker = more apps)



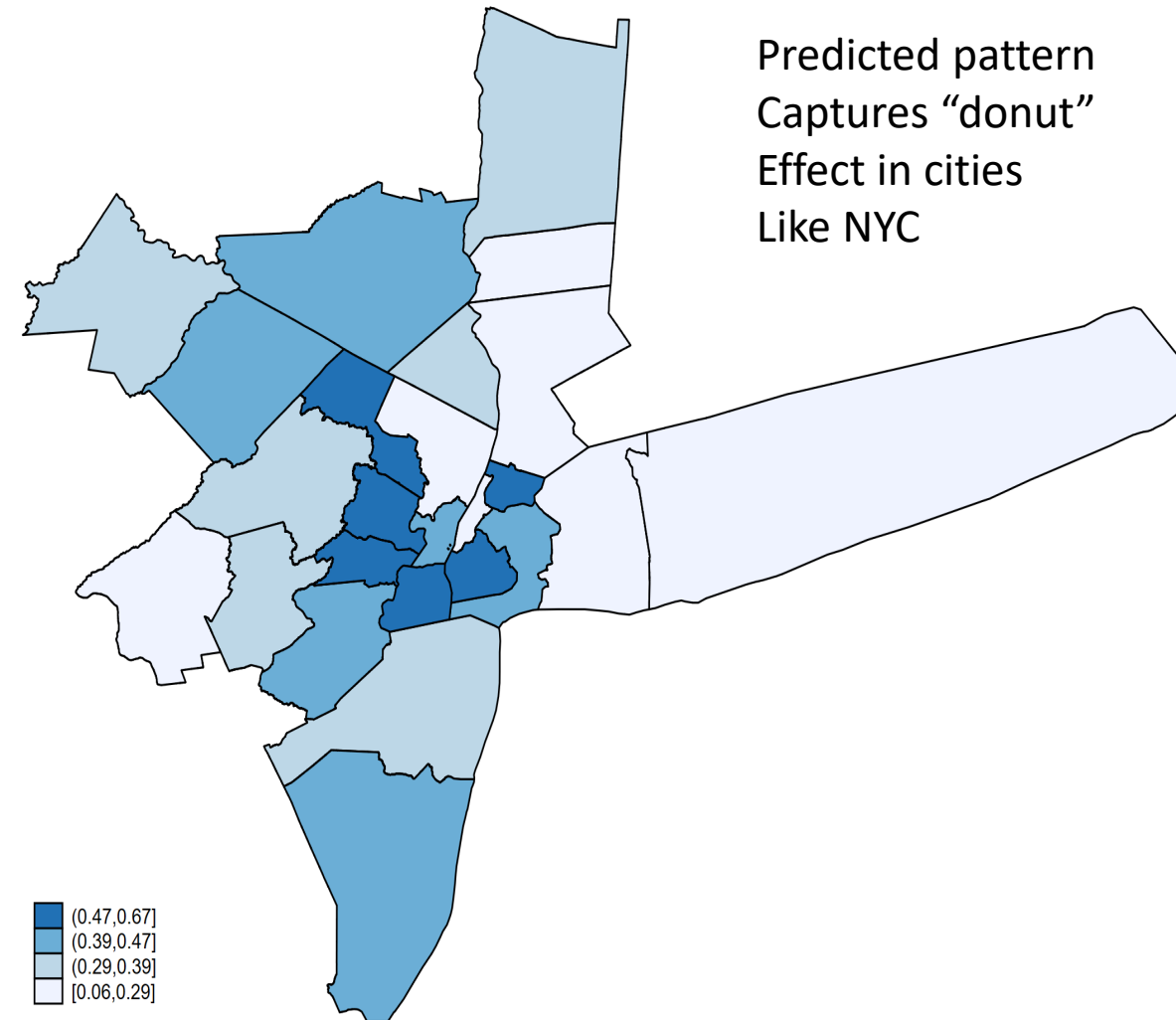
Log difference in applications, pandemic versus pre-pandemic.

- Similar patterns for Los Angeles, San Francisco, Atlanta
- Some regression evidence for “donut” relationship between density and applications

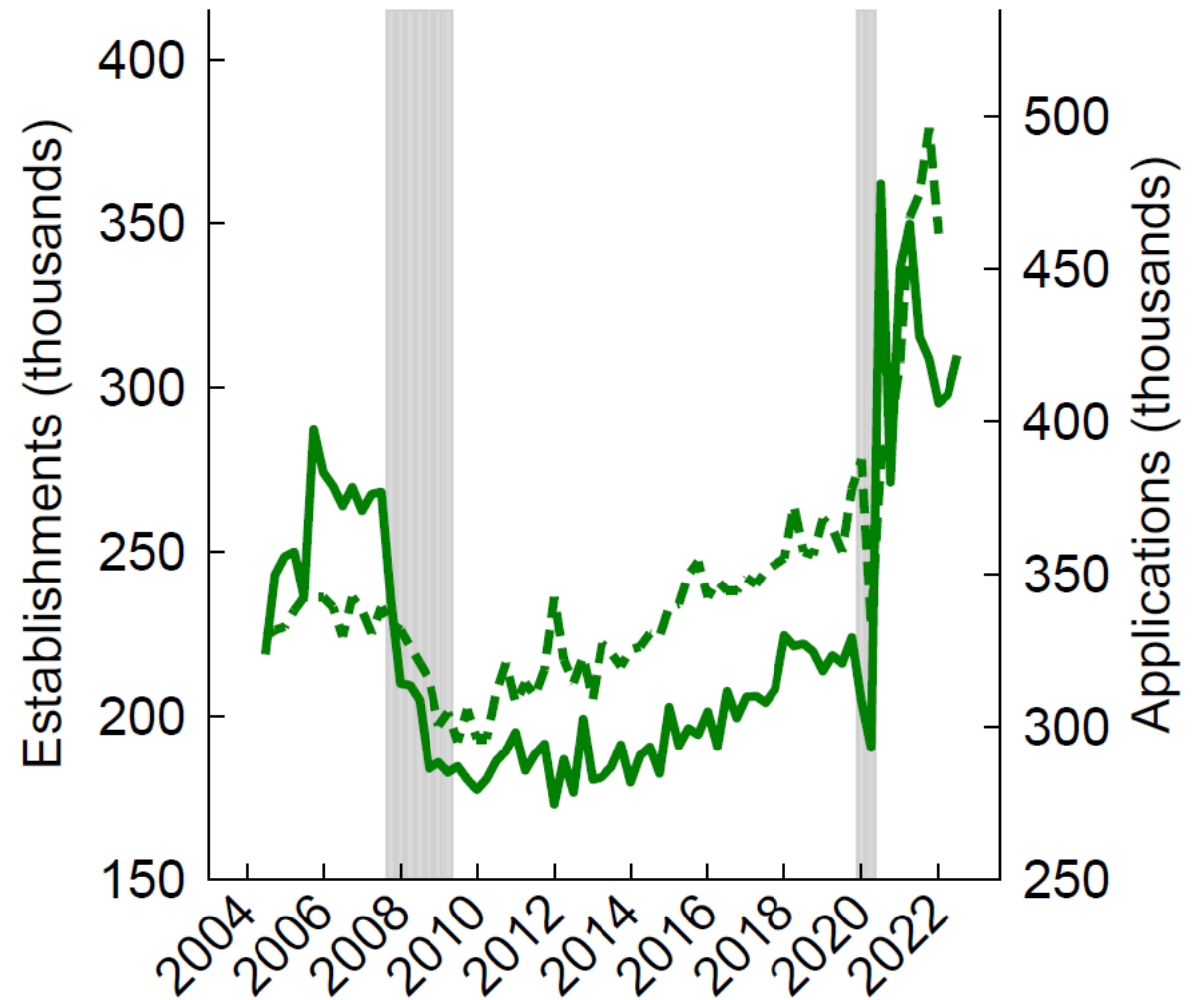
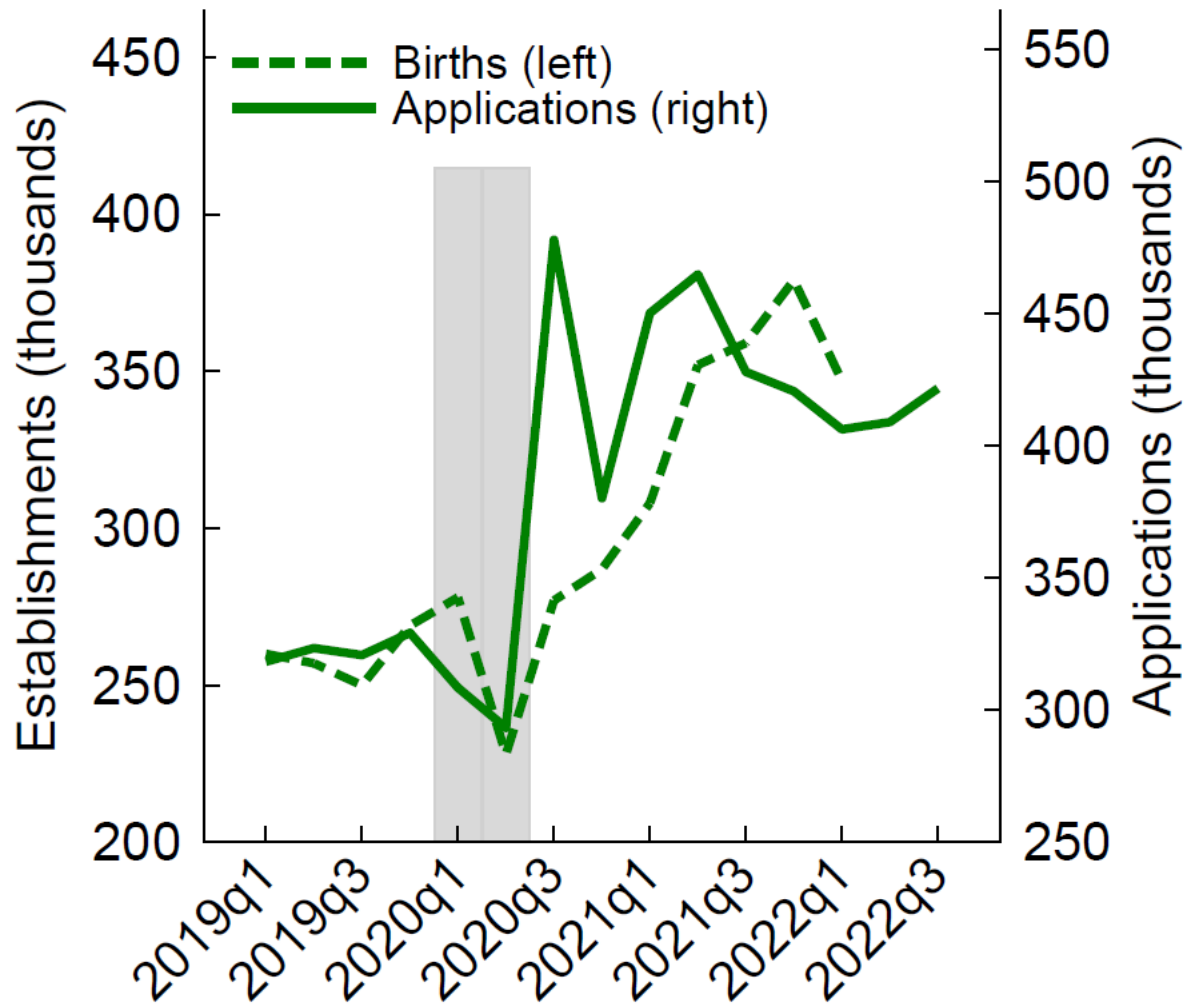
Spatial Model that incorporates characteristics of adjacent counties along with establishment density (estabs per sq mile)
Does Much Better

	Own county Direct Impact	Adjacent county Indirect Impact
$\ln(\text{population density})$	-1.678** (0.668)	-1.237** (0.549)
$\ln(\text{population density})^2$	0.180*** (0.064)	0.163*** (0.053)
$\ln(\text{population density})^3$	-0.005** (0.002)	-0.006*** (0.002)
$\ln(\text{establishment density})$	0.100 (0.351)	1.10* (0.620)
$\ln(\text{establishment density})^2$	-0.042 (0.038)	-0.150** (0.066)
$\ln(\text{establishment density})^3$	-0.001 (0.001)	0.005** (0.002)

Notes: Estimated for CBSAs with Population > 1M. R-squared: 0.73



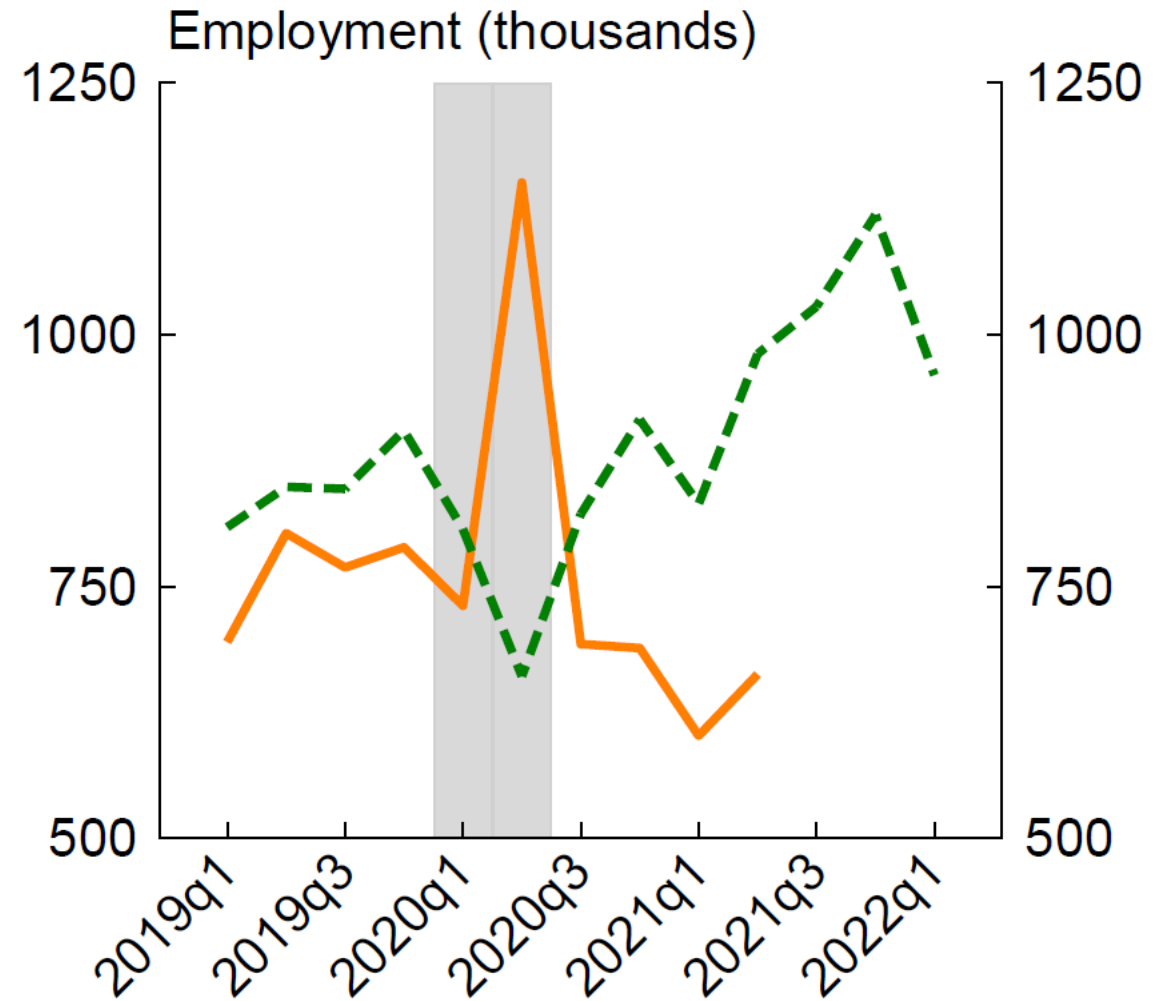
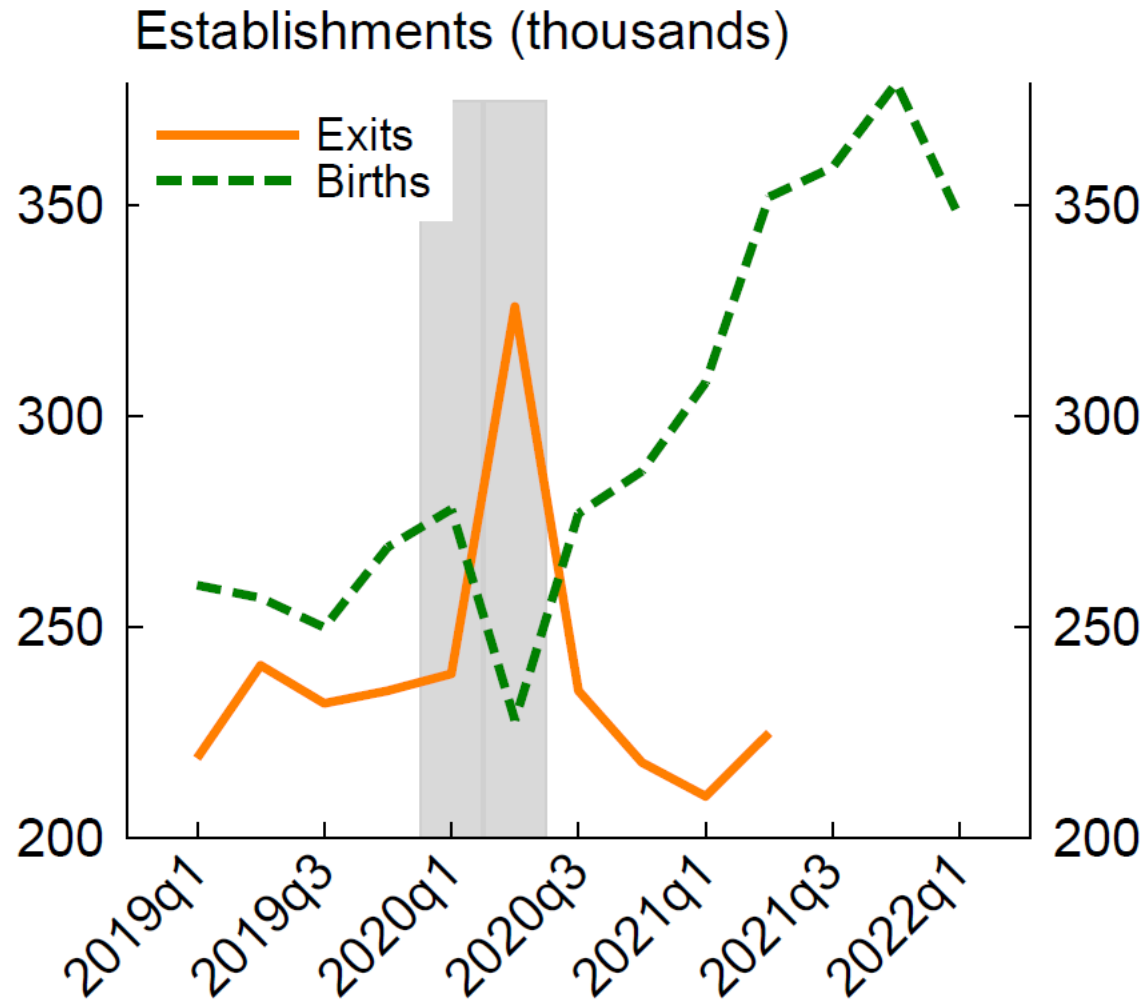
Densities measured in 2019. Observe estab density much more important for adjacent counties. Higher Rsquared comes mostly from adjacent county effects (not own county estab density).



Note: High-propensity business applications. Seasonally adjusted. Y axes may not start at zero. Shaded areas indicate NBER recession dates.

Source: Business Employment Dynamics (BED) and Business Formation Statistics (BFS).

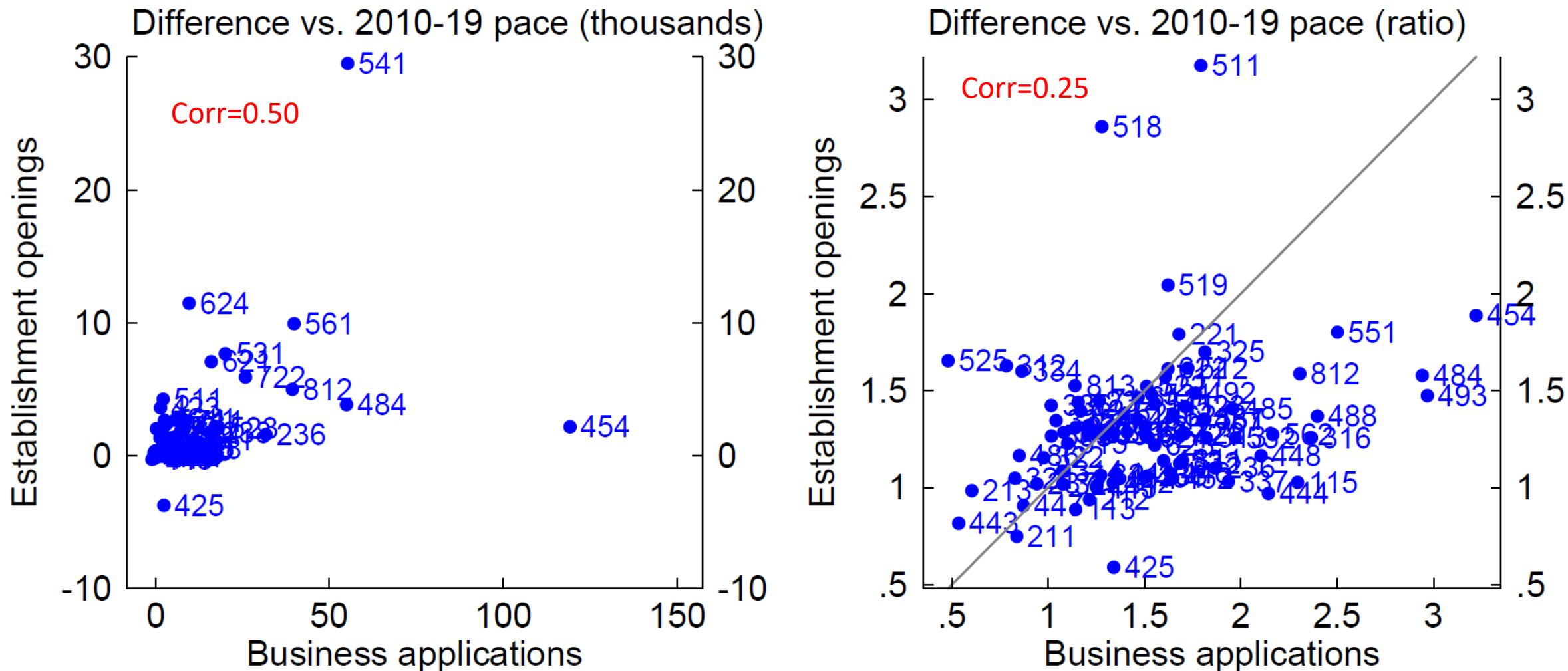
BED Establishment Entry and Exit (true entry/exit – not just reopenings and closings)



Note: Seasonally adjusted. Y axes may not start at zero. Shaded areas indicate NBER recession dates.

Source: Business Employment Dynamics (BED).

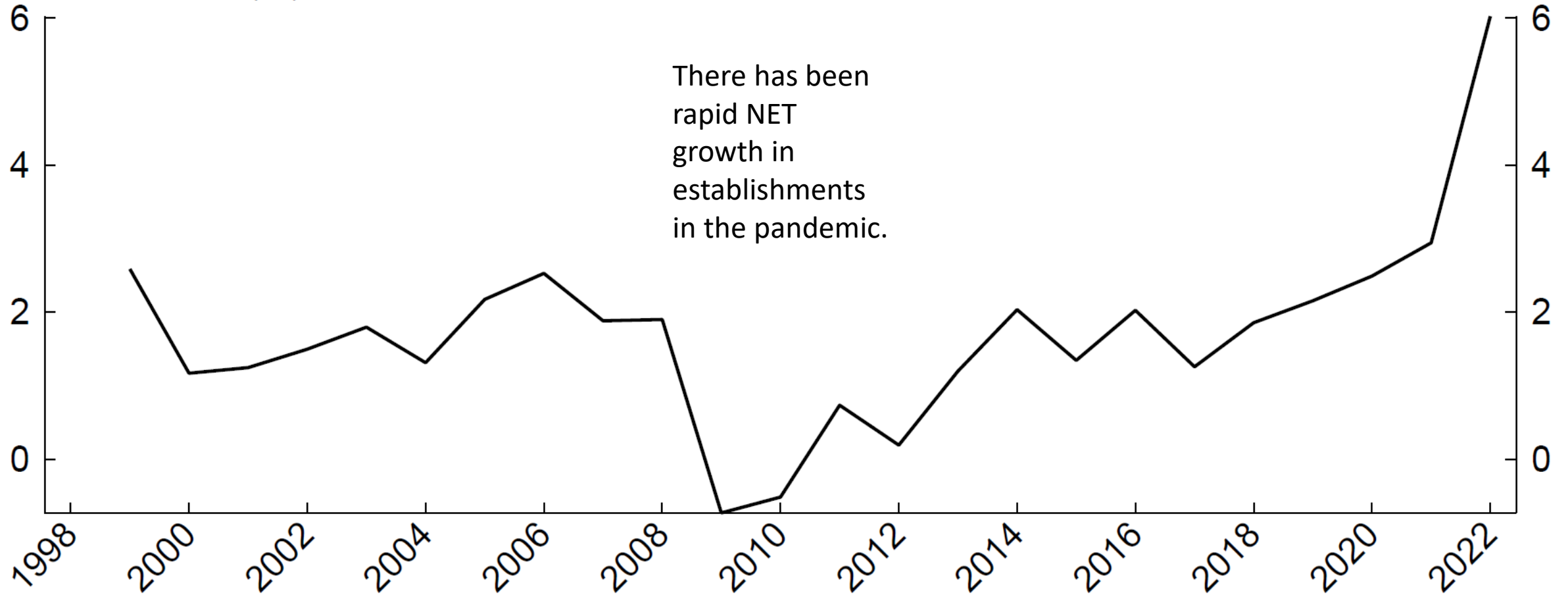
Between Industry differences in Changes in Establishment Applications and Openings: Avg(2020:4-2021:4) vs. Avg(2019)
 (Caution: Openings and not births. BED does not release 3-digit births)



Note: 2020:Q4-2021:Q4. Left panel expressed in average seasonally adjusted quarterly pace. Solid line is 45-degree line.

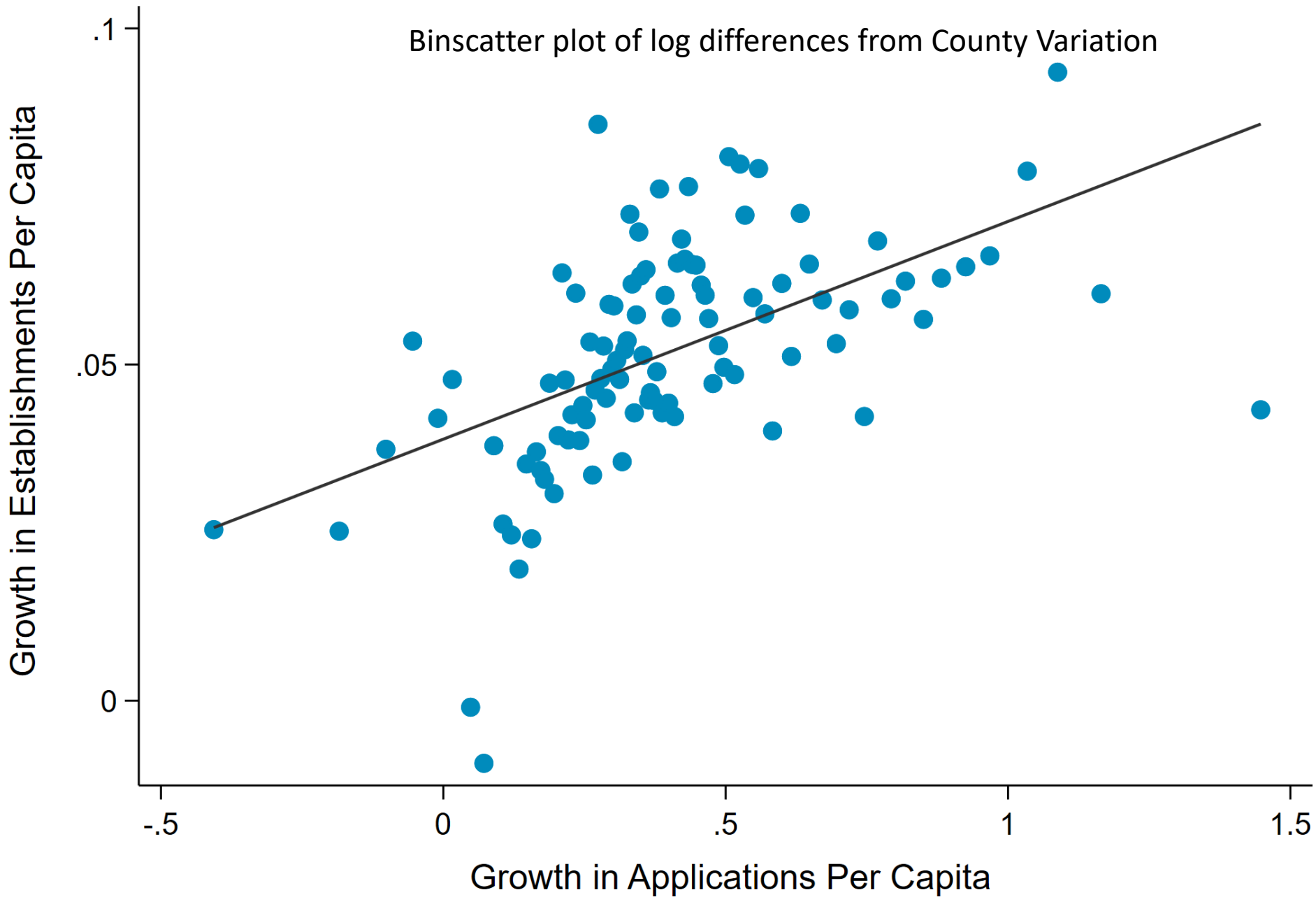
Source: Business Employment Dynamics (BED), Business Formation Statistics (BFS).

Growth rate (%) of total establishments



There has been rapid NET growth in establishments in the pandemic.

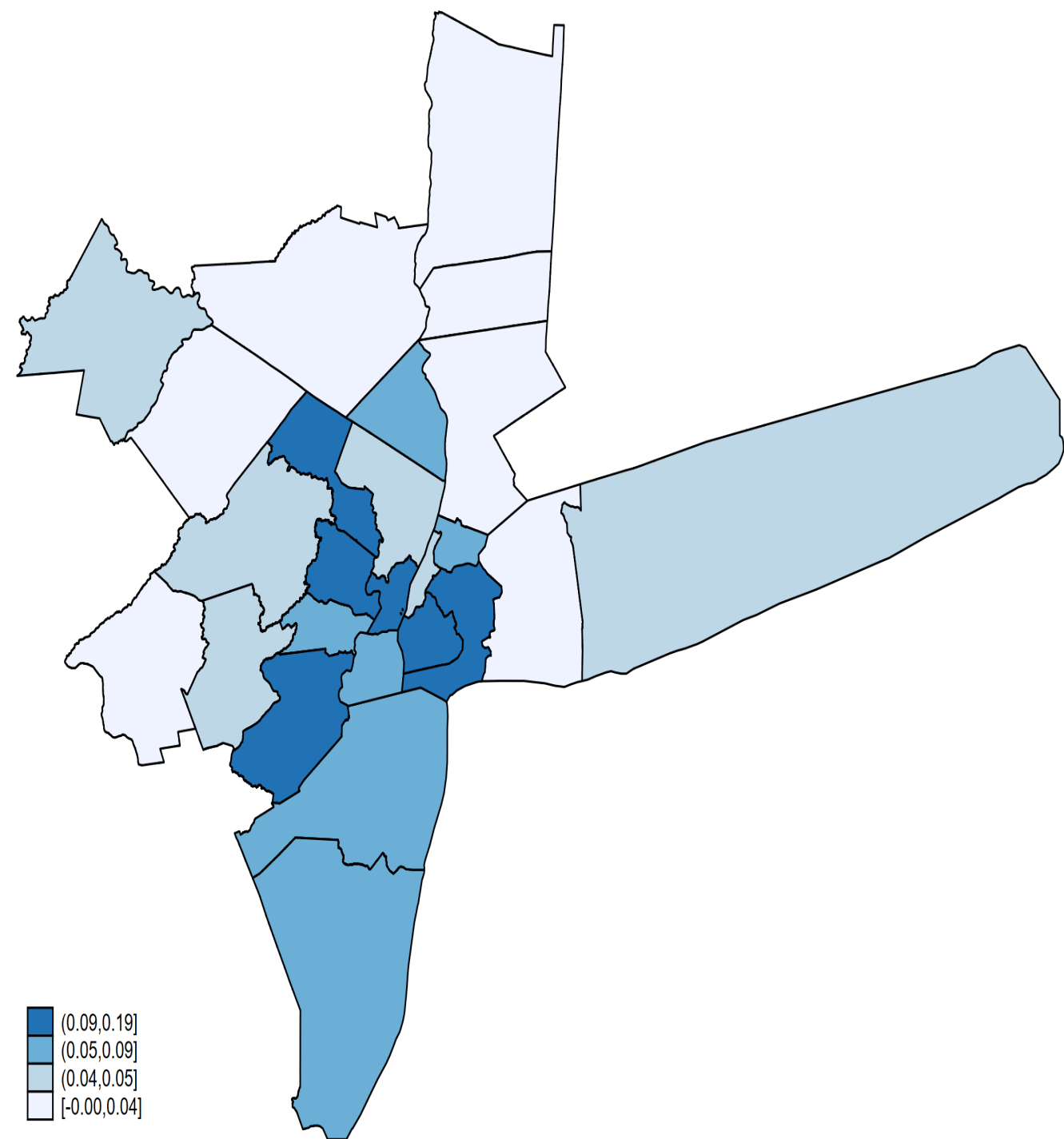
Note: DHS growth rate of total establishments, March versus year earlier.
Source: BLS QCEW.



Growth is measured By log differences Of Measures between Pandemic (2020-21) And Pre-Pandemic (2010-19).

Caution: Net establishment Growth are for Employer Businesses And Applications are all.

Also recall lags from Applications to startups.

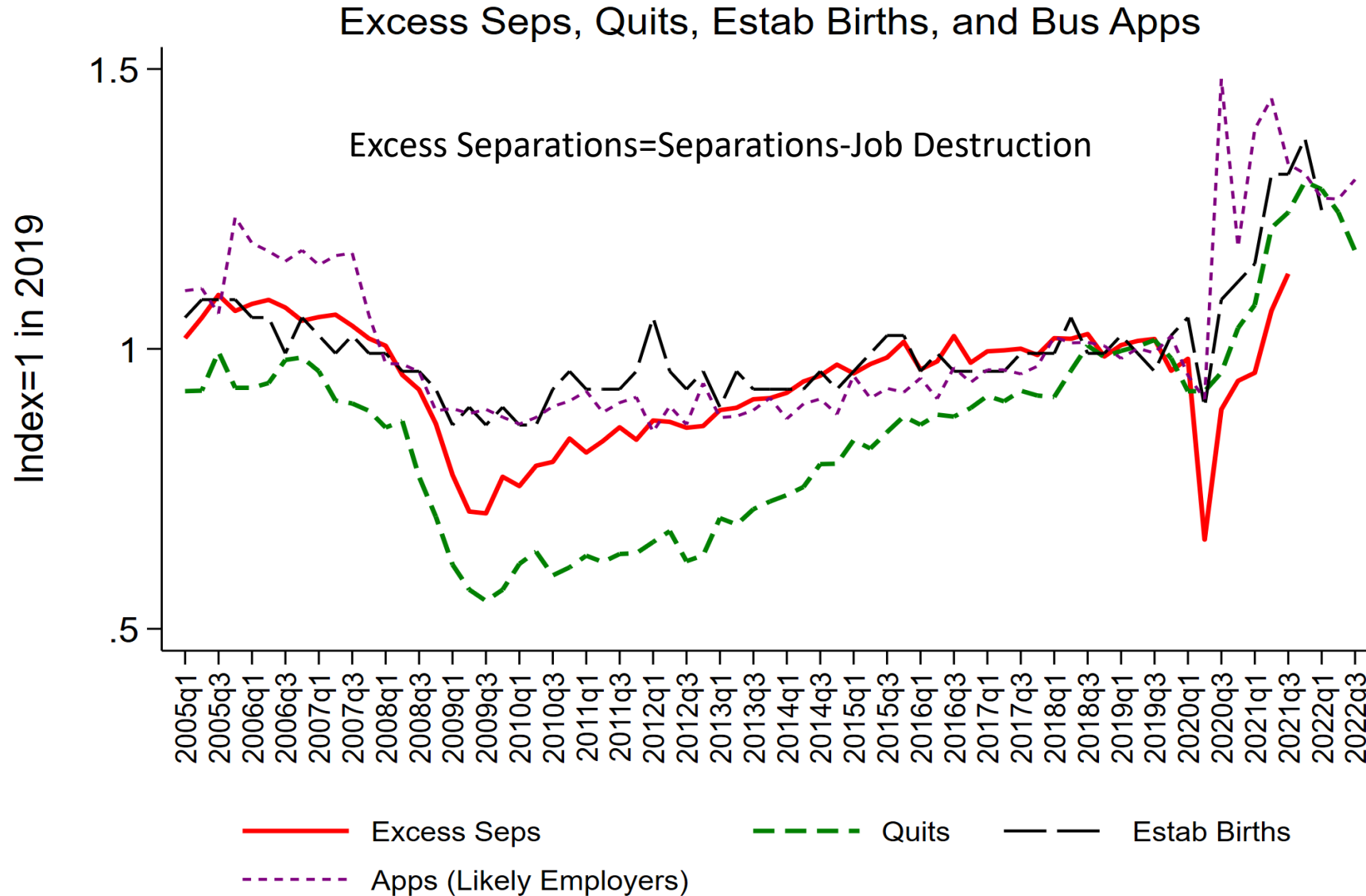


Log Differences in Establishments Per Capita Between Pre-Pandemic (2010-19) and Pandemic (2020-21).

Patterns similar to Applications Per Capita around NYC

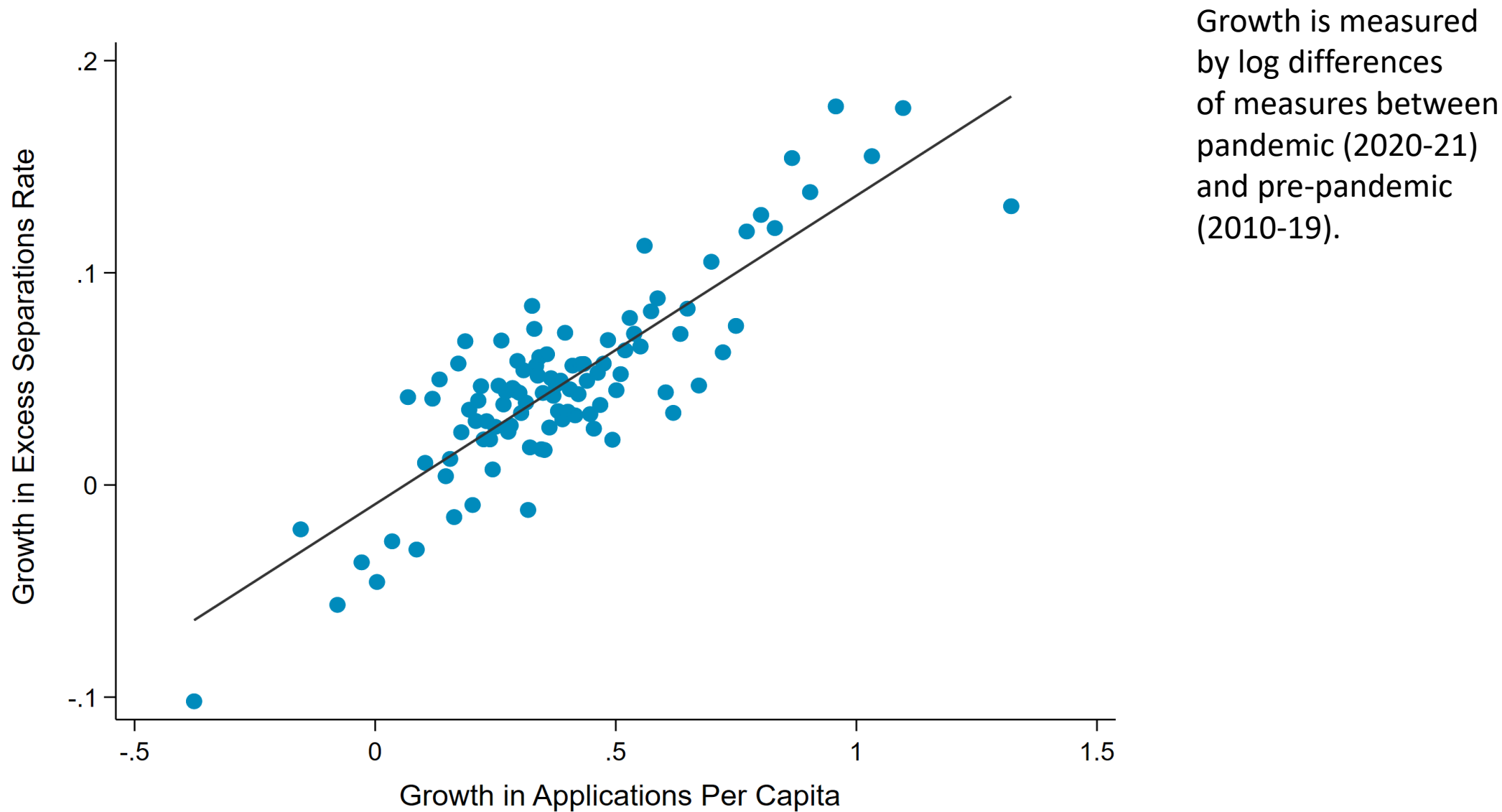
Some differences might reflect employer vs nonemployer Businesses (applications at county level are for all Applications, establishments at county level are for employer establishments)

Quits and Worker Churning Very Procyclical. Is there a connection between surge in applications and quits?

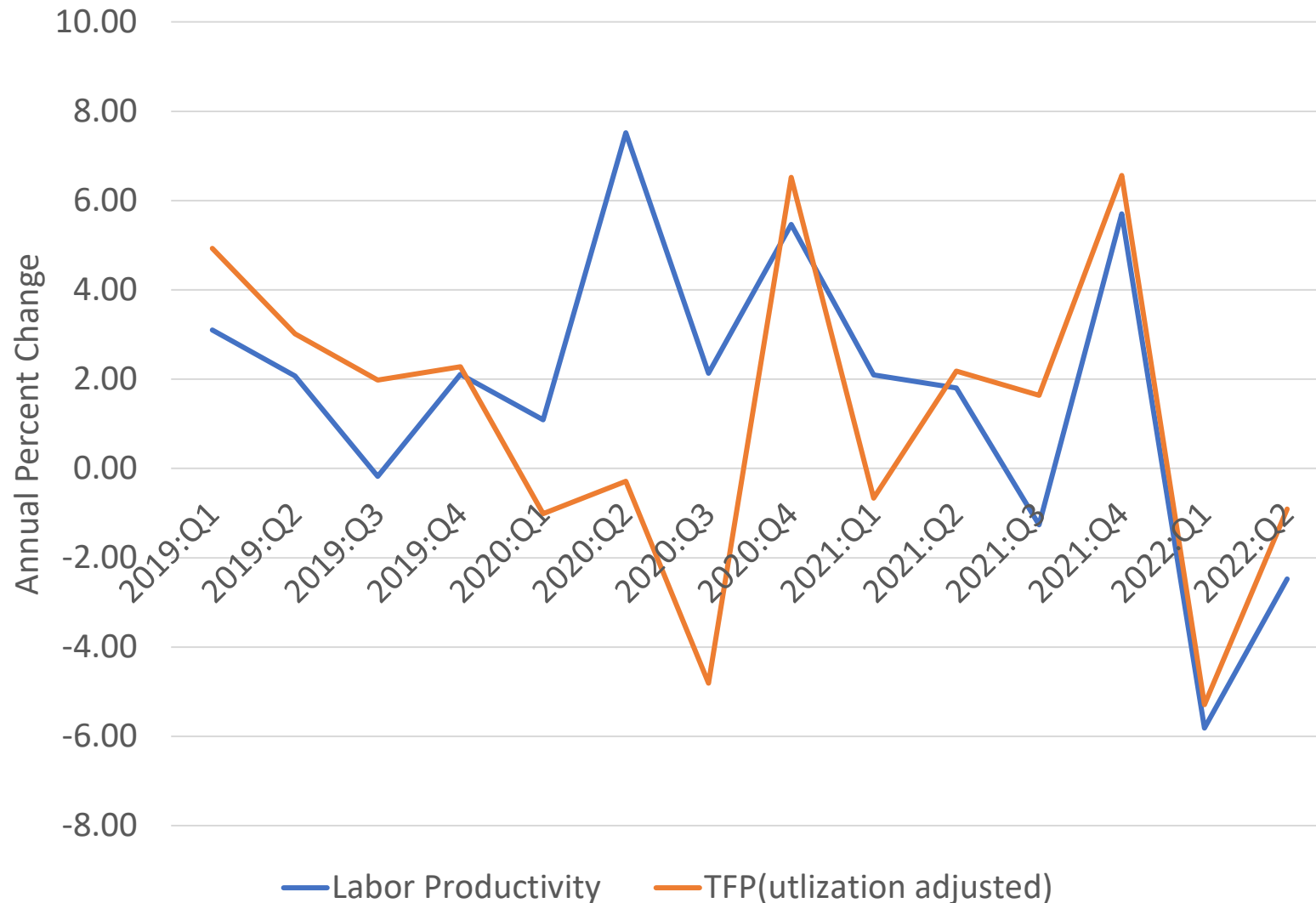


“Excess separations” are conceptually and empirically closely related to quits

Counties with surges in New Business Applications Have Also Seen a Surge in Excess Separations (“Quits”)



Productivity Growth During the Pandemic



Output per hour
Surged early in the
Pandemic but not
So much TFP (utilization
Adjusted)

Negative growth in 2022

Too early for any surge
In dynamism/startups
To have any real effects

Whither Dynamism and Productivity?

- Pre-pandemic view often expressed (with apologies to Robert Solow, 1987 “We see AI, Cloud, Robotics and other advanced technology everywhere but the productivity statistics”?)
 - Often when I heard this pre-pandemic I would ask “where is the entry?”
- Did the pandemic induce or accelerate innovation or adoption of advanced technology?
 - Working from home at least in hybrid mode is persistent
 - Surge in new business formation with systematic sectoral and spatial patterns
 - Impact of surge will take some time to develop
 - Not just that measurement is not as timely as we would like but dynamics of young businesses is noisy and complex
 - Headwinds to dynamism likely not eliminated
 - Young businesses especially sensitive to cycle (what will be impact of contractionary monetary policy?)