Post Entry Growth and Survival of Business Startups: The Role of Founding Teams

Joonkyu Choi[1] Nathan Goldschlag[2] John Haltiwanger[3,2] J. Daniel Kim[4,2]

[1]Federal Reserve Board of Governors

[2]U.S. Census Bureau

[3]University of Maryland

[4]University of Pennsylvania

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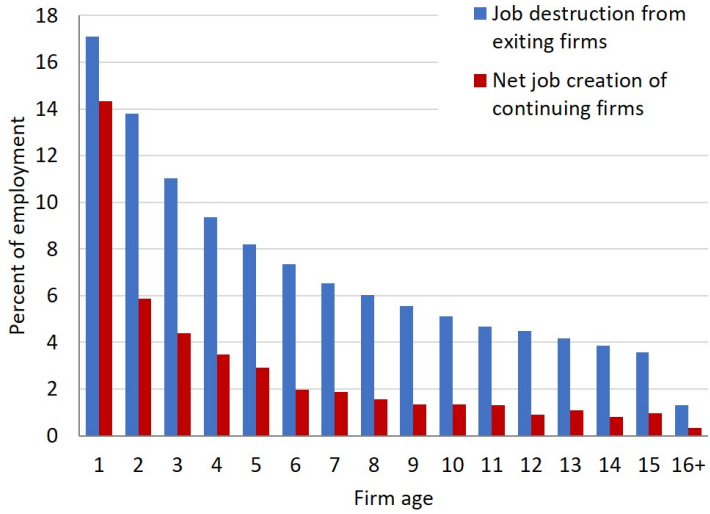
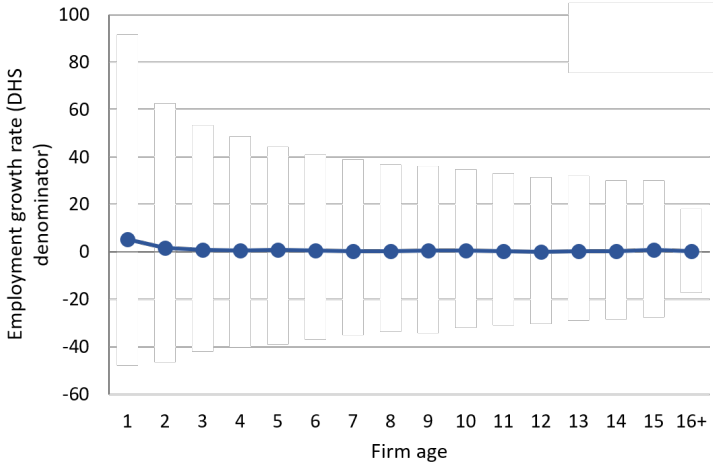
This talk also draws on collaborative work with Ryan Decker, Ron Jarmin and Javier Miranda. Disclaimer: Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau or the Federal Reserve Board of Governors or its staff. All results have been reviewed to ensure that no confidential information is disclosed, Disclosure review number DRB-B0032-CED-20190315 and CBDRB-FR19-398.

Up or Out Dynamics for Young Firms



Source: Decker, Haltiwanger, Jarmin and Miranda (2014)

Median Surviving Firm Exhibits Zero Growth



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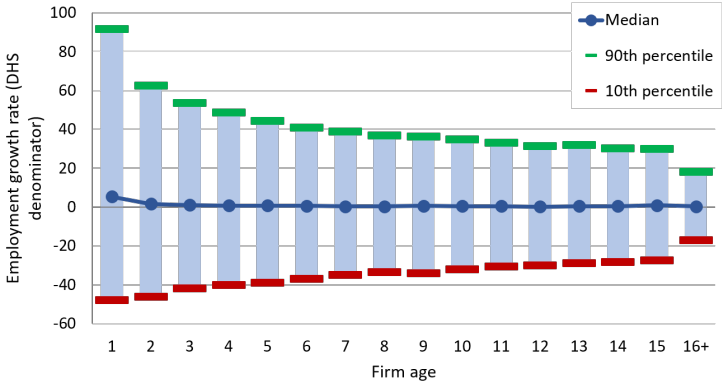
High Average Growth of Young Firms Driven by Skewness



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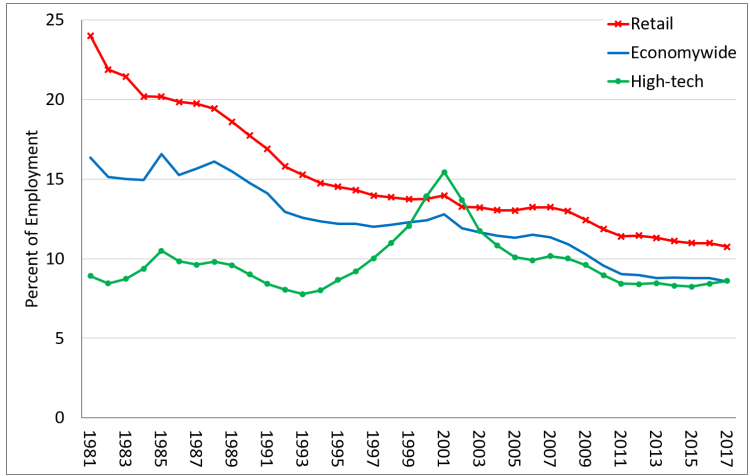
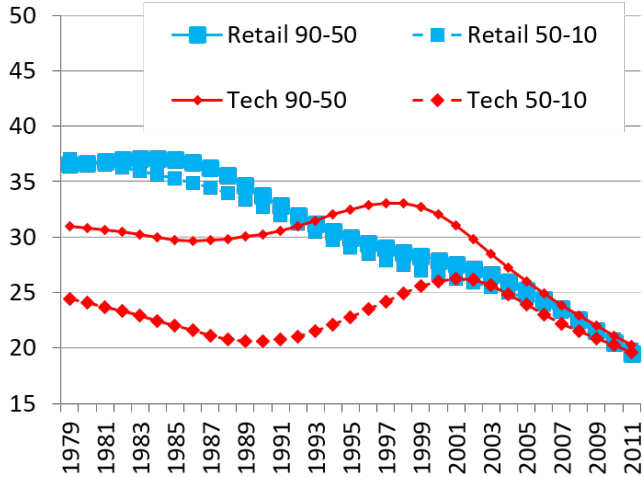
Declining Contribution of Young Firms Especially Post 2000



Young: Age $\leq$ 5. Source: LBD + BED

Declining Skewness in High Tech Post 2000



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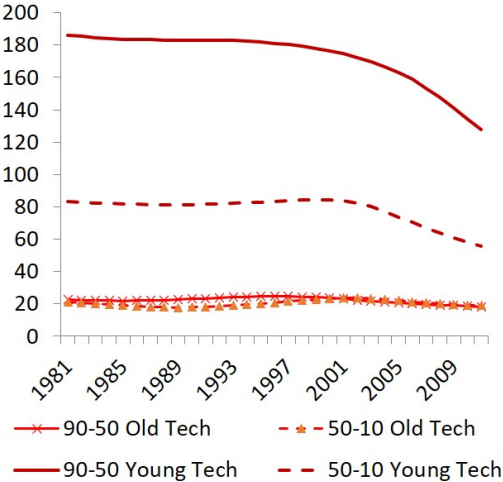
Declining Skewness in High Tech Driven by Young Firms



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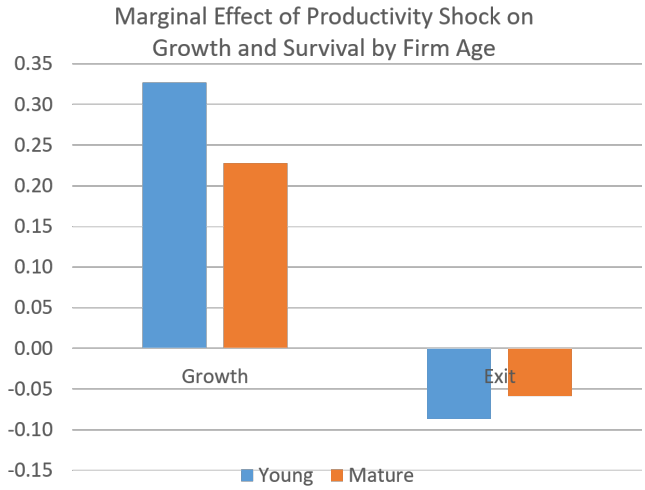
Young Businesses Subject to Intense Selection on Productivity



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What accounts for this variation? Founders?

Founding Team May Be Important

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- One hypothesis: organizational capital embodied in founding team (e.g. core business vision, norms and culture)
- Alternative: Once organizational capital created, founding team members are easily replaceable
- Horse (Firm: Idea, Product, etc.) vs. Jockey (Founder/Founding Team) (see Kaplan, Sensoy, and Strömberg, 2009)

The Data

- Startups (LBD employer frame) matched to founding teams (LEHD job frame) to identify first-year joiners
  - Supplemented with business owners from sole proprietors
  - Focus on sole proprietors and corporations. Active owners of latter are on payroll.

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- Classify the FT as **key personnel** (KP) and **non-KP**
  - KP is top 3 by earnings for corporations, owner and top 2 for sole proprietors
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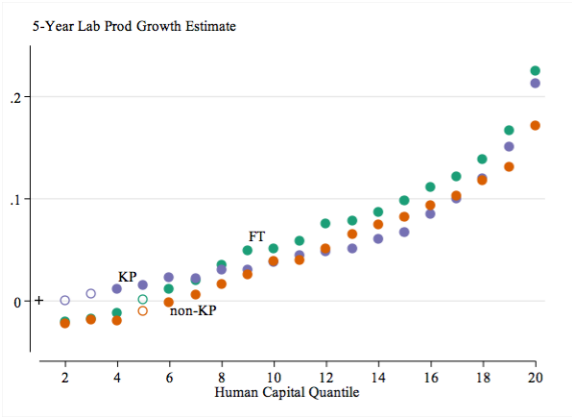
- Startup outcome measures (scale, growth, productivity) for 6.2M firms
- Worker characteristics (demographics, premature death) for 72.8M FT members
- Coverage from 1990 to 2015

Basic Facts

High HC Startups Tend To Perform Better



- Conditional positive correlation between founding team HC and firm performance (controlling for industry by year)
  - productivity growth (control for initial productivity)
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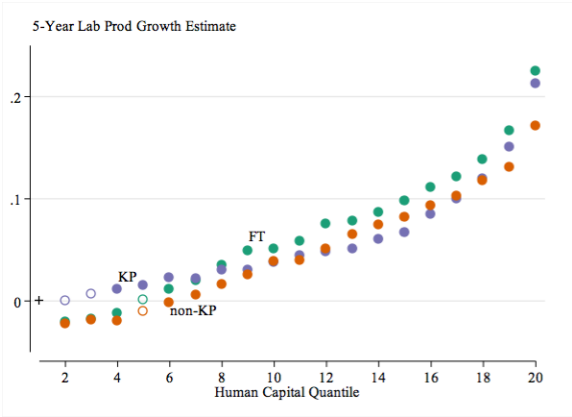

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  - productivity growth (control for initial productivity)
  - employment growth (control for initial size)
  - survival rate (control for initial size)
- Correlations are hard to interpret due to endogeneity
  - High quality ideas attract high ability people

Making Causal Inference

- TREATED: We exploit exogenous variation in composition of FT after startup via premature death (Jones and Olken, 2005; Jaravel, Petkova, and Bell, 2018)
  - Death shocks: death of earnings active FT member that is less than 60 years old

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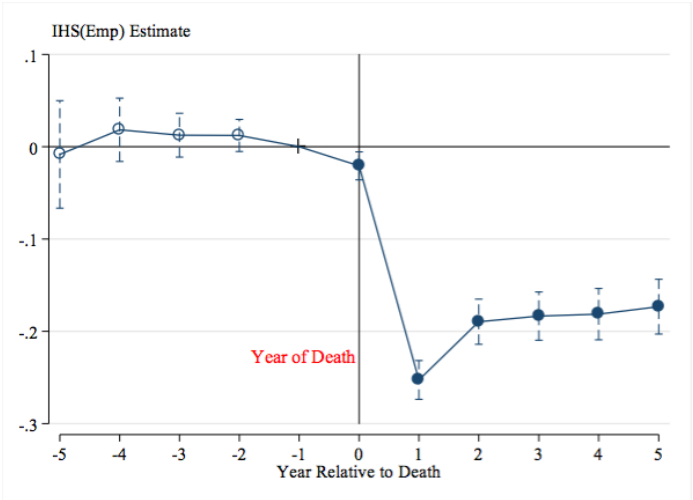
- Event study regression specification

$$Y_{i,j,t} = \sum_{k=-5}^{5} \lambda_k d[k]_{i,t} + \sum_{k=-5}^{5} \delta_k d[k]_{i,t} \times TREAT_i + \alpha_i + \gamma_{j,t} + \epsilon_{i,j,t}$$

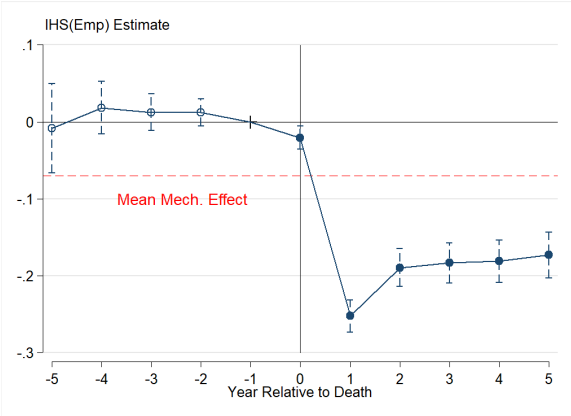
- Firm i, time t, industry j. Also control for firm age.

Losing FT Member Shrinks Firm



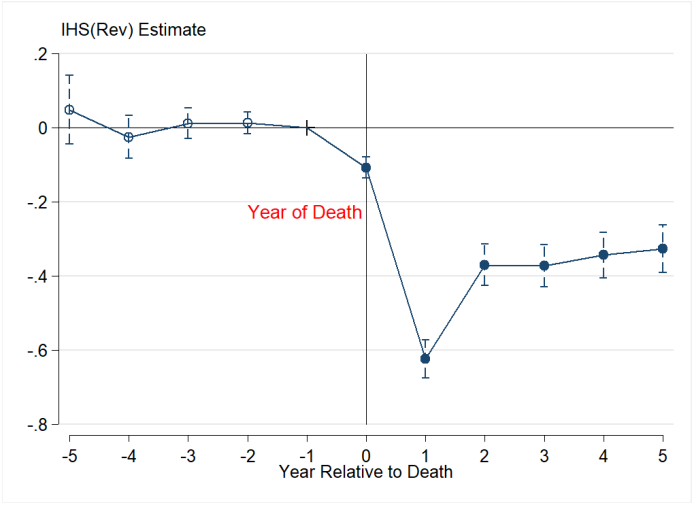
Notes: Controlling for firm effects, firm age and industry-year effects. Hollow points $\rightarrow p > 0.05$. Reference group $t-1$.

Meaningful or Mechanical?



- Average firm size at death is about 15.5; mechanical effect of losing one would be about -0.07
- Effect is persistent
  - Job-filling rates are high and vacancy duration is measured in days not years (Davis, Faberman, and Haltiwanger, 2013)

Losing FT Member Decreases Revenue



Source: Founding Team Database (LBD, LEHD), author's calculations

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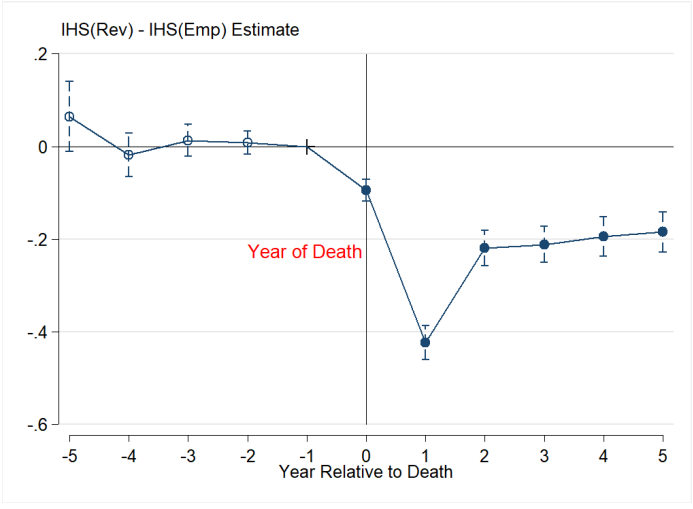
Losing FT Member Reduces Revenue More than Employment



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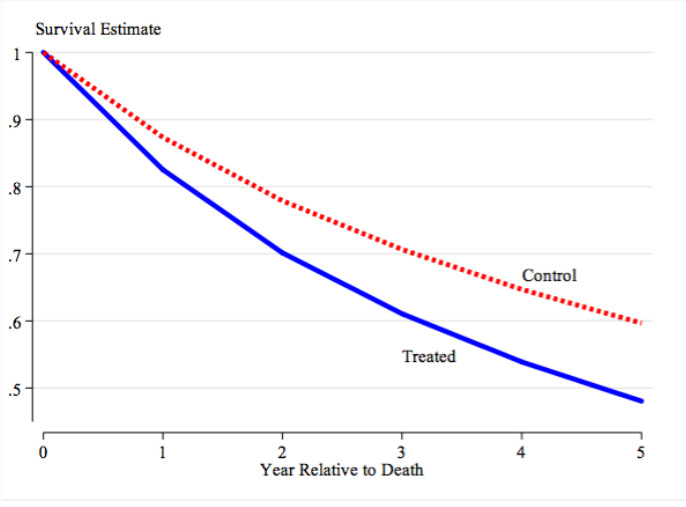
Extensive Margin is Substantial



Source: Founding Team Database (LBD, LEHD), author's calculations
Notes: Cox estimate 0.35 (0.013).

Heterogeneous Treatment Effects

- Pre-post regression specification

$$Y_{i,j,t} = \lambda \cdot POST_{i,t} + \delta \cdot POST_{i,t} \times TREAT_i + \alpha_i + \tau_{j,t} + \epsilon_{i,j,t}$$

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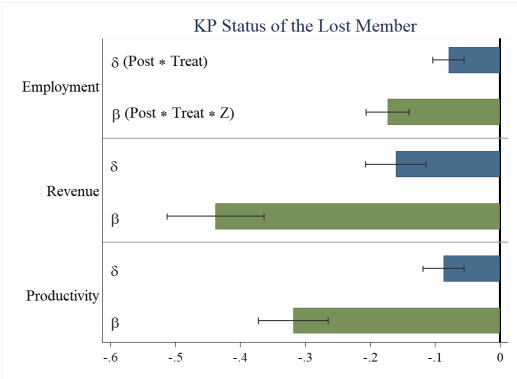
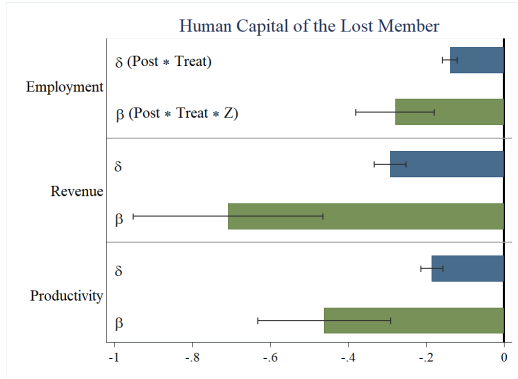
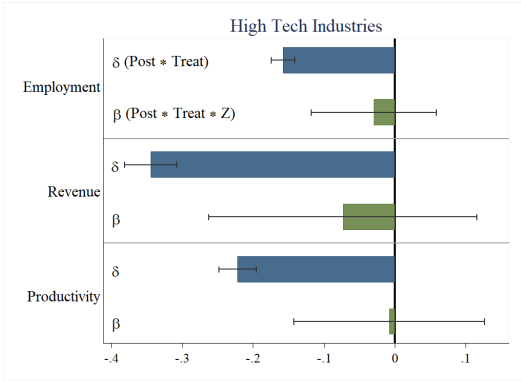
Losing KP and High HC Member Results in Larger Negative Effect

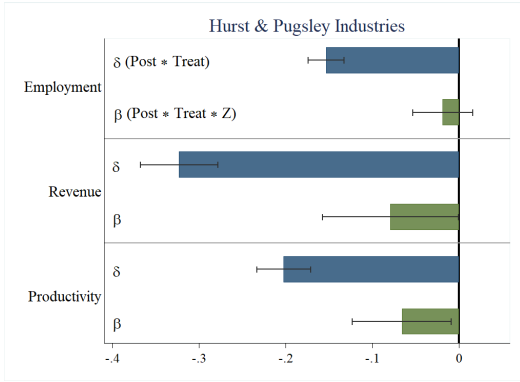




- Non-KP and the average HC also yield nontrivial, negative and persistent effect

No Particularly Larger Effect in High Tech or in Small Business Sector





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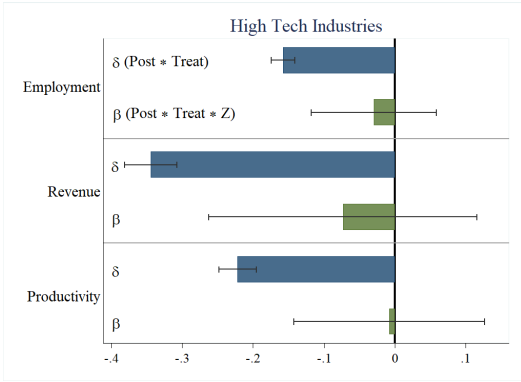

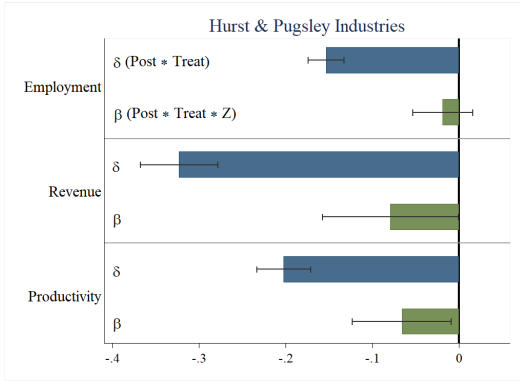

- Quantitatively similar (slightly larger) effects found for High Tech or Hurst & Pugsley industries only sample

Discussion

- Results consistent with organizational capital embodied in FT
- Alternative Mechanisms?
  - Loss of valuable worker always matters? Jager and Heining (2019) find that workers are largely replaceable.
  - Emotional distress? Effects are persistent and vary by KP/earnings.

Taking a Step Back

- Young firms critical for job creation, innovation and productivity growth
- Enormous post-entry dispersion and skewness
- Declining startups incuding high growth firms.
- Understanding dispersion, skewness and declining startups open questions.
- Current paper highlights role of founding team.