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

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Up or Out Dynamics for Young Firms

Source: Decker, Haltiwanger, Jarmin and Miranda (2014)
Median Surviving Firm Exhibits Zero Growth

Source: Decker, Haltiwanger, Jarmin and Miranda (2014)
High Average Growth of Young Firms Driven by Skewness

Source: Decker, Haltiwanger, Jarmin and Miranda (2014)
Declining Contribution of Young Firms Especially Post 2000

Young: Age $\leq$ 5. Source: LBD + BED
Declining Skewness in High Tech Post 2000

Source: Decker, Haltiwanger, Jarmin and Miranda (2016)
Declining Skewness in High Tech Driven by Young Firms

Young: Age \leq 5. Source: Decker, Haltiwanger, Jarmin and Miranda (2016)
Young Businesses Subject to Intense Selection on Productivity

Marginal Effect of Productivity Shock on Growth and Survival by Firm Age

Young: Age $\leq 5$ Source: Decker, Haltiwanger, Jarmin and Miranda (2019)
What accounts for this variation? Founders?
Founding Team May Be Important

- Founders/founding team generate organizational capital at firm formation

▶ 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)
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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.

- Proxy for human capital as prior earnings (contains skill, experience, tenure, etc.)
- 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
  - The vast majority of active owners likely included in KP (Nelson, 2016; Azoulay et al., 2018); KP likely includes non-owners with key leadership positions

- 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
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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)
  - 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
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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
Making Causal Inference

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- **CONTROL:** Coarsened exact matching strategy to find control firms
  - Matching on startup cohort, industry, state, number and average age of active FT members in quarter of death shock
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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
Notes: Controlling for firm effects, firm age and industry-year effects. Hollow points $\rightarrow p > 0.05$. Reference group $t - 1$. 
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

\[ Y_{i,j,t} = \lambda \cdot POST_{i,t} + \delta \cdot POST_{i,t} \times TREAT_i \]

\[ + \alpha_i + \tau_{j,t} + \epsilon_{i,j,t} \]

- \( POST_{i,t} = 1 \) if \( t \geq \) death shock year
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\[ Y_{i,j,t} = \lambda \cdot POST_{i,t} + \delta \cdot POST_{i,t} \times TREAT_i \]
\[ + \beta \cdot POST_{i,t} \times TREAT_i \times Z_i \]
\[ + \eta \cdot POST_{i,t} \times Z_i + \alpha_i + \tau_{j,t} + \epsilon_{i,j,t} \]

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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

![Graphs showing effect sizes for High Tech and Hurst & Pugsley industries](image-url)
No Particularly Larger Effect in High Tech or in Small Business Sector

- 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?
  - 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 including high growth firms.
- Understanding dispersion, skewness and declining startups open questions.
- Current paper highlights role of founding team.