

# Entrepreneurship and the U.S. Economy

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Federal Reserve Board

Without implication, this presentation draws heavily on joint work with Keith Barnatchez, Leland Crane, Mark Curtis, John Haltiwanger, Ron Jarmin, Meagan McCollum, Javier Miranda, and Greg Upton.

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What role do entrepreneurs play  
in the U.S. economy?

# What role do entrepreneurs play in the U.S. economy?

“A vigorous small business sector is essential to a productive and competitive economy. . . . Most of the new jobs actually created are in small private enterprises.” – Ronald Reagan

“We just know that small business is creating most of the new jobs in this economy” – Bill Clinton

“The small business entrepreneurs are some of the great innovators in our nation.” – George W. Bush

“Entrepreneurship remains the engine of growth.” – Barack Obama



**Donald J. Trump**   
@realDonaldTrump

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Small business owners are the DREAMERS & INNOVATORS who are powering us into the future!

# What role do entrepreneurs play in the U.S. economy

## MIT Technology Review

though, the U.S. economy needs more startups that make the leap to high-growth success, both because of the key role they play in creating new jobs and because of the way they help propel technological innovation. A 2010 study, for instance, found that incumbents tended to



Steve Case @SteveCase · Sep 15

America's future depends on innovation. So why aren't the candidates talking about the startup economy?



ss sector is es  
. Most of the  
ses." – Ronald

ll business is creating most of the new jobs in  
ton

repreneurs are some of the great innovators



Marc Andreessen Retweeted



Greg Sands @gsands · Sep 13

38% of jobs. Thirty eight percent. #InnovationEconomy in US is beautiful and precious thing.

Yes the entrepreneurial ecosystem that VCs have the privilege to help fund goes well above its weight in terms of impact on the U.S. economy. According to a study conducted at the Stanford Graduate School of Business, 43% of U.S. public companies founded since 1979 were funded by venture capital. These companies now comprise 38% of all employees, 57% of the total U.S. market capitalization, and account for 62% of all R&D spend — a pretty far better innovation growth

Marc Andreessen @pmarca

Impact of Venture Capital on the American economy over the last 35 years. [a16z.com/2016/09/11/vc-...](http://a16z.com/2016/09/11/vc-...)

essen



Following

@Noahpinion But in that case, of should be even more optimistic s, where all the innovation will



as into the



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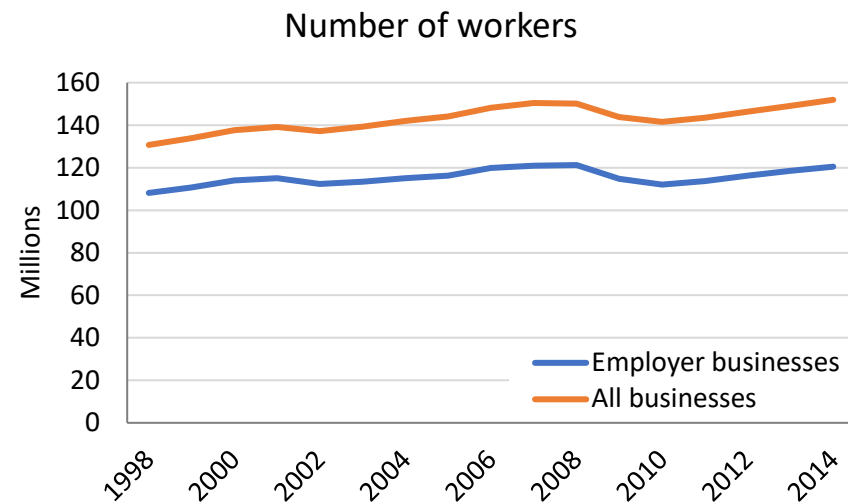
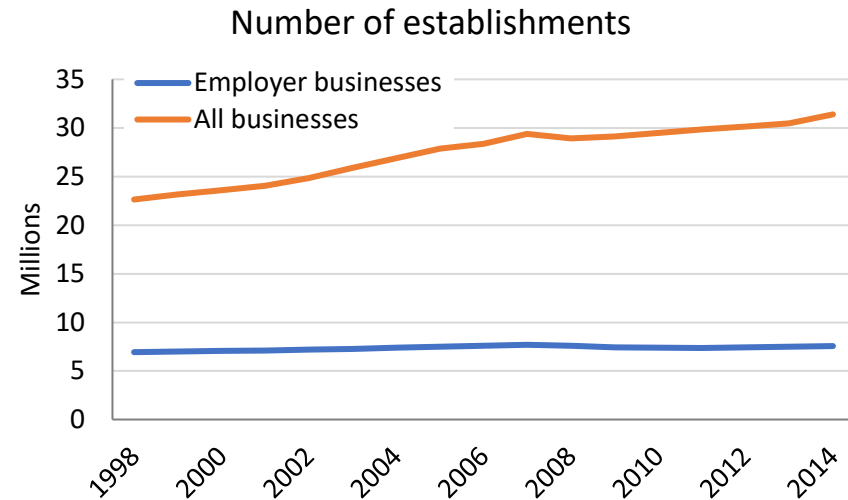
# Four facts about entrepreneurship

1. *Young* firms, not *small* firms, are the key to job (and productivity) growth
2. Many young firms fail, yet each cohort makes long-lasting contributions to U.S. employment
3. Young firms face intense *selection* and are more sensitive to their environment
4. Young-firm activity—particularly *high-growth* young firm activity—has been declining in the U.S.

.... And we don't know why

# Quick aside: Employer businesses

- Most businesses are *nonemployers*
  - Includes Uber drivers, Etsy shops, freelancers, and also various holding companies
- Most activity (workers, revenue) is from *employers*
- **Today: focus on *employer* businesses**



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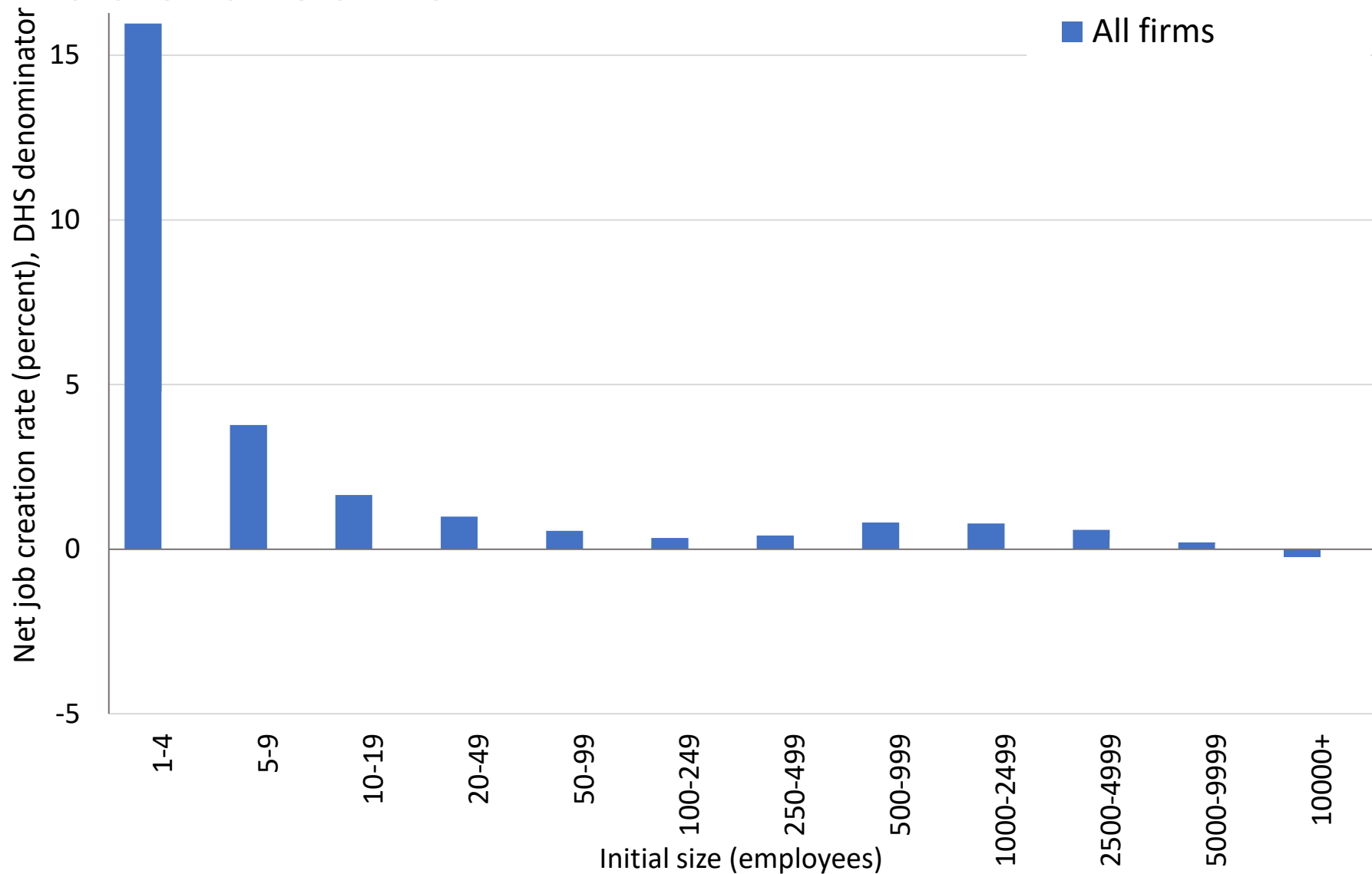


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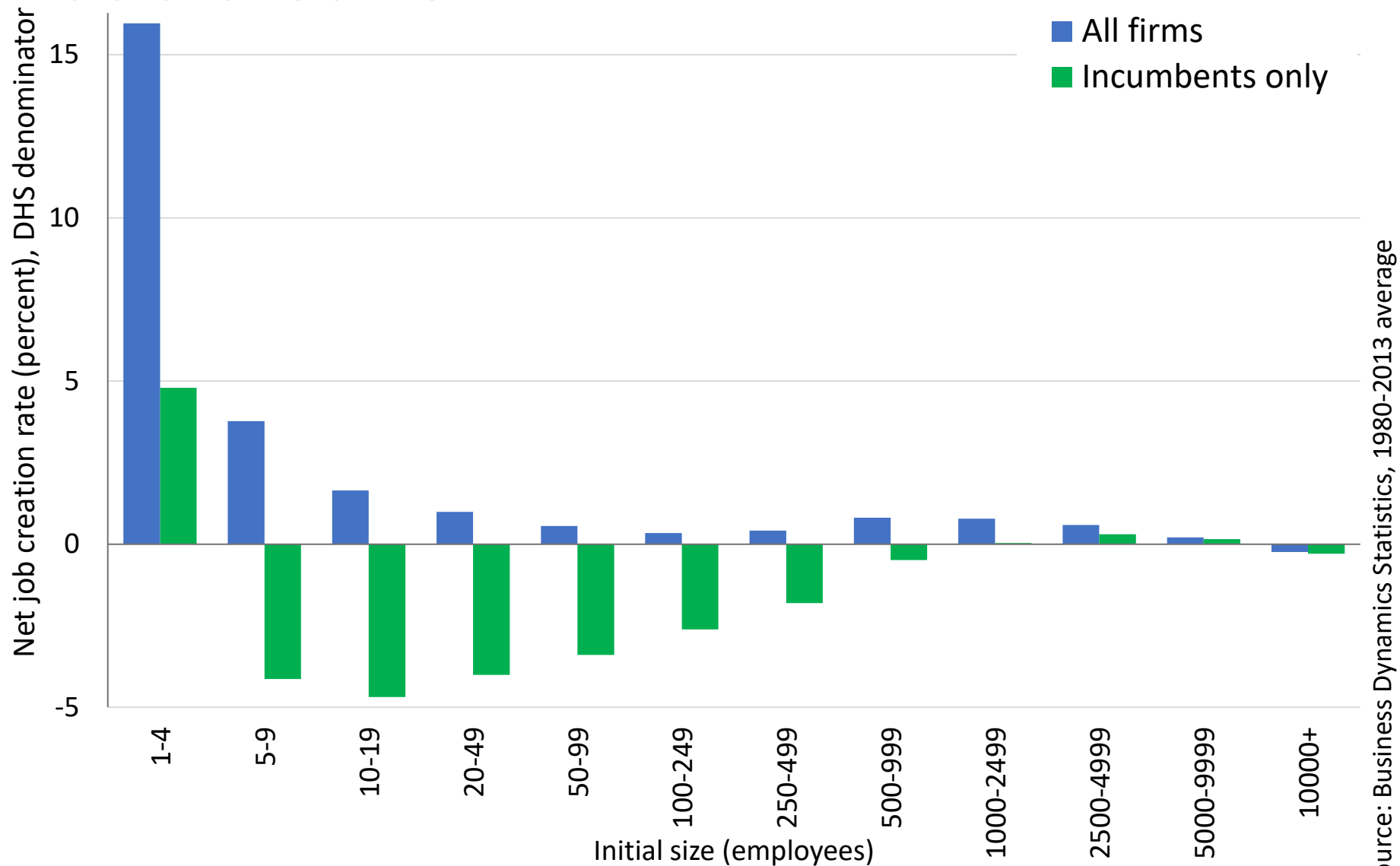
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# Job creation



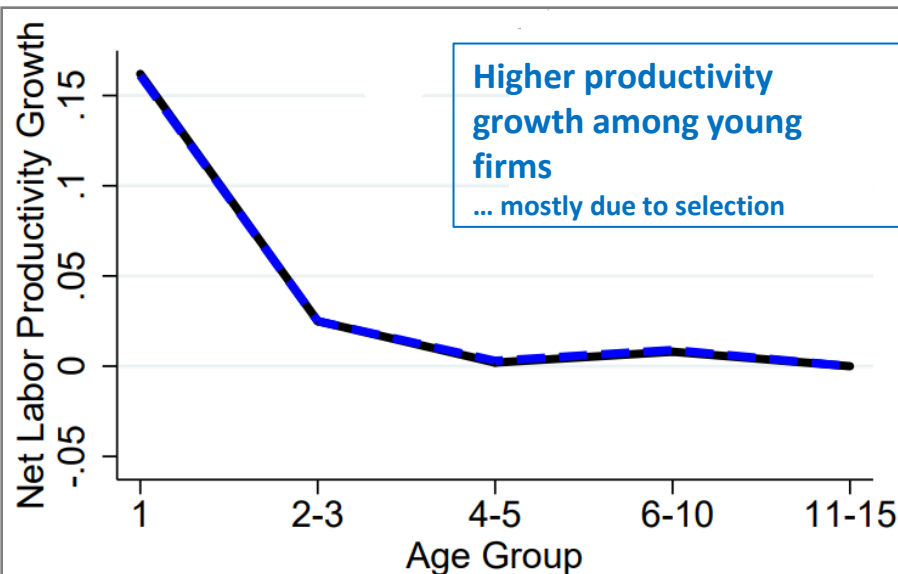
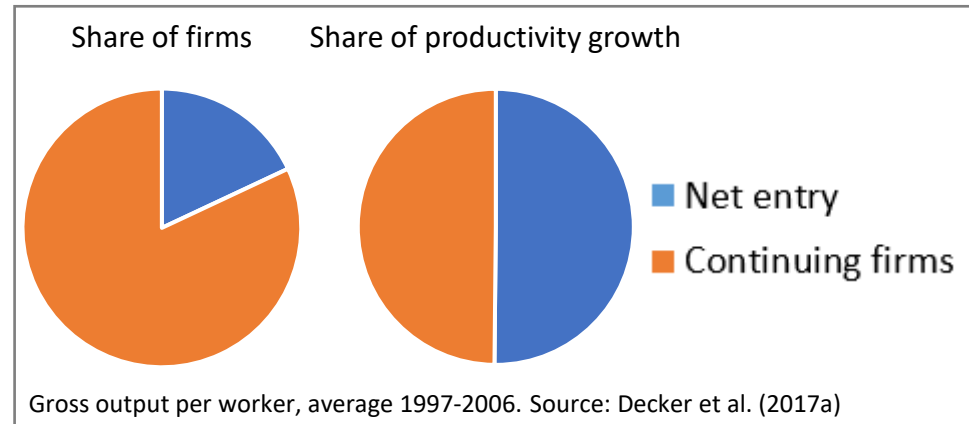
Source: Business Dynamics Statistics, 1980-2013 average

# Job creation

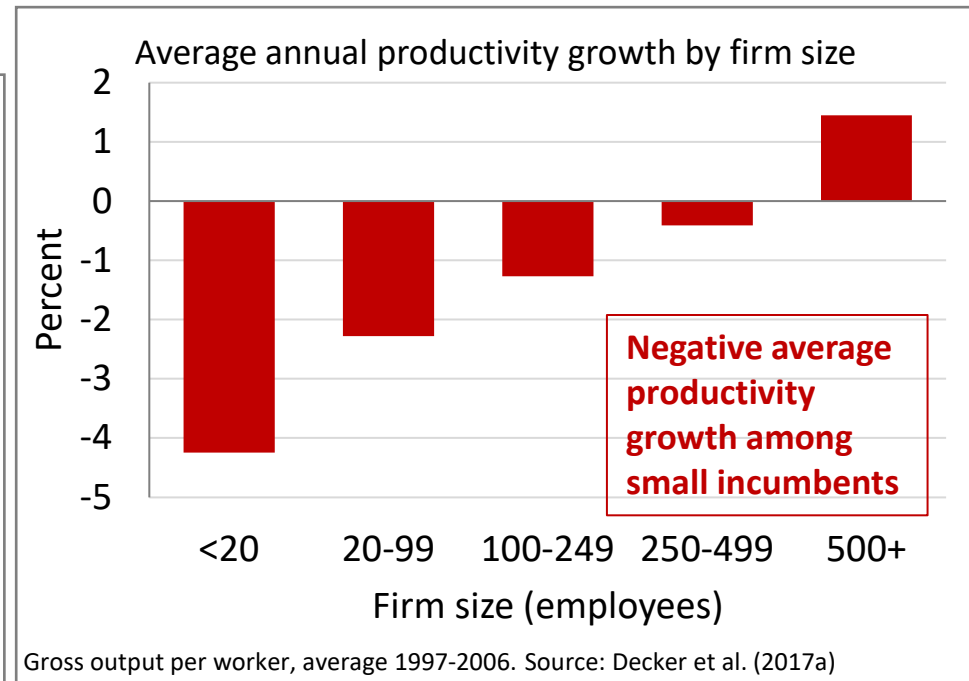


# Productivity growth

Net entry of new firms accounts for disproportionate share of annual U.S. productivity growth



Gross output per worker, 1996-2012. Source: Alon et al. (2017)



Gross output per worker, average 1997-2006. Source: Decker et al. (2017a)

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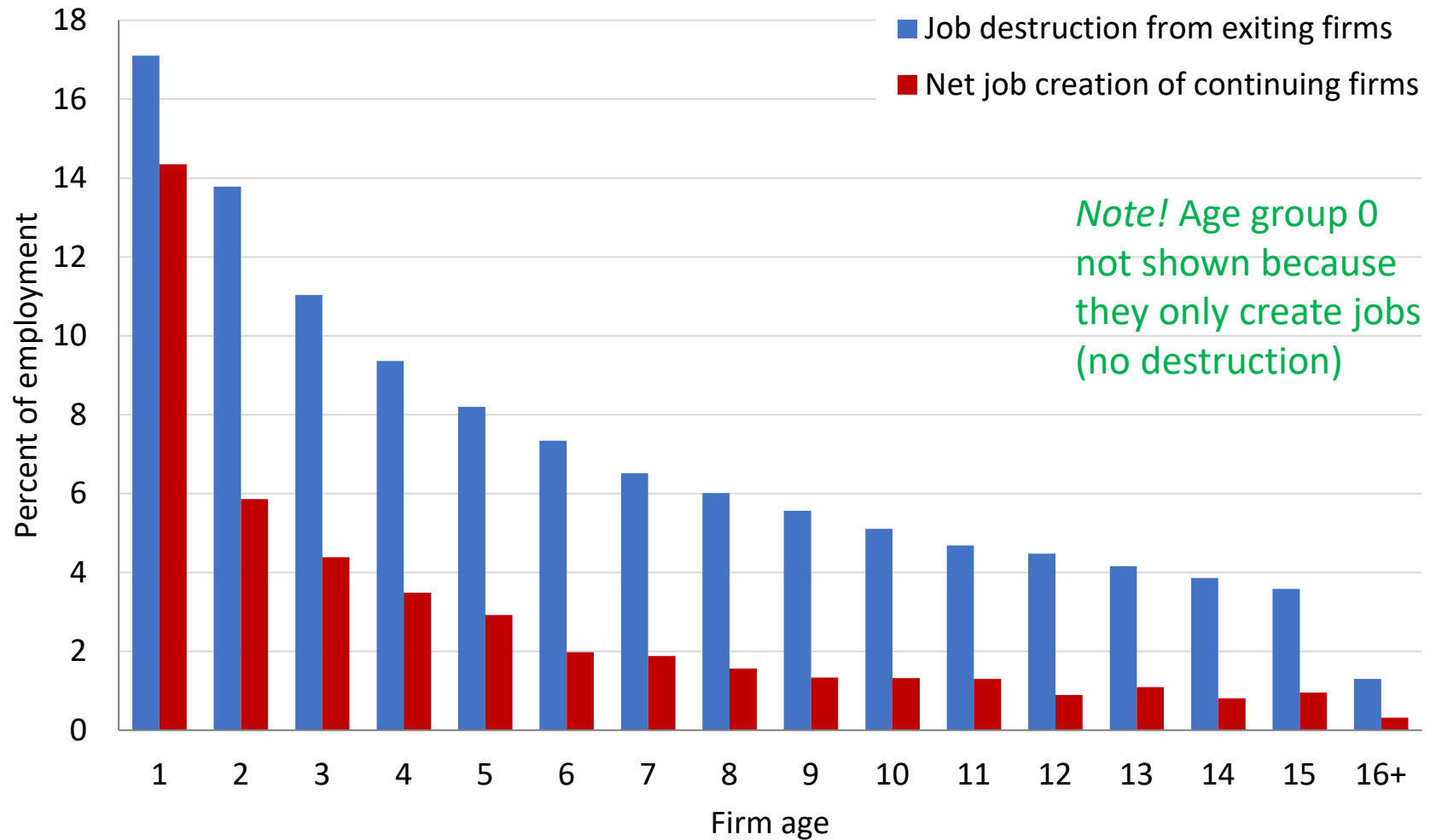
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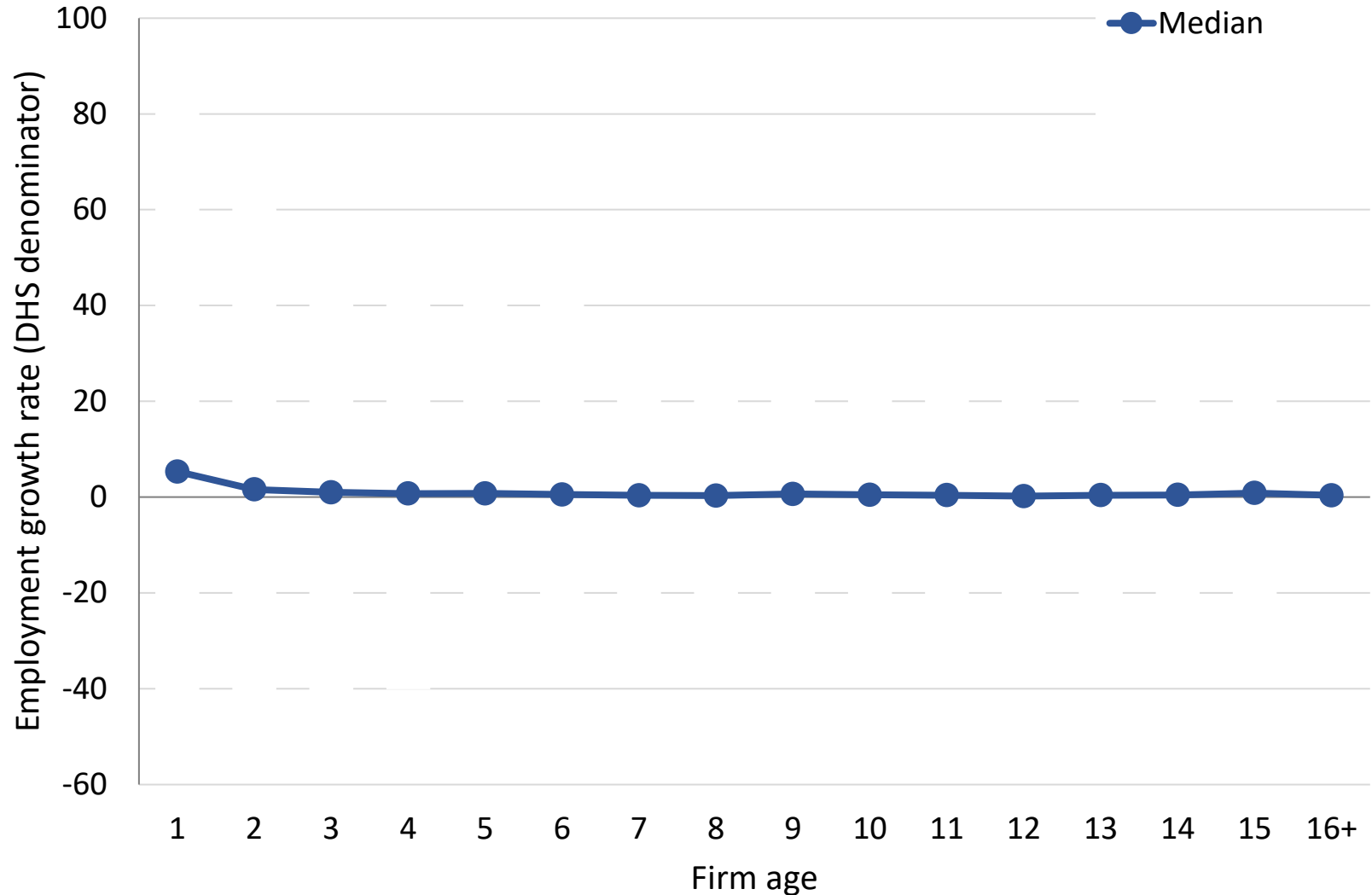
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# Up or out!



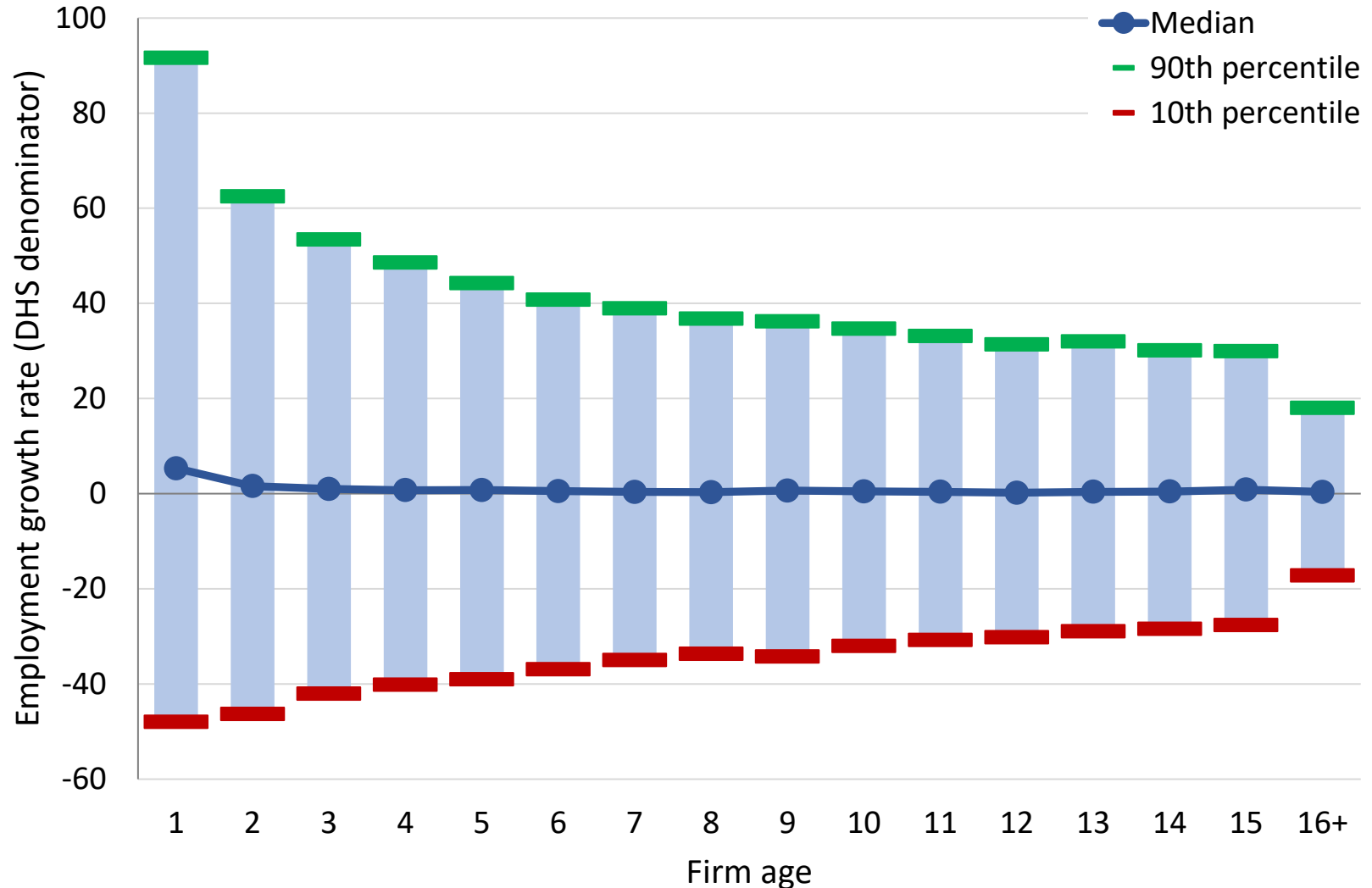
# A view of the skew



Source: Decker et al. (2014). Employment-weighted distributions.



# A view of the skew



Source: Decker et al. (2014). Employment-weighted distributions.

# Creation and destruction

- New entrants create jobs (15-20 percent of gross job creation)
- Many young firms exit shortly after entry
- Yet each cohort of new firms has a few firms that grow *really fast* for ~5 years
  - And most high-growth firms are young (*Haltiwanger, Jarmin, and Miranda 2013*)
- After 5 years, **80 percent** of a cohort's initial job creation remains (*Decker et al. 2014*)

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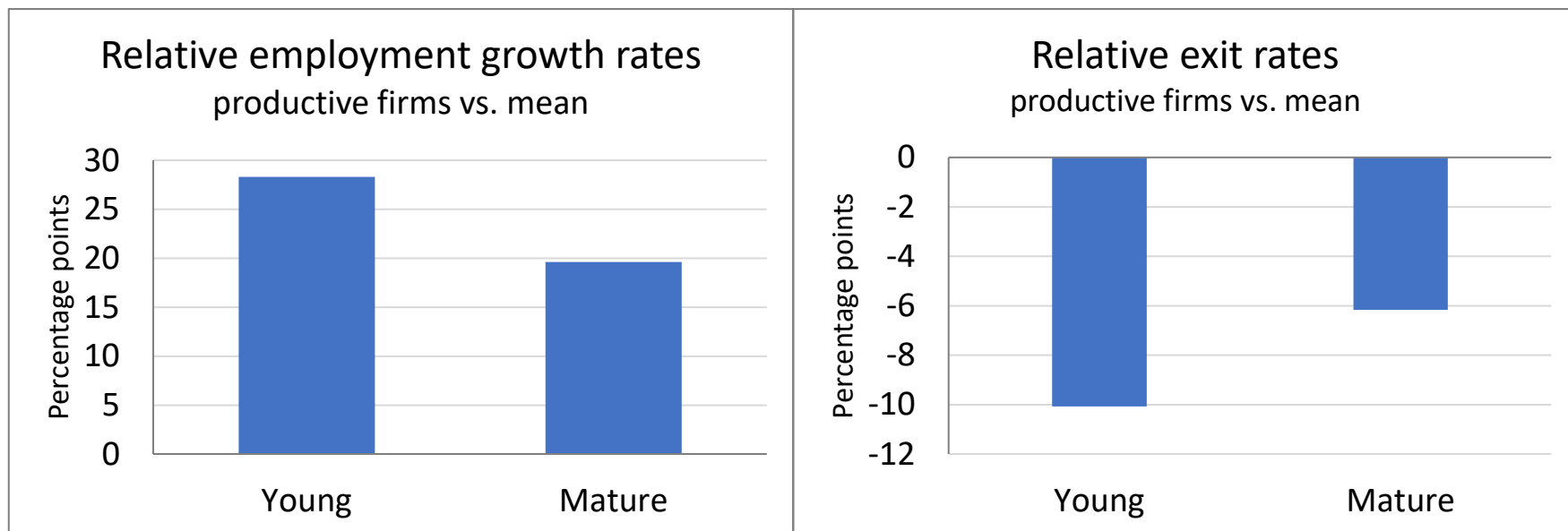
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# Selection and growth

- In well-functioning market economies:
  - Productive businesses should grow
  - Unproductive businesses should downsize or exit
  - This is important for growth in living standards!
- This productivity-determined growth is a form of *selection*
- This is the theory; does it happen in real life?
  - Measure productivity of individual firms relative to their industry
  - Compare (employment) growth rates and exit rates across (relative) productivity levels
  - Do productive firms grow? Do unproductive firms downsize or exit?

# Selection by firm age

- Compare firm with productivity **1 standard deviation above mean** for its industry to firm at industry mean
  - For labor productivity, the above-the-mean firm is **2.5x** as productive as the mean

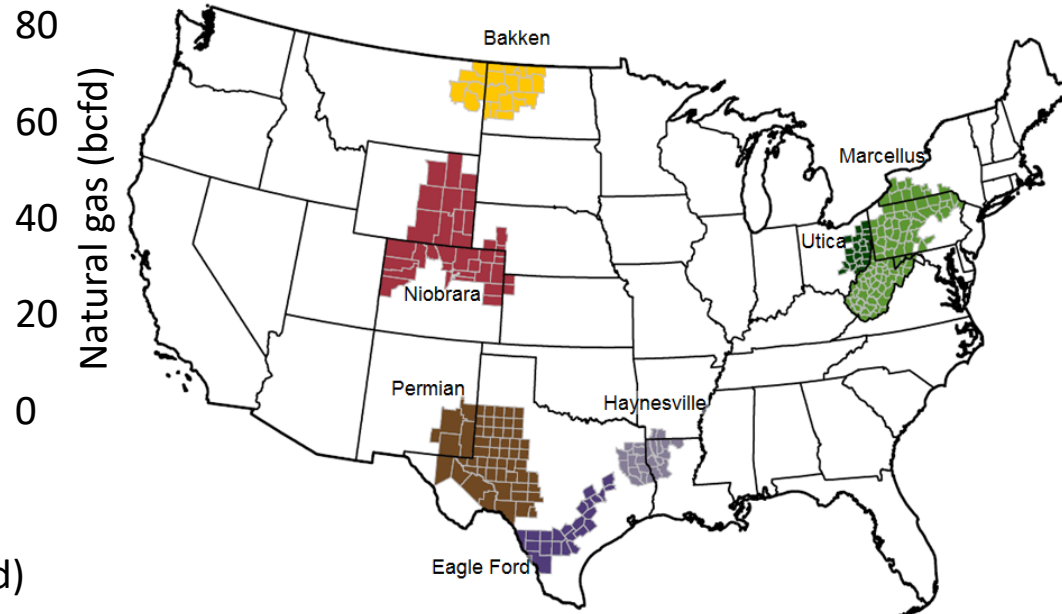
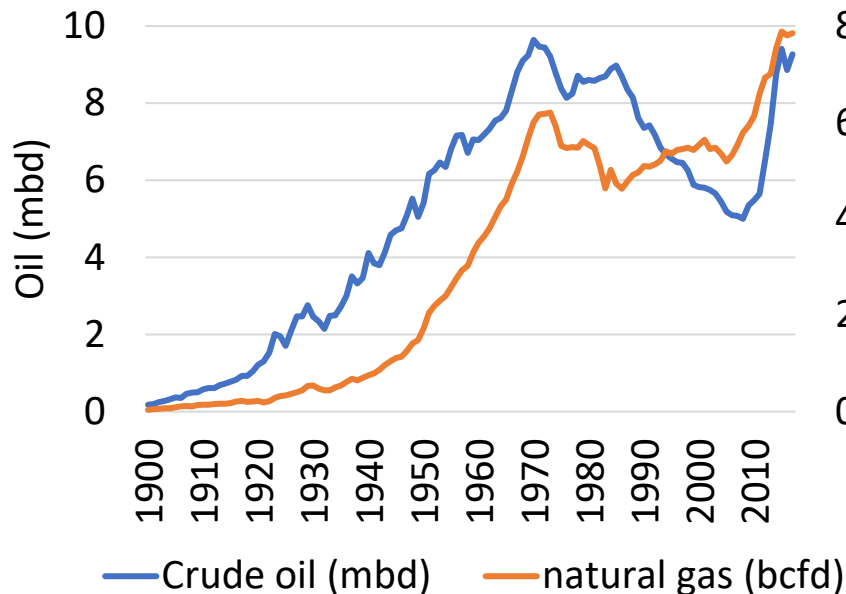


Young firms have age less than 5. Gross output per worker. Coefficients controlling for business cycle and firm size. 1996-2013. Source: Decker et al. (2018)

# Case study: U.S. shale boom

- In mid-2000s, innovations in oil/gas extraction technology (“fracking”) led to large economic expansions in certain areas

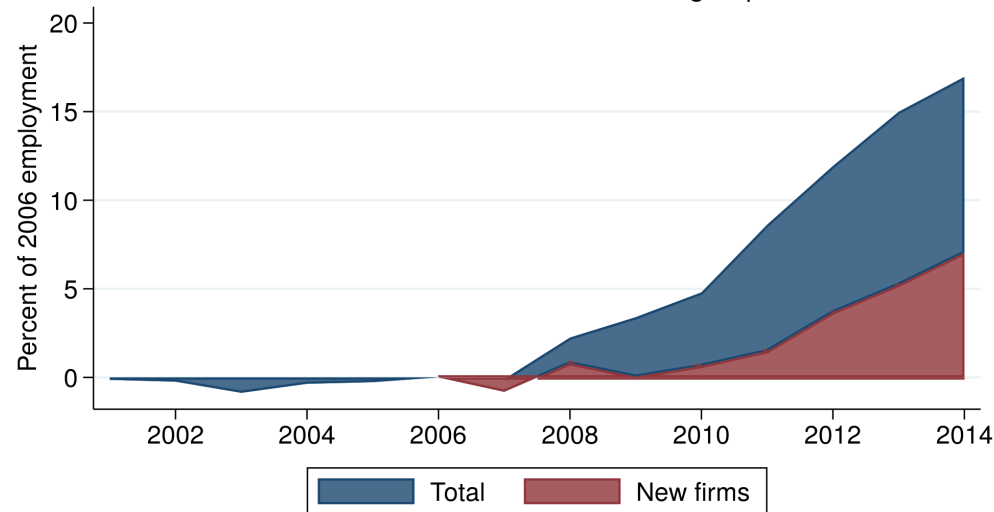
U.S. oil and natural gas production



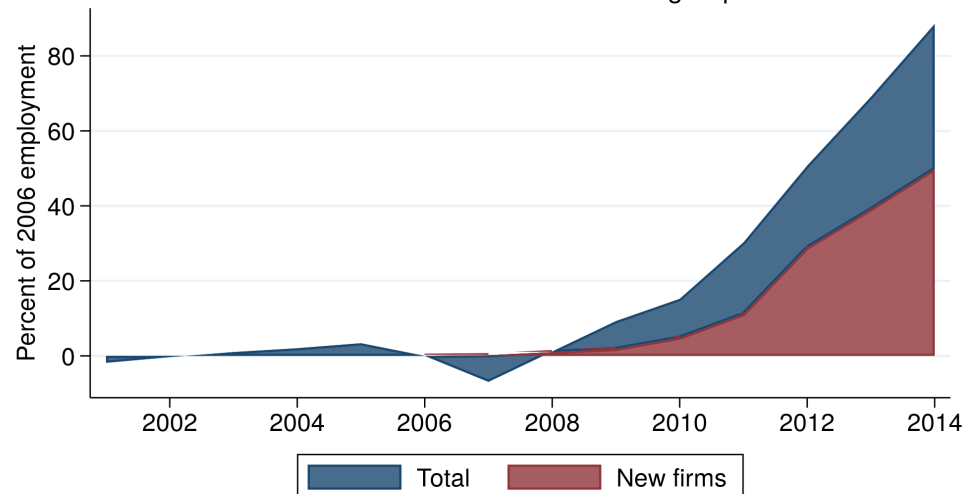
# Case study: U.S. shale boom

- Compare employment growth in affected vs. comparable unaffected counties
- Total cumulative employment rises **17 percent** on average
- New firm accounts for **one third** of total
  - Biggest contribution in Bakken, Eagle Ford (also had biggest aggregate gains)

Cumulative employment growth: All regions  
Shale counties versus control group



Cumulative employment growth: Bakken  
Shale counties versus control group

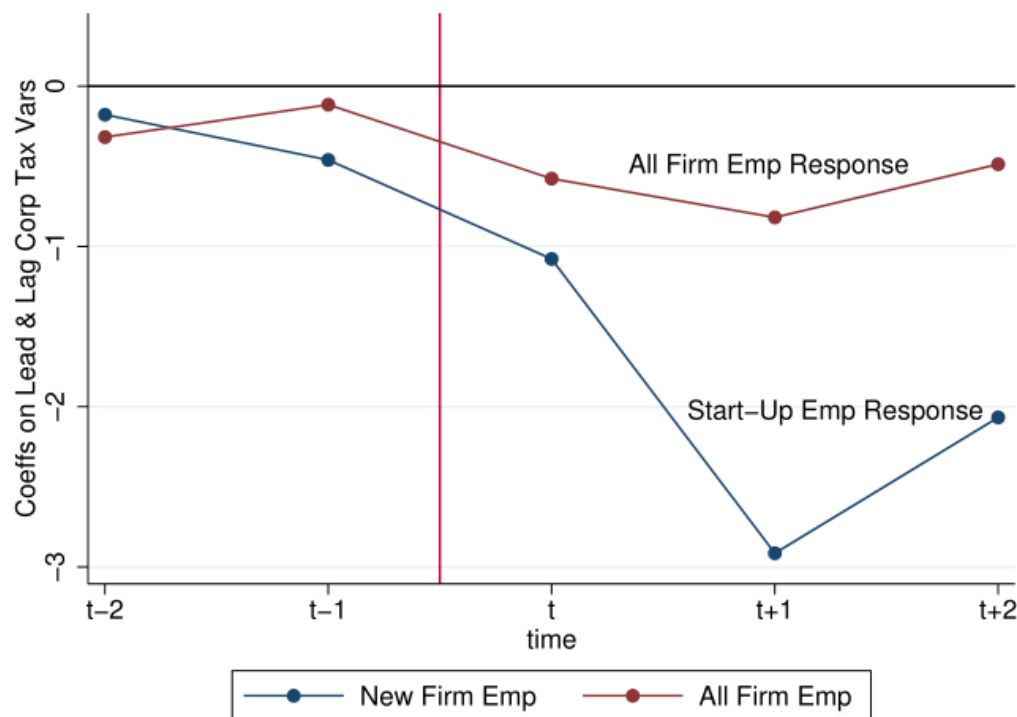


Employment scaled by 2006 county employment. Shale counties defined by Energy Information Administration. Regression compares shale counties to propensity-matched control counties with year effects. New firms are firms born after 2006.  
Decker, McCollum, & Upton (2017) calculations from LBD.



# Young firms and policy

- Much evidence that young firms are particularly sensitive to certain policies
- Example: state corporate tax rate changes



# Young firms over boom and bust

- New firms (age 0-1) account for **90 percent** of the response of local labor markets to local economic shocks (*Adelino, Ma, & Robinson 2017, Bartik instrument*)
- Young firms (age 0-5) respond more to state business cycle and housing shocks (*Fort et al. 2013, panel VARs*)
  - Example: in CA, differential growth rate of young/small vs mature/large firms fell **6 percentage points** during Great Recession

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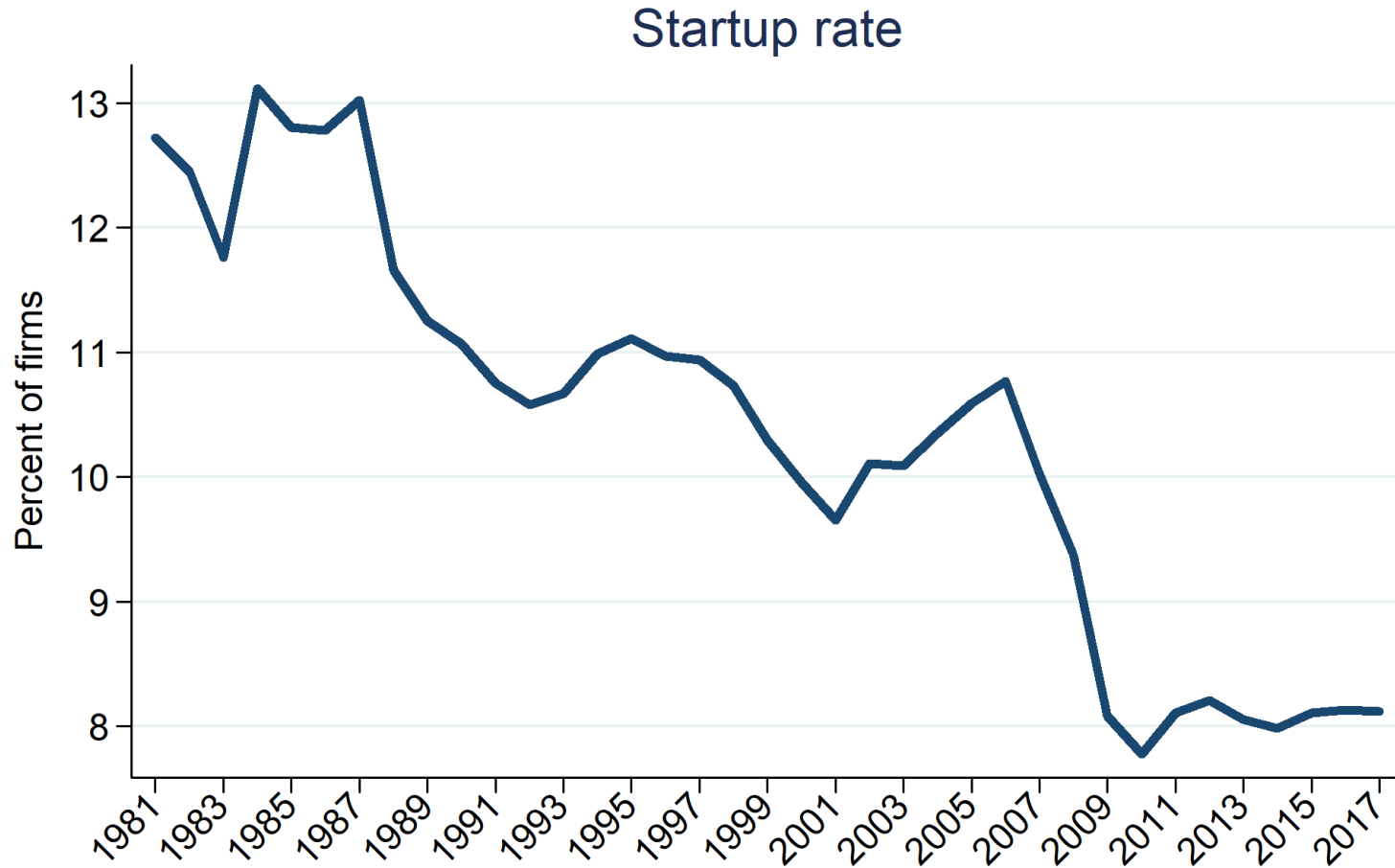
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# Declining entrepreneurship



Y axis does not start at zero. Age 0 employer firms as a share of all firms.

Source: Census Bureau Business Dynamics Statistics (1981-2015).

Data for 2016-2017 are author estimates based on BLS Business Employment Dynamics.

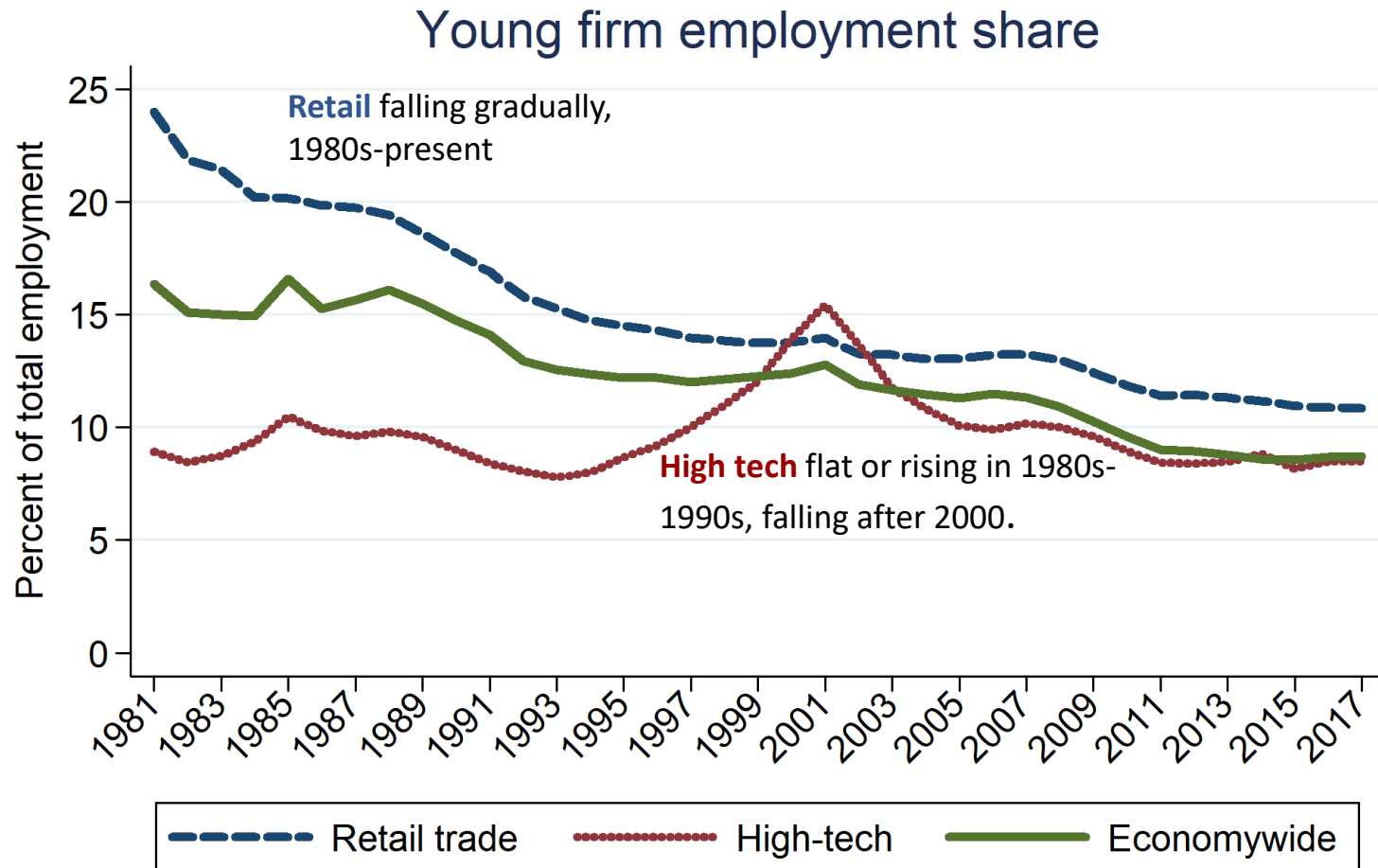
# But what kind of entrepreneurs?

- Most entrepreneurs have no growth or transformational intentions (*Hurst & Pugsley 2012*)
  - But a few new firms grow rapidly, hire, create new products, and change industries
- Fewer mom 'n' pop/lifestyle entrepreneurs may be benign for job growth and productivity
- Fewer transformational/high-growth entrepreneurs may be concerning
- Two ways to ask the question
  - Differences across industries
  - Growth outcomes

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# Entrepreneurship by industry



Young firms have age less than 5. High-tech defined as in Hecker (2005).  
Source: Decker et al. (2018) LBD tabulations (1981-2013).  
Data for 2014-2017 are author estimates based on BLS Business Employment Dynamics.



# A tale of two sectors

- Retail trade:
  - Historically characterized by high rates of entrepreneurship (mom 'n' pop retail) and slow growth
  - Rise of 'big box' retail in 1980s-1990s likely crowded out small retailers
  - Evidence suggests retail consolidation boosted productivity and living standards on net (*Foster et al. 2006, Basker 2007, Cardiff-Hicks et al. 2015*)
- High tech/information
  - Historically characterized by innovative, fast-growing businesses
  - Key driver of 1990s U.S. productivity growth (*Fernald 2014*)

# But what kind of entrepreneurs?

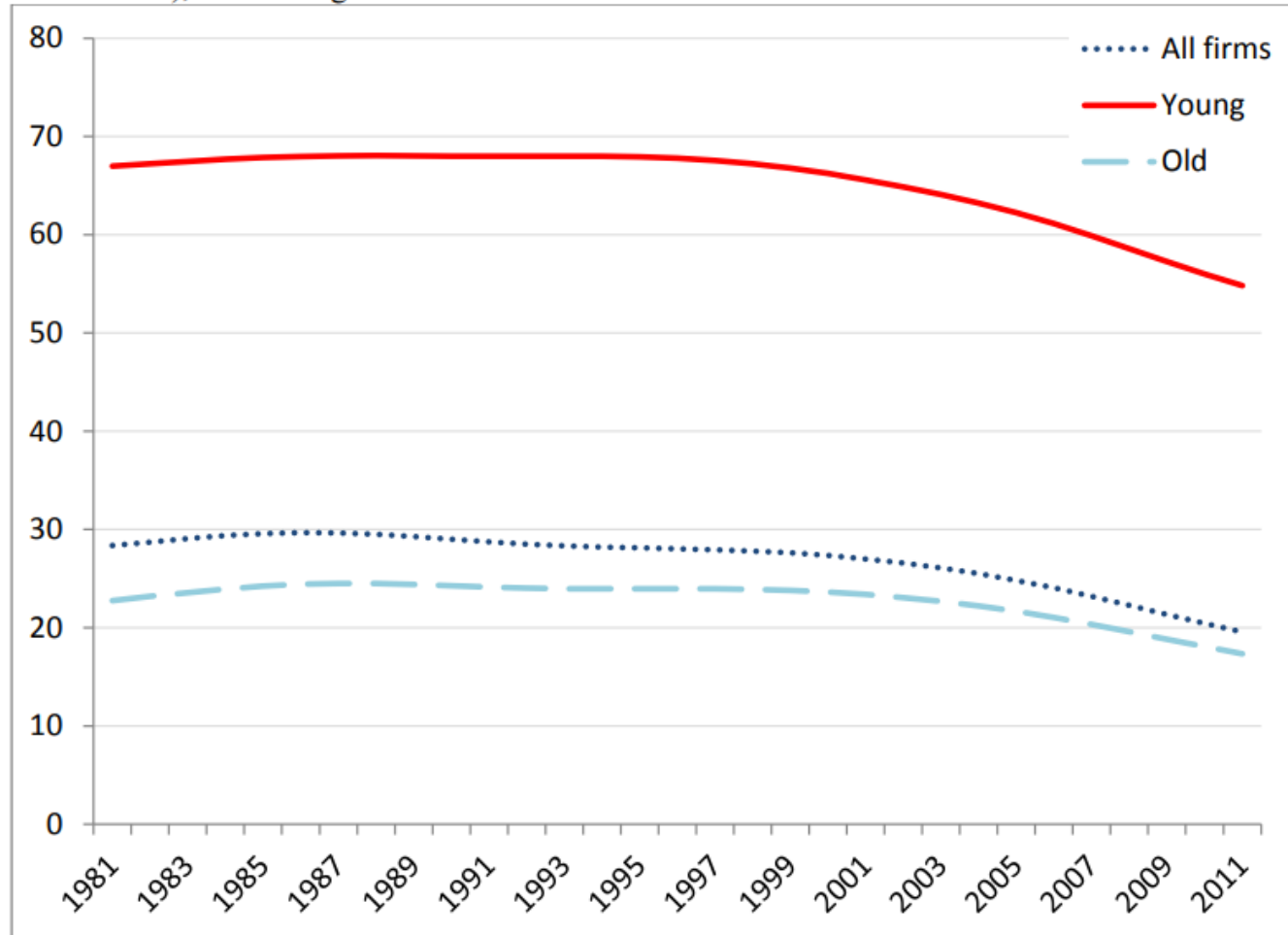
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# High-growth young firms

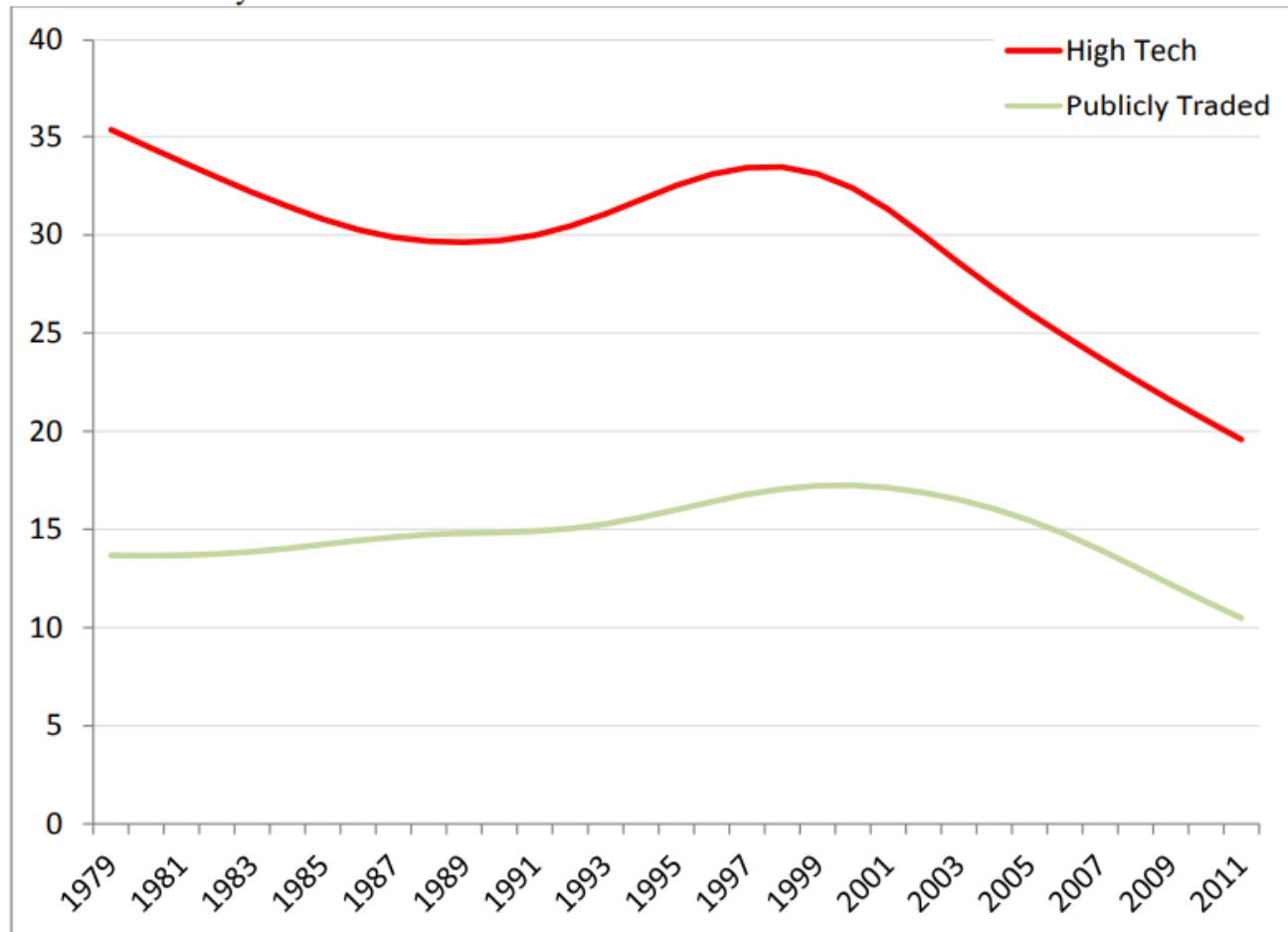
Figure 10. High-Growth Firms by Firm Age (90th Percentile of Employment-weighted Distribution), Continuing Firms



Note: The 90th percentile is based on the employment-weighted distribution of firm employment growth rates. Data are HP trends using parameter set to 100. Data include continuers only. Author calculations from the Longitudinal Business Database. See Figure A.5 in the web appendix for non-filtered data.

# High growth in tech

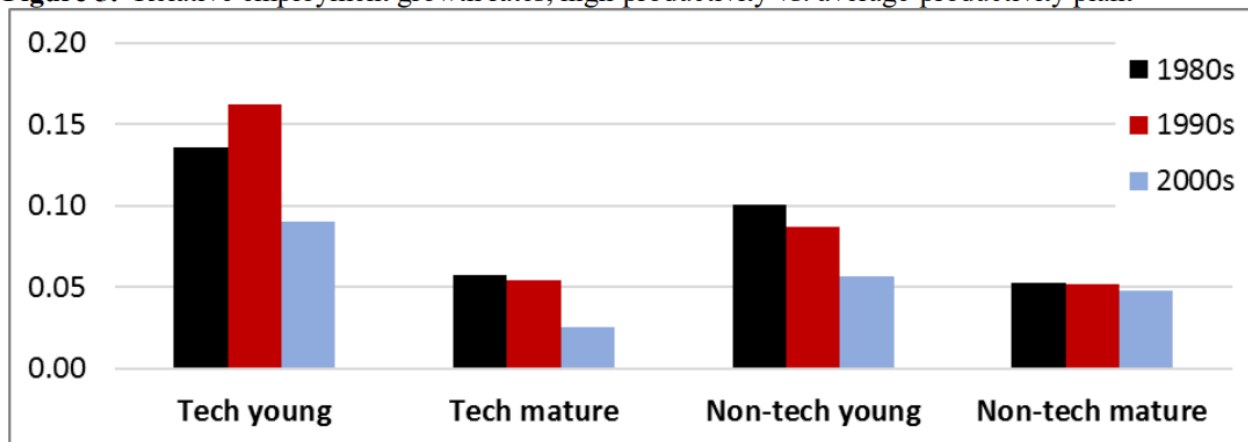
Figure 14: High-Growth Firms (90th Percentile of Employment-weighted Distribution), High Tech and Publicly Traded



Note: The 90th percentile is based on the employment-weighted distribution of firm employment growth rates. Data are HP trends using parameter set to 100. High tech is defined as in Hecker (2005) (see Table A.1 in the web appendix). Data include all firms (new entrants, continuers, and exiters). Author calculations from Compustat and the Longitudinal Business Database. See Figure A.9 in the web appendix for unfiltered data.

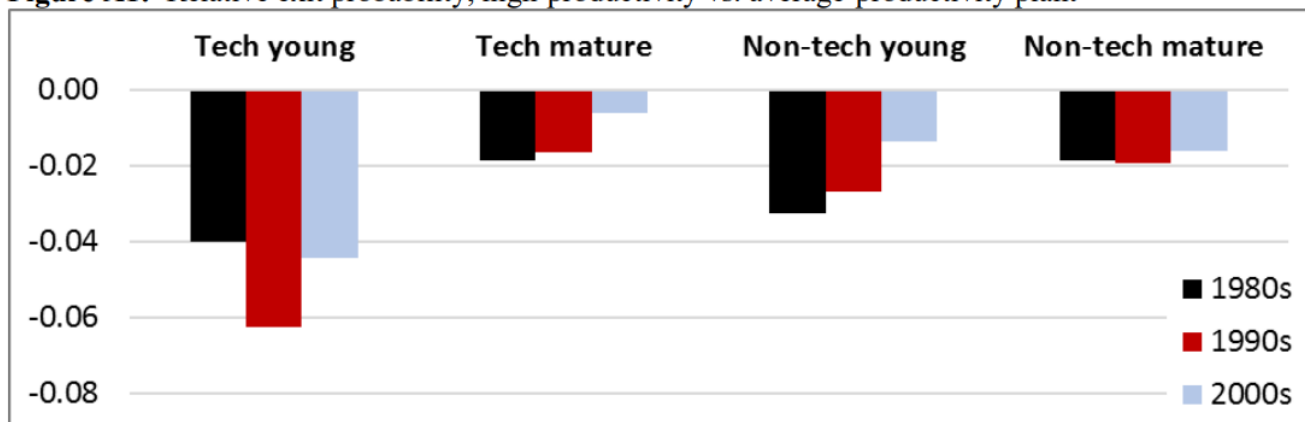
# Productivity “responsiveness”

**Figure 5:** Relative employment growth rates, high-productivity vs. average-productivity plant



Note: Young firms have age less than 5. High tech is defined as in Hecker (2005). Growth rate of plant with TFP one std. dev. above industry mean vs. industry mean. Author calculations from the LBD, the ASM, and the CM.

**Figure A1:** Relative exit probability, high-productivity vs. average-productivity plant



Note: Young firms have age less than 5. High tech is defined as in Hecker (2005). Exit probability of plant with TFP one std. dev. above industry mean vs. industry mean. Author calculations from the Longitudinal Business Database, the Annual Survey of Manufacturers, and the Census of Manufacturers.

# What we know about declining entrepreneurship

- Before 2000:
  - Concentrated in sectors like retail trade, likely productivity enhancing
  - Other evidence: some role for demographics (*Karahan, Pugsley, & Sahin 2016*)
- Since 2000
  - Startup decline seen in high tech, information
  - Decline in high-growth outcomes
    - Employment (*Decker et al. 2016b*)
    - Revenue (*Decker et al. 2016a*)
    - IPOs (*Gao, Ritter, & Zhu 2013*)
    - High-end private acquisitions relative to potential (*Guzman & Stern 2016*)
  - Sluggish ‘responsiveness’, weaker selection

# Potential explanations, post-2000

- Regulations? Occupational licensing, unlawful discharge rules, land use provisions, scope of intellectual property protections, etc.
  - Need not affect entry directly – rules affecting incumbents affect entry incentives indirectly
- Financial constraints?
- Increased prevalence of “winner-take-all” business models/industries?
- Declining intensity of competition and rising market power of existing businesses?
  - Weak antitrust enforcement?
  - “Rent-seeking” policies that protect incumbents



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Thanks

Extra slides

# Papers

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- Obama quote:  
<https://obamawhitehouse.archives.gov/the-press-office/2016/06/25/remarks-president-global-entrepreneurship-summit-and-conversation-mark>
- Clinton quote <https://skift.com/2013/06/15/the-1995-clinton-speech-that-should-have-changed-travel-industry-in-america-but-didnt/>