

Entrepreneurship over the life cycle: Where are the young entrepreneurs?

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

The facts, *PSID 1967-1996*

- Entrepreneurship is uncommon, and is rarely a career starter
 - Consistent with Azoulay et al. (2018): average age of high-growth entrepreneur >40
 - Yet: if learning by doing in entrepreneurship is strong, entreprs should start young!
- Incorporated entrepreneurship increases in education
 - Unincorporated doesn't
- Purpose: explain these (and related) facts using
 - Experience/skill accumulation
 - Risk aversion
 - Learning about ability
 - Entry costs

TABLE 1: First Entry

	Blue Collar	White Collar	Unincorporated	Incorporated
Ever	0.65	0.87	0.28	0.15
At First Entry				
Age	23.16	25.60	32.23	35.50

	All	Blue Collar	White Collar	Unincorporated	Incorporated	Unemployed
High School	0.28	0.50	0.10	0.22	0.13	0.52
Some College	0.28	0.35	0.22	0.29	0.24	0.23
College	0.21	0.10	0.30	0.21	0.29	0.08
Some Grad	0.23	0.05	0.39	0.27	0.34	0.17

The model: key equations and identification

- Occupational skill accumulation

$$x_{kt+1} = x_{kt} + d_{kt}$$

Experience/
skill in
occupation k

Choice to
work in k,
 $d_{kt} \in \{0,1\}$

- Occupation-specific income

$$y_{kt+1} = f_k(x_t; \theta) + \mu_k + \eta_{kt+1}$$

Income from
occupation k

Cross-
occupation
skill spillovers

Inherent
occupation-
specific ability

Shock

- Utility

$$u(c_t, \varepsilon_{kt}; \rho) = -\alpha_{kt}(h_t)e^{-\rho c_t - \varepsilon_{kt}}$$

α_{kt} : Occupational non-pecuniary flow (h_t = demog, lifetime wealth), including entry cost

ρ : risk aversion

Use data to identify:

- θ_k mapping occupation k experience to occ. k' income
- Distribution of μ_k (ability)
- $\sigma_{\eta_k}^2$ governing information updating
- ρ risk aversion
- α_k occupational utility flow

Data variation for identification:

- Correlation of income across occupations within individuals
- Occupational choices
- Education
- Income distribution
- Experience
- Demographics

Results

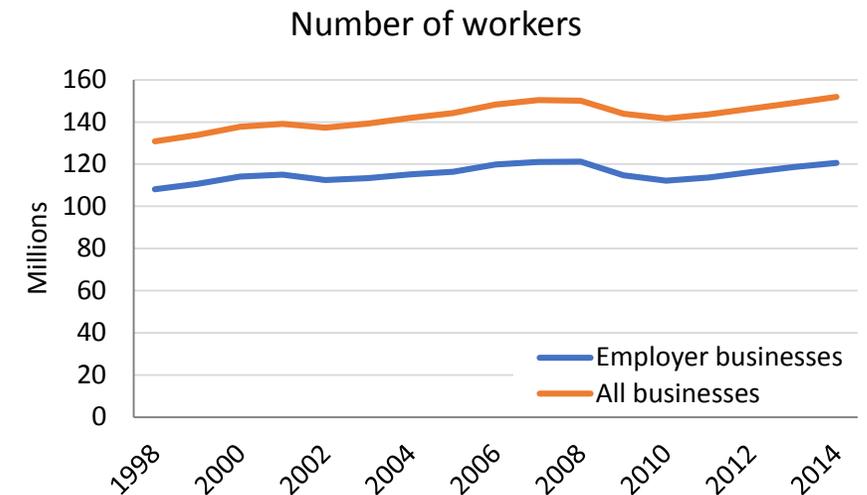
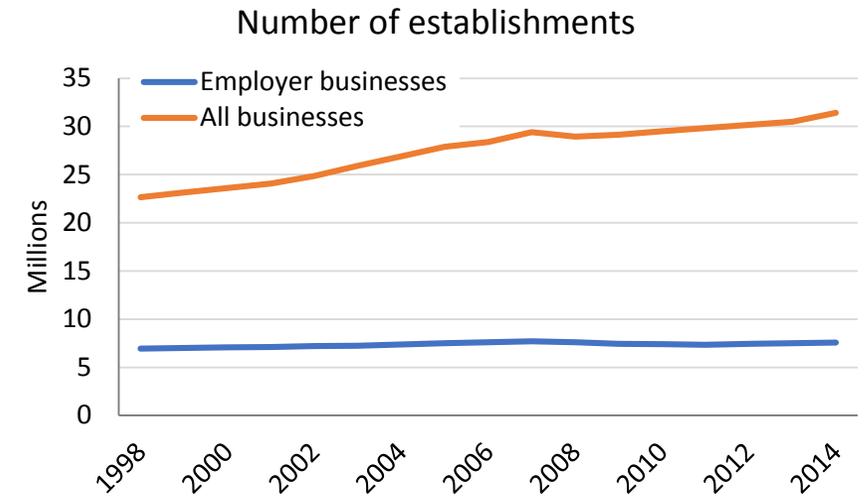
- Entrepreneurial ability varies more than paid-employment
 - So risk aversion is particularly salient
- Risk aversion weighs heavily on entrepreneurship
 - Eliminating income risk → entrepreneurship increases by 40%
- Difficulty discovering ability does too
 - Full ability information → entrepreneurship increases by 35%
- Entry costs (which are age dependent) and information frictions explain the age profile of entrepreneurship
 - Flat age profile of entry costs reduces age gap by 70%
 - Full information reduces age gap by 20%
- Policies with high payoffs:
 - Subsidize *young* entrepreneurs
 - “Entrepreneurship education”
- Interesting side results
 - Cross-occupation skill correlation: $\text{Corr}(\text{incorp}, \text{white collar}) > \text{corr}(\text{incorp}, \text{unincorp})$
 - Lots of movement from entrep back to wage/salary work

Discussion points

- Framing and application
- Residual questions
- Applying the model to other questions

Framing and application

- First-paragraph motivation: entrepreneurship as engine of innovation and growth (Schumpeter 1911)
- ... Yet productivity and job creation concentrated among just a few employer entrants (Guzman & Stern 2017; Decker et al. 2014; Alon et al. 2018)
- In particular, the nonemployer universe is HUGE (top) and also very small (bottom)
- This paper seems more about *occupational choice* than *entrepreneurship: engine of growth*
 - But the *model* could do both, with the right data



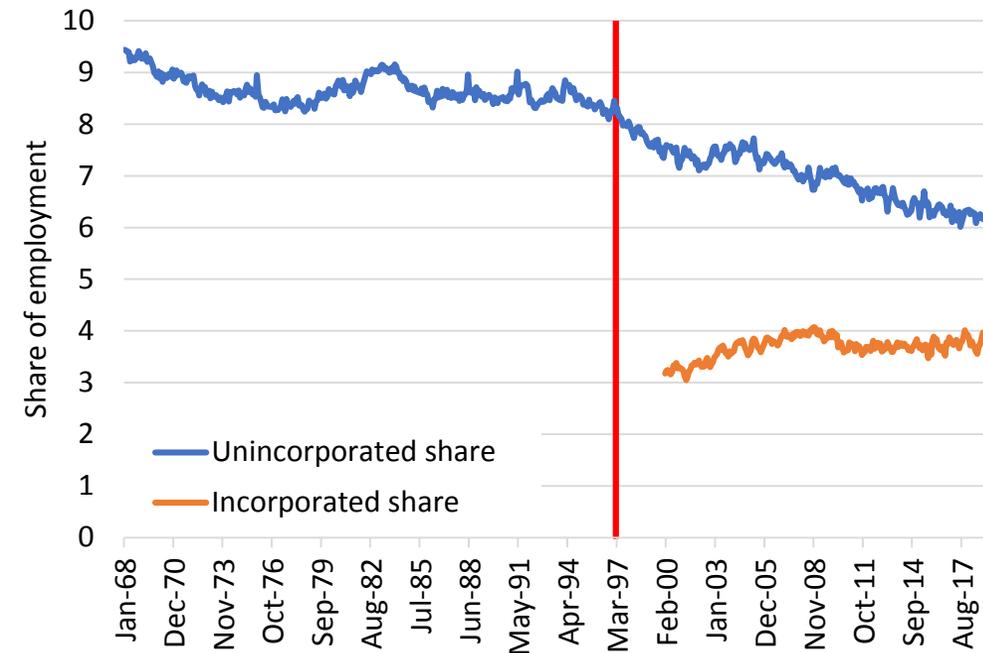
Source: County business patterns, Nonemployer Statistics

Residual questions

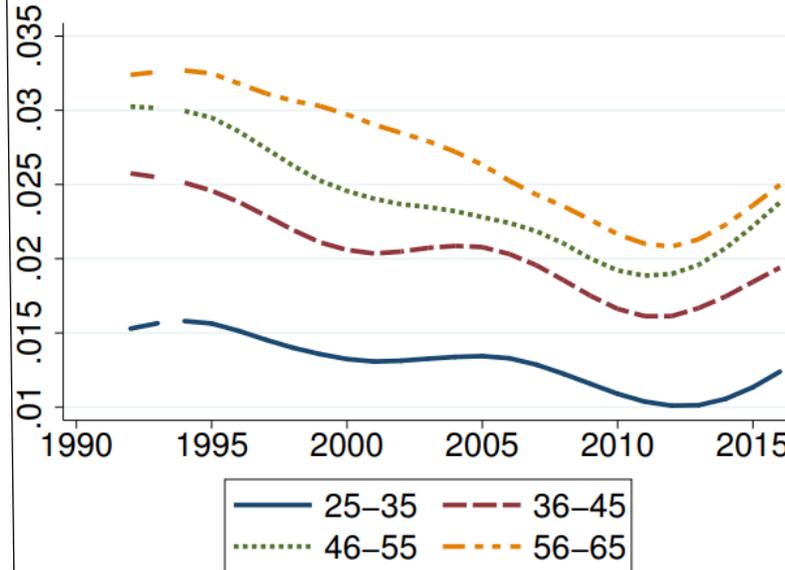
1. Incorporated entrepreneurship earnings are measured as labor income from the incorporated business
 - Likely an understatement of the value of owning the business
 - *How* understated? Is there a way to get an estimate? Or at least evaluate sensitivity
2. Wealth and financial frictions
 - Estimate of *permanent* wealth
 - α /entry cost may capture financial frictions. But can we do better?
 - And... more intuition for how the α 's are determined—what variation do they use?
3. No entrepreneurs of necessity or variation of labor market conditions
 - Opportunity cost (Choi 2017) and labor market alternatives (Poschke 2018)
 - If these exist in the data, how does the model pick them up and what parameters do they inform?
4. Certainty equivalent exercises are hard to follow, intuitively
5. What is “entrepreneurship education”
 - Must reveal information about *ability* – not teach people how to be entrepreneurs
6. Dare I ask... for more industry disaggregation for returns-to-experience estimates?

Can the model be used to study recent trends?

US self employment rates (CPS)

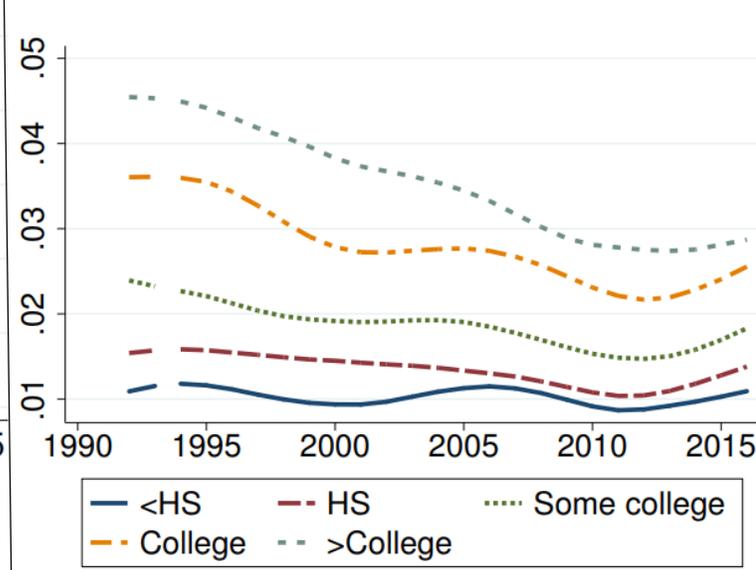


- Self employment rates began declining after PSID sample
 - (Maybe; Abraham et al. 2017; Jackson et al. 2017)
 - In CPS, appears among unincorporated only



(a) Entrepreneurship rate, 1992–2016

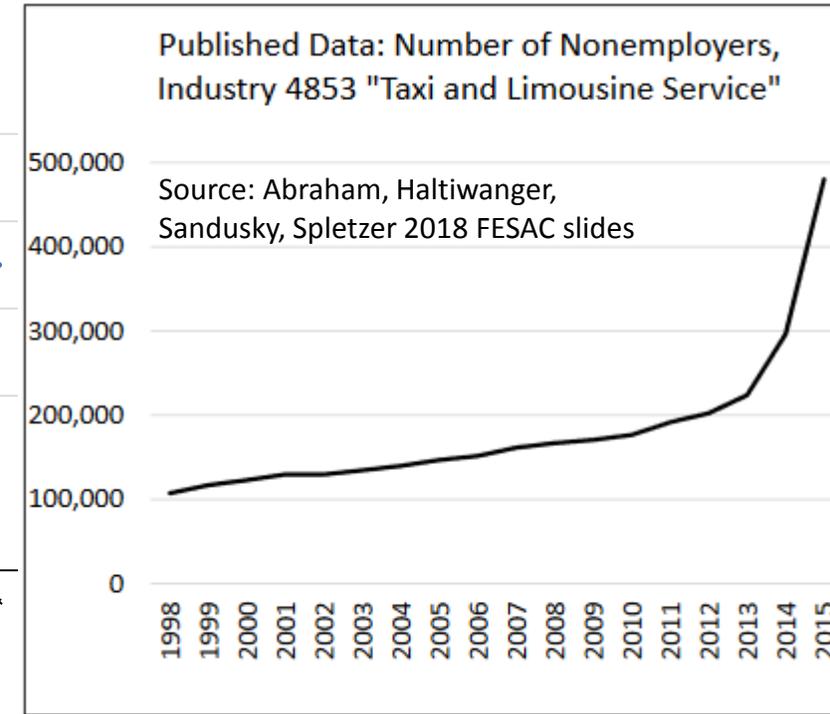
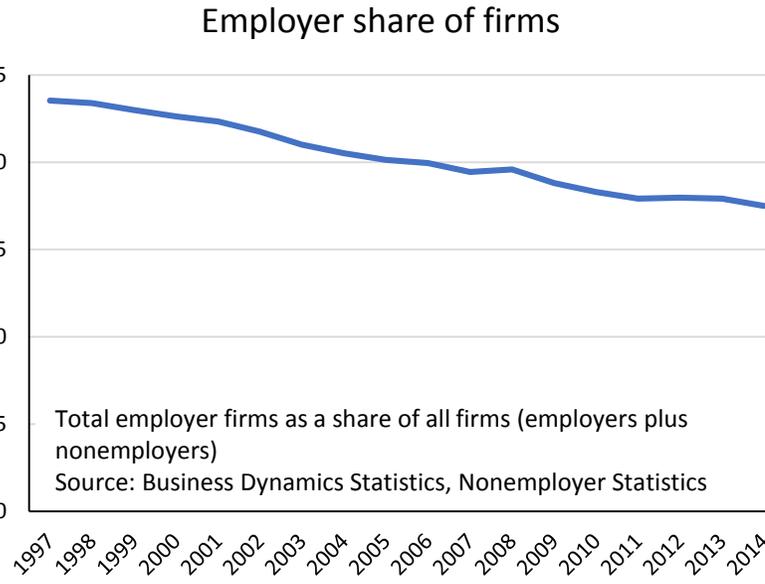
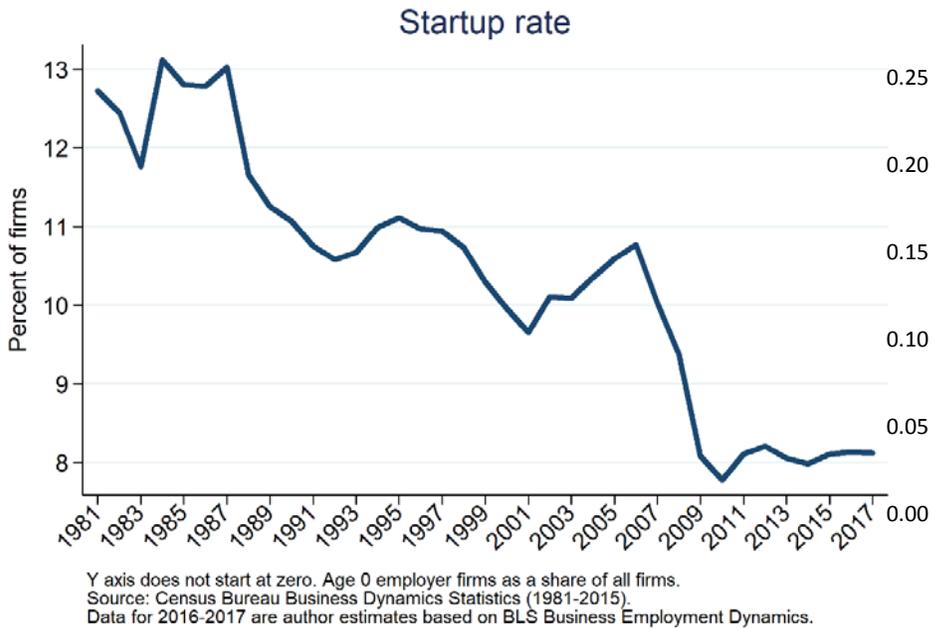
- Decline is within age groups, but largest decline for oldest (Kozeniauskas 2018)



(a) Entrepreneurship rate, 1992–2016

- Decline is within ed groups, but largest decline for high ed (Kozeniauskas 2018)

Has self employment changed?



- *New employer firm activity declining*

- *More nonemployers*

- *The “gig economy”?*

Do these trends matter and what can we learn about them?

- How would main results change with newer data?
- Why has entrepreneurship (by some measures) declined?
 - More risk aversion? (Cowen and complacency)
 - Higher entry costs? (Bollard, Klenow, and Li 2016)
 - Slower learning process or skill acquisition?
 - Has entrepreneurship education gotten *worse*?
- Cross-age convergence: has the entry cost/age profile flattened?
- Cross-ed convergence: has education become a weaker signal of ability? Has ed's selection role weakened?
- Increased (or decreased?) prevalence of low-potential entrepreneurs vs. high-potential entrepreneurs? (low μ versus high μ)?
 - But mind the skew (Guzman & Stern 2017)

Wrapping up

- This paper is in very good shape (and is R&R!)
 - A nice reminder that movements into and out of entrepreneurship occur in complicated context of alternative occupations, skills acquisition, and ability discovery
- Looking forward, collect more rents on the model
 - Can you use it to study trends?
 - Can you use it with other data, e.g. growth outcomes of firms?