

From Population Growth to Firm Demographics: Implications for Concentration, Entrepreneurship and the Labor Share

Hugo Hopenhayn
UCLA

Julian Neira
University of Exeter

Rish Singhania
University of Exeter

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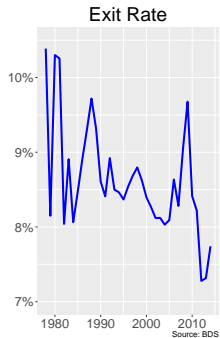
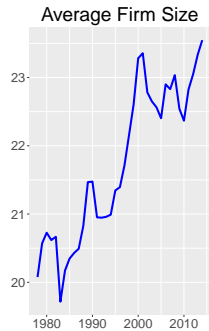
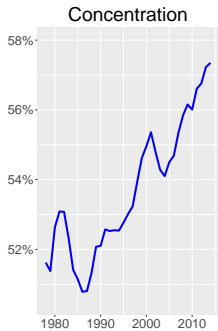
Motivation

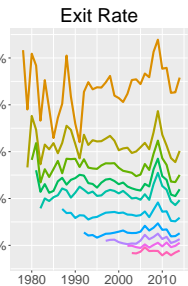
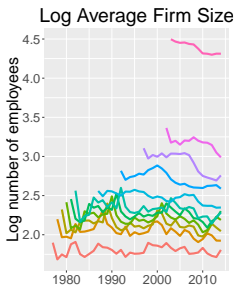
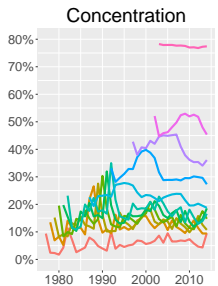
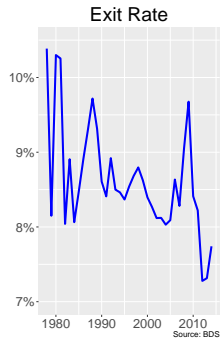
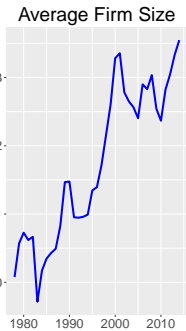
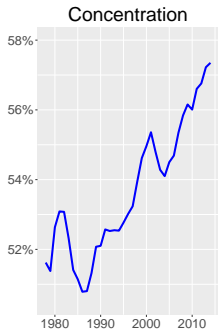
- ▶ Puzzling aggregate trends in the US since 1980s
 - ▶ Decline in the **firm entry rate** (14% to 8%)
 - ▶ Decline in **firm exit rate** (9.7% to 7.7%)
 - ▶ Increase in **average firm size** (20 to 24 employees)
 - ▶ Increase in (employment) **concentration** (51% to 58%)
 - ▶ Decline in the (corporate) **labor share** (66% to 60%)

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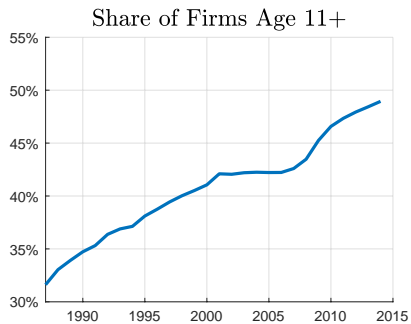
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- ▶ What explains this?
 - ▶ We look at population growth + firm demographics

Motivating Evidence

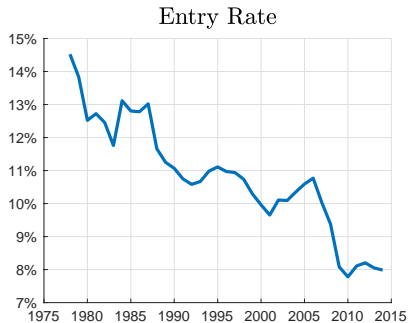
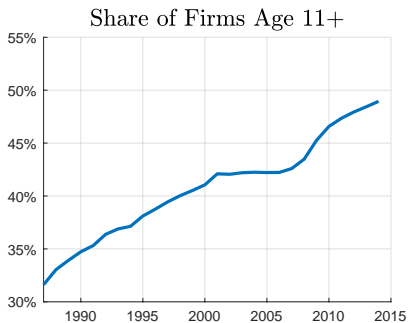




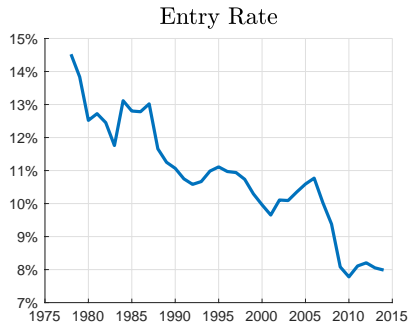
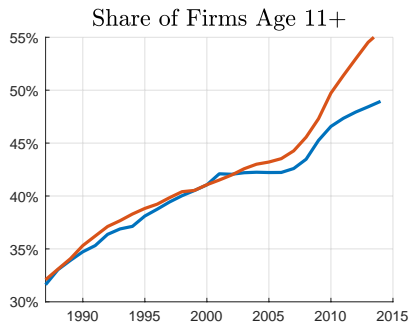
Firms are Aging



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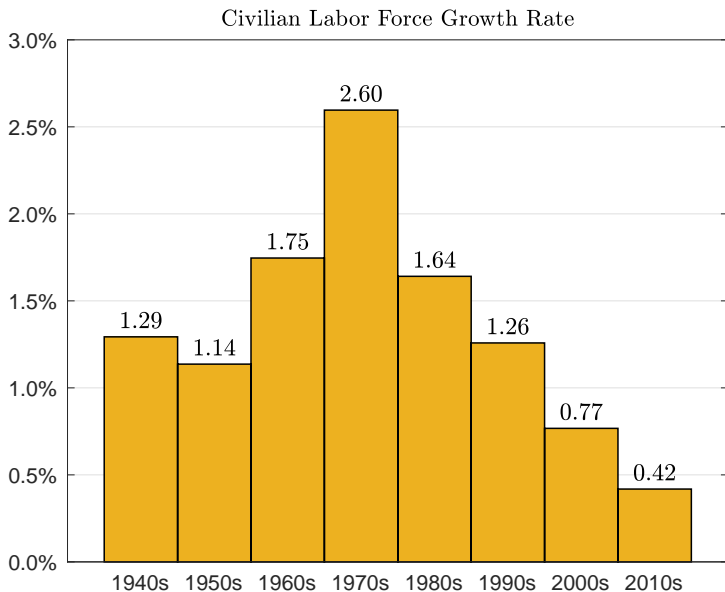
Firms are Aging



Entry Rates: An Accounting Identity

$$\underbrace{\lambda}_{\text{Entry Rate}} = \underbrace{\hat{N}}_{\text{Workers Growth Rate}} - \underbrace{\hat{e}}_{\text{Average Firm Size Growth Rate}} + \underbrace{\xi}_{\text{Exit Rate}}$$

The Rise and Fall of Population Growth [▶ more](#)

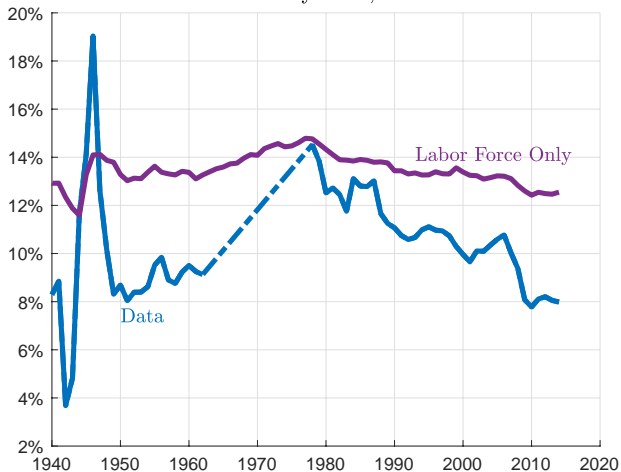


Source: BLS Current Population Survey

Is This Driving Force Enough?

$$\lambda = \hat{N} - \underbrace{\hat{e}}_0 + \underbrace{\xi}_{12\%}$$

Entry Rate, λ



Is This Driving Force Enough?

- ▶ Qualitatively yes, quantitatively no.
- ▶ Cannot explain decline in exit rate
- ▶ Cannot explain increase in average size

Is This Driving Force Enough?

- ▶ Qualitatively yes, quantitatively no.
- ▶ Cannot explain decline in exit rate
- ▶ Cannot explain increase in average size
- ▶ In the data

$$\underbrace{\Delta\lambda}_{6\%} = \underbrace{\Delta\hat{N}}_{2\%} - \underbrace{\Delta\hat{e}}_{2\%} + \underbrace{\Delta\xi}_{2\%}$$

Long Run Feedback and Transitional Dynamics

$$\lambda = \hat{N} - \hat{e} + \xi$$

- ▶ Long run effect
 - ▶ endogenous response of exit rates
 - ▶ multiplier 1.5 so additional 1% decline
- ▶ Transitional dynamics:
 - ▶ Baby Boom + Slowdown
 - ▶ additional 3%

Theory: Model of Firm Dynamics

Key Elements:

- ▶ S_a : Survival function.
- ▶ e_a : Average firm size

Dynamic Entry Equation:

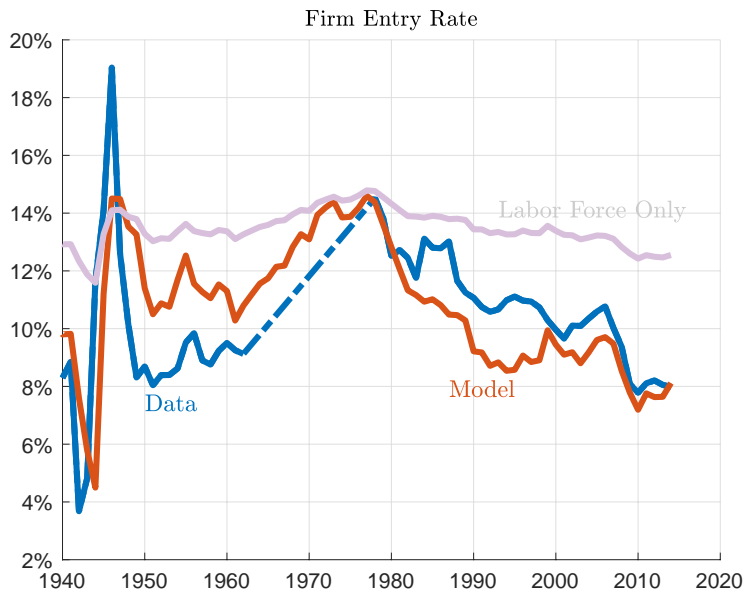
$$m_t = \frac{N_t - \sum_{a=1}^{\infty} m_{t-a} S_a e_a}{e_0}$$

Quantitative Analysis

$$m_t = \frac{N_t - \sum_{a=1}^{\infty} m_{t-a} S_a e_a}{e_0}$$

- ▶ Can changes in labor force growth quantitatively generate the secular changes experienced by the US economy?
- ▶ Role of the feedback mechanisms?
- ▶ Role of transitional dynamics (baby boom/adjustment path)?

Entry Rate



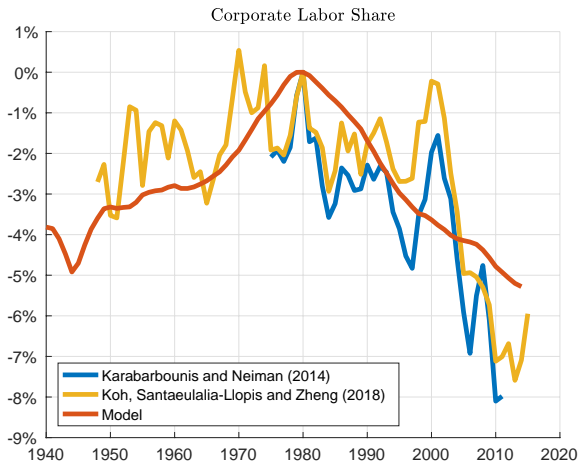
Summary of effects

Fall of entry rate: 6%

1. Decrease in labor force growth: 2%
2. Decrease in long run exit: 1%
3. Baby boom effect: 1.5%
4. Adjustment to new steady state: 1.5%

Labor share: Autor et al (2017) + Firm Aging

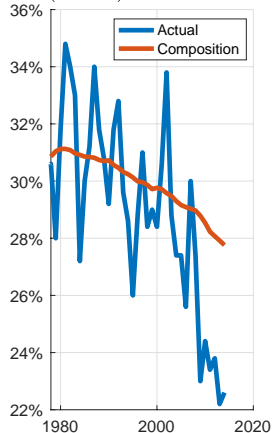
$$\underbrace{\text{Labor share}_i}_{\text{Declining in firm size}} = \underbrace{\frac{\text{Comp. to production labor}_i}{\text{Value added}_i}}_{\text{Same across firms}} + \underbrace{\frac{\text{Comp. to overhead labor}_i}{\text{Value added}_i}}_{\text{Declining in firm size}}$$



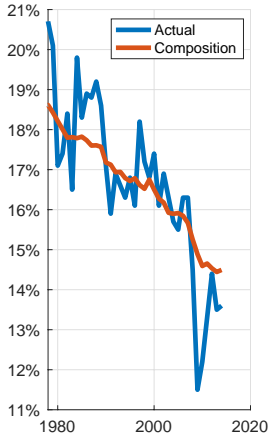
Job Reallocation (1/2)

▶ Back

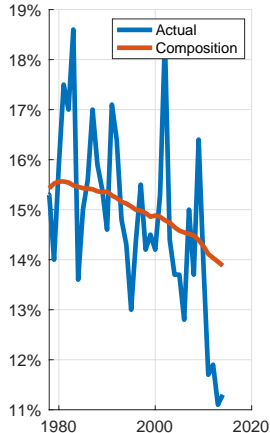
Job (Excess) Reallocation Rate



Job Creation Rate



Job Destruction Rate

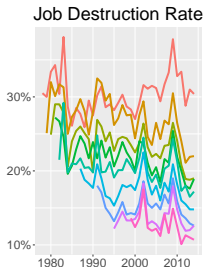
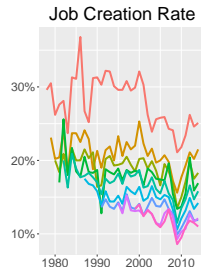
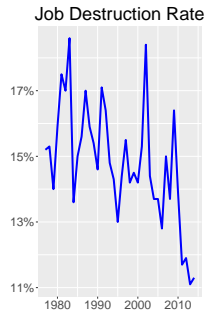
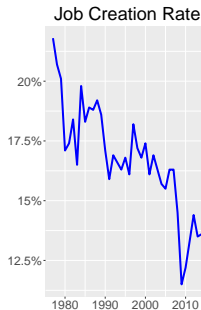
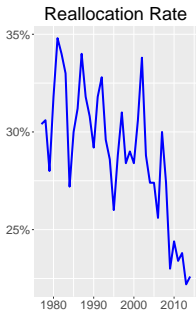


Percent explained by aging from 1977 to 2014:

- ▶ Job Reallocation: 35%
- ▶ Job Creation: 47%
- ▶ Job Destruction: 40%

Job Reallocation (2/2)

▶ Back



Firm age

— b) 1	— c) 2	— d) 3	— e) 4	— f) 5
— g) 6 to 10	— h) 11 to 15	— i) 16 to 20	— j) 21 to 25	

Final Remarks

- ▶ Change in Firm Demographics:
 - ▶ explains much of the rise in concentration
 - ▶ fall in labor share
 - ▶ important part of slowdown in reallocation
- ▶ Accounted for by fall in entry rates
- ▶ Changes in Labor Force growth: big driving force for changes in entry rates
- ▶ Too big a source of variation to omit
- ▶ Feedback effects of firm demographics and transitional dynamics play a major role