When Skill Meets Money: A Fresh Take on Private Business Ownership

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Motivation: Sources of Wealth Inequality

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This project: examine **distinction** between these two roles & implications for wealth inequality:

1. How much of the wealth created by private businesses is accrued to entrepreneurs vs. investors?
2. How much does it matter for **dynamics** of wealth accumulation & mobility at the top?

Plan for Today

1. Overcome challenges in measuring private equity returns
2. Present an empirical definition of two roles: entrepreneurs and investors
3. Re-examine cross-sectional and life-cycle facts through the lense of entrepreneurs vs. investors

Data & Measurement

Data Sources

We combine administrative data records collected by Statistics Norway:

- Shareholder registry of the universe of (public + private) companies.
- Balance sheets of private limited liability companies (AS).
- Disclosure of key personnel in the firm (such as CEO, board members etc.).
- Individual income and wealth tax filings, as well as demographic information (population register).

Sample period is 2005 - 2018, where 2005 is the first year of shareholding registry.

Measurement Challenge 1: Disentangling the Pyramid Ownership Structure

Definition of owner: someone who owns at least 1% of a company's shares.

- Start from shareholder registry of the universe of all public and private companies in Norway.
- Prevalent **pyramid** ownership structure:
  - More than half of private company shares are held through corporate entities.
  - We calculate a person's indirect ownership of a company through other companies up to 7 layers.
- After collapsing, focus on private limited liability companies (AS) from 2005 to 2018.
  - Keep all person-company pairs for which person owns at least 1% of the company's shares at each layer.

$\Rightarrow$ Obtain $\forall$ firm the distribution of total outstanding shares among ultimate (person) owners.

- Indirect ownership important in accounting for **retained earnings** as income when calculating returns (Alstadsæter, Jacob, Kpoczuk and Telle, 2025)

Measurement Challenge 2: From Firm-Level Return to Person-Level Return

Define **person-level ROE** of individual i (in the spirit of Fagereng, Guiso, Malacrino and Pistaferri (2020)) as

$$r_i = \frac{\text{dividends fr. directly held} + \text{changes in retained earnings in all in/directly held}}{\text{sum of equity in directly held}}.$$

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To investigate how the person-level return is affected by the features of the firms in the person's portfolio, we need to relate the person-level return to the underlying firms' returns.

- **Decomposition** from person to firms

Measurement Challenge 2: From Firm-Level Return to Person-Level Return

Lemma 1. In the absence of inter-company lending, the person-level return can be expressed as the weighted average of the returns of firms in her portfolio:

$$r_i = \sum_{j \in CP^i} w_j^i r_j^f + \sum_{k \in ICP^i} v_k^i r_k^f$$

CP^i companies in which i has direct ownership; ICP^i companies in which i has indirect ownership.

where **firm-level return on equity** (ROE) of company j is defined as

$$r_j^f = \frac{dv_j + rp_j - \sum_{k \in CC^j} s_j^k \times dv_k}{e_j}$$

and the weights are: $w_j^i = \frac{s_j^i e_j}{\sum_{j' \in CP^i} s_j^{i\,\prime} e_j^{\prime}}$ and $v_k^i = \frac{s_k^i e_k}{\sum_{j' \in CP^i} s_j^{i\,\prime} e_j^{\prime}}$.

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- In our sample, Lemma 1 holds for about 90% of our observations.

Measurement Challenge 3: Book Equity

- Not obvious which is superior: book equity or (imputed) market value equity
  - Market value of private businesses generally imputed, and incorporate sweat equity
- Today, we present results based on some modifications to book equity:
  - Imputed market value a la Bach, Calvet and Sodini (2020) in progress

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  - Imputed market value a la Bach, Calvet and Sodini (2020) in progress
- About 10% of firm observations report **negative equity** on their balance sheet:
  - Replace intermittent negative book equity by linear inter/extrapolation (assuming zero end points for extrapolation)
  - In our sample, equity turning negative correlates with raising debt and/or writing off assets, but not so much with stock buyback.
  - Strong predictor of distress (negative profits, lower sales) & liquidation, but can happen to otherwise healthy firms.

Occurrence of Negative Book Equity

Measurement Challenge 4: Firm Exit

- Every year around 4% of firms close, of which 62.5% are liquidated and 37.5% go through M&A
- Assume a terminal value (TV) of the firm depending on the type of closure:
  - Liquidation: TV=0
  - M&A: Use the sector-level market cap to assets multipliers from public companies and discount them by 30% to impute TV. EV to Assets Multiplier
- In the last year before the firm's exit, add to the firm's dividend the capital gain/loss measured by TV minus book equity to account for firm exit

Effects on firm's ROE

Sample Construction

Steps 1-2 on firm selection and Steps 3-6 on individual selection:

1. Winsorize top and bottom 0.5% of firm-level returns and drop firms with missing age, sector, equity, return or information about shares ownership (drop 0.2%)
2. Drop firms with inadequate ownership information, e.g. shares sum up to more than 100% or less than 10% (drop 0.7%)
3. Keep persons for which Result 1 holds (drop 9.9%)
4. Keep persons aged between 25 and 80 (drop 0.7%)
5. Keep persons whose private equity is at least 3000 NOK (or 300 USD) (drop 1.2%)
6. Drop persons whose person-level ROE is in the top or bottom 0.5% (drop 0.9%)

This results in a person-company-year panel of 6,080,414 obs of 410,987 unique persons and 374,701 unique firms.

Returns to PE Wealth

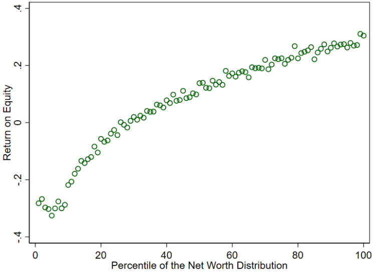
Descriptive Statistics

Table: Descriptive Statistics, Pooling 2005-2018

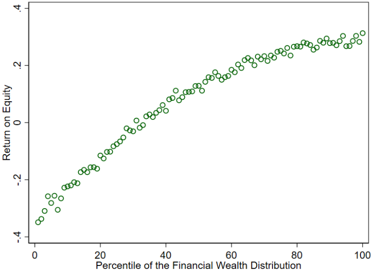
	Mean	Std. Dev.	P10	Median	P90	P99
			Person Level			
Age	49.01	12.16	33.00	48.00	66.00	76.00
Private Equity	274,764	3,201,741	2,428	30,387	403,674	3,720,949
ROE (%)	7.77	207.20	-98.12	12.39	96.33	592.38
No. Bus. Owned	2.18	4.41	1.00	1.00	4.00	15.00
			Company Level			
Age	10.26	11.57	1.00	7.00	24.00	54.00
Equity	890,342	9,454,960	5,857	80,204	1,093,288	12.7e+06
ROE (%)	-25.90	392.06	-124.14	5.83	88.39	600.94
No. Owners	2.43	2.80	1.00	2.00	5.00	14.00
			Person-Company Level			
Share of Bus. Owned (%)	37.12	34.71	2.09	25.00	100.00	100.00

Notes: All monetary variables are expressed in $2015.

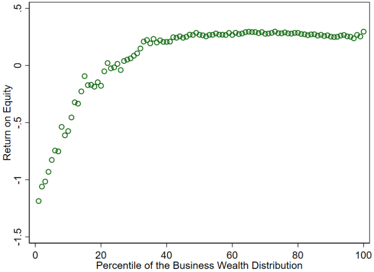
Scale Dependence in the Sample of Owners



(a) By Net Worth



(b) By Financial Wealth



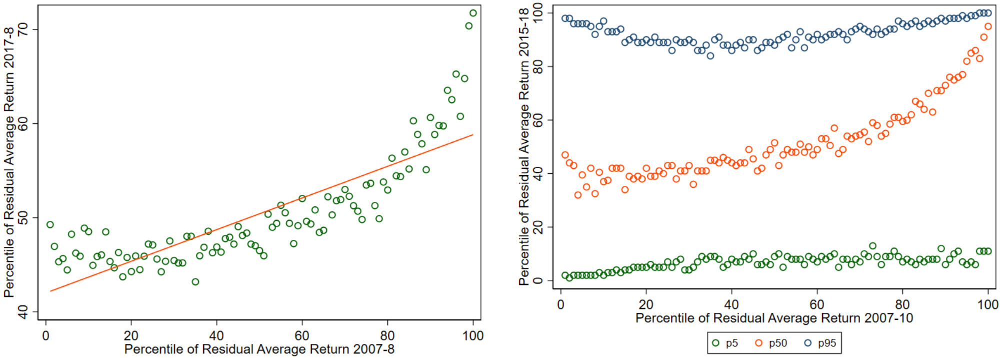
(c) By Business Equity

- Clear scale dependence when ranked by net worth or financial wealth.
- Scale dependence in the bottom half of the distribution when ranked by business wealth.
- Fig(a) sensitive to measurement and sample selection.

Type Dependence in the Sample of Owners (Balanced Panel)

To remove scale effect, regress average ROE in 2007-8 (2017-8) on dummies of wealth pctile in 2005 (2015).

What is the relation between (individual-level) residual returns in 2007-8 and 2017-8?



Interim Summary

- Private business returns, when properly measured, also display strong scale dependence
- Private business returns are persistent over nearly a decade and especially so for the wealthier
- Do these return properties differ for entrepreneurs and investors? We turn to this next.

Skill versus Money

Disclosure of Key Personnel

- Distinguish empirically owners who also supply skill from owners only supply money:

  → "entrepreneurs" vs "investors"

- To do so, we leverage on mandatory disclosure of key personnel in private companies.

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Relevant roles for private limited liability ("AS") firms:

- CEO (*Daglig leder/administrerende direktør*)
- board chairman (*Styrets leder*)
- board deputy chairman (*Nestleder*)
- board member (*Styremedlem*)
- accountant (*Regnskapsfører*)

⇒ In a company, a person can have multiple roles and a role can involve multiple persons.

More Details

Entrepreneurs and Investors

We define an "entrepreneur" of a business if she is the CEO or board chair plus owning at least:

- 50% of shares in 1- or 2-owner companies
- 33% of shares in 3-owner companies
- 25% of shares in 4-owner companies
- 20% of shares in 5+-owner companies

Also consider a broader definition if she holds at least one of the five roles.

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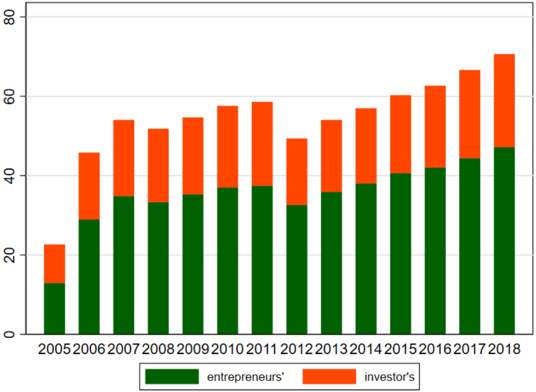
- 35.6% of person-company pairs are classified as having an entrepreneurial relation.
- 78.3% of companies have at least one owner classified as an entrepreneur.
- For companies with many owners (11+), around 13.4% have at least one entrepreneur.

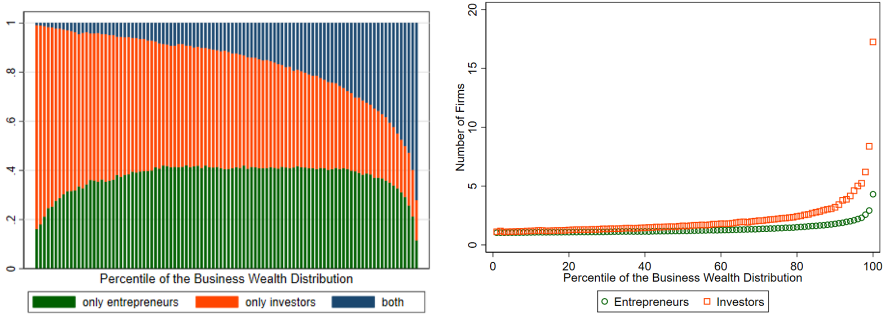
Cross-Section Facts: Total PE Wealth Owned by Entrepreneurs vs. Investors

In billions of 2015 USD. Roughly 1/3 to investors and 2/3 to entrepreneurs



Equity (public and private) owned by households in 2018Q3 is 127 bn US$ (SBS, Financial Accounts)

Cross-Section Facts: Features of Portfolio along the PE Wealth Distribution



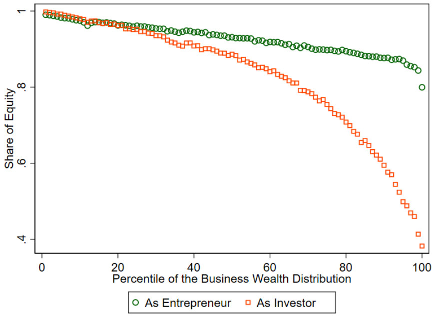
(a) Composition of Owners

(b) Number of Firms

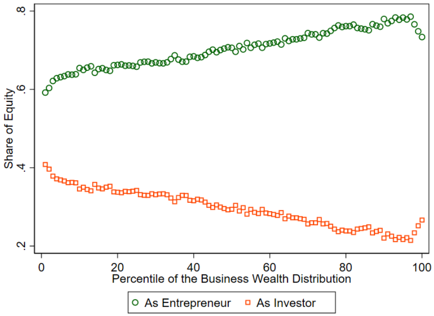
- Bottom of the distribution: mostly single-project investors
- Middle of the distribution: single-project entrepreneurs and/or single-project investors
- Towards the top: serial entrepreneurs and/or serial investors
- At the very top (1-2%), most owners hold both roles

Firm View

Cross-Section Facts: Features of Portfolio along the PE Wealth Distribution



(c) Cond. on having E/I



(d) Cond. on having both

- Cond. on having an E project, most of PE wealth is in E project(s). Less so for investments for wealthy owners
- Cond. on having both types of projects, most PE wealth is in the E projects

Cross-Section Facts: Features of Portfolio along the PE Wealth Distribution

(e) Share of Young Firms (< 6 yrs)

(f) Share of Small Firms ($< 50^{th}$ pct of equity)

- Both E and I switch to older and bigger firms along the wealth distribution. Switch is earlier for I.
- Wealthy investors increase their investment in young firms.

Cross-Section Facts: Zooming in on Scale Dependence

To understand the sources of returns for each owner by role, we construct two counterfactual portfolios:

1. Replace return in entrepreneurial businesses by average return in same age x size (equity) x sector cell.

2. Further replace return in investment businesses by average return in same age x size x sector cell.

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$\Rightarrow$ Remaining portfolio differences reflect observable differences in age/sector/size.

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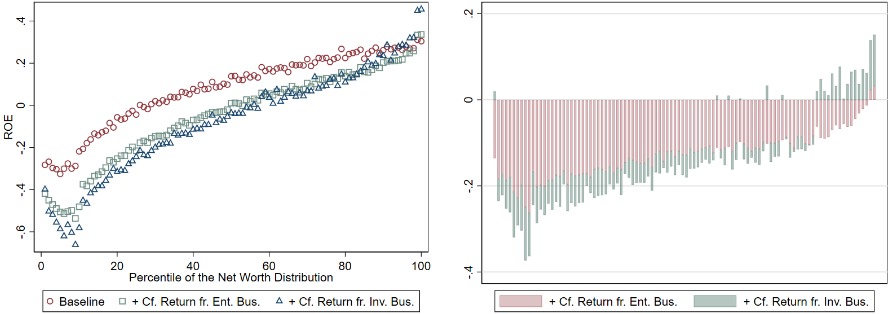
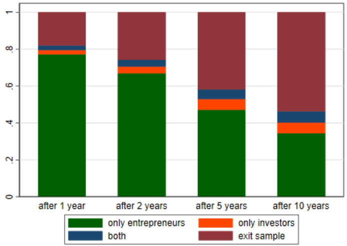


- Observable features of the portfolio generates the strongest scale dependence
- Improvements from market averages obtained mostly by entrepreneurs. The less wealthy the entrepreneur, the greater the improvement.
- The wealthiest investors do worse than market averages.

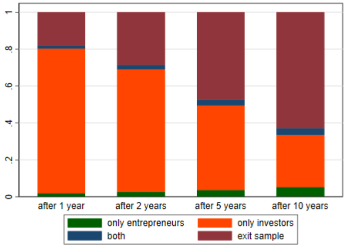
NW and FIN

We consider the bottom 20% of the business wealth distribution in 2005 by initial role:

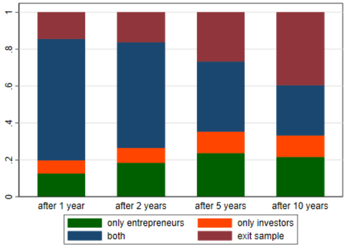
Which role do they have after 1,2,5,10 years?



(g) Only entrepreneurs (14%)



(h) Only investors (84%)



(i) Both (2%)

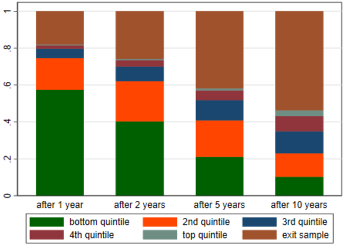
Roles are quite persistent. More Only E $\leftrightarrow$ Both than Only I $\leftrightarrow$ Both.

Similar among the Initially Rich and the Eventually Rich

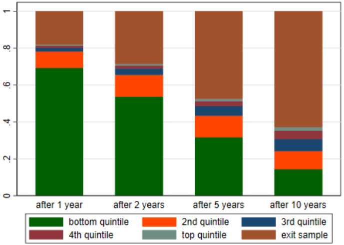
Life-Cycle Facts: Wealth Mobility of the "Initially Poor"

We consider the bottom 20% of the business wealth distribution in 2005 by initial role:

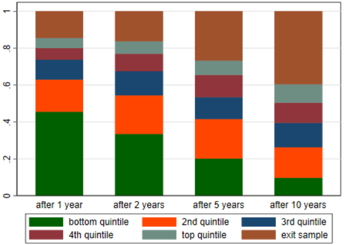
In which business wealth quintiles are they 1,2,5,10 years later?



(j) Only entrepreneurs (14%)



(k) Only investors (84%)



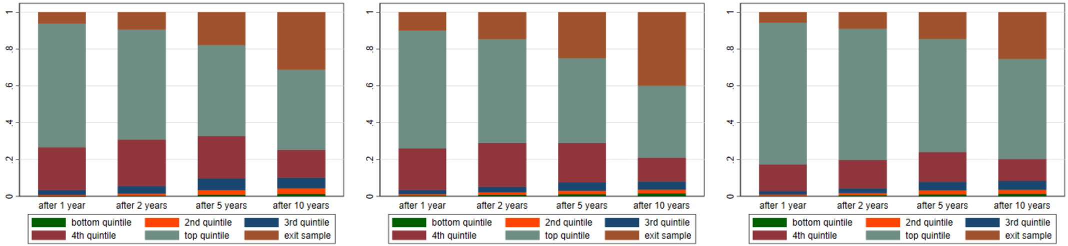
(l) Both (2%)

Upward wealth mobility: Both > Only E > Only I.

Life-Cycle Facts: Wealth Mobility of the "Initially Rich"

We consider the top 20% of the business wealth distribution in 2005 by initial role:

In which business wealth quintile are they 1,2,5,10 years later?



(m) Only entrepreneurs (36%)

(n) Only investors (34%)

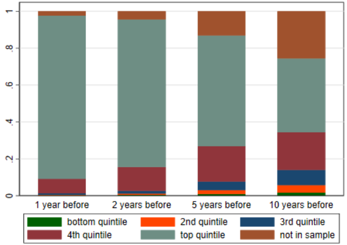
(o) Both (30%)

Downward mobility: Only E = Only I > Both.

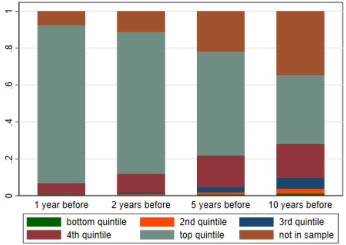
Life-Cycle Facts: Wealth Mobility of the “Eventually Rich”

We consider the top 20% of the business wealth distribution in 2018:

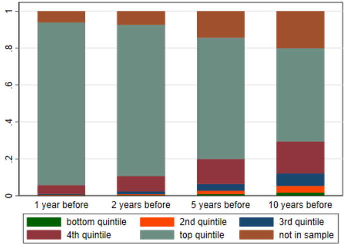
In which business wealth quintile were they 1,2,5,10 years earlier?



(p) Only entrepreneurs



(q) Only investors



(r) Both

Only E experience the fastest upward mobility.

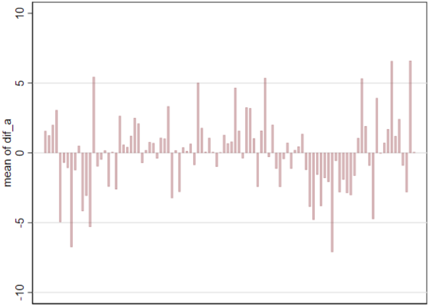
Zooming in on Type Dependence

Recall that we plot the average residualized returns in 2017/8 against the ranking of the average residualized returns in 2007/8 to illustrate type persistence.

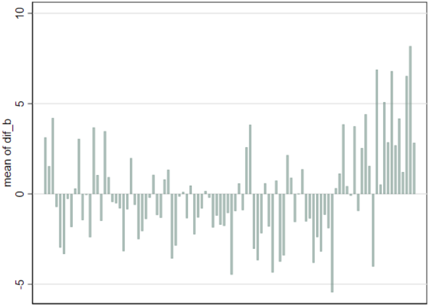
In the balanced sample of owners, we consider two counterfactual exercises:

- CF1: Replace the returns to entrepreneurial projects by the corresponding market average return, and re-do the type dependence figure
- CF2: Replace the returns to investments by the corresponding market average return, and re-do the type dependence figure
- In each CF, we plot the difference of our baseline average residualized returns in 2017/8 to those generated under the CF

Zooming in on Type Dependence



(s) CF1



(t) CF2

- Investments, for the wealthy, increase persistence at the top

Scatter Plots

Taking Stock

1. At the bottom of the distribution are casual investors, who are likely to stuck at the bottom or exit.

2. The middle of the distribution is dominated by the single-project entrepreneurs and single-project investors.
   - Less wealthy owners operating younger and smaller firms and the wealthier older and larger ones. This pattern stronger for entrepreneurs then for investors
   - Less wealthy entrepreneurs do significantly better than market average
   - Entrepreneurs move up the distribution faster than investors and survives more than investors

3. Towards the **top**, entrepreneurs are more likely to take on investment projects (than the other way around) and become entrepreneur-investors
   - Though investment returns at the top tend to be lower than market average, having investment reduces downward mobility.

Extra Slides

Occurrence of Negative Book Equity

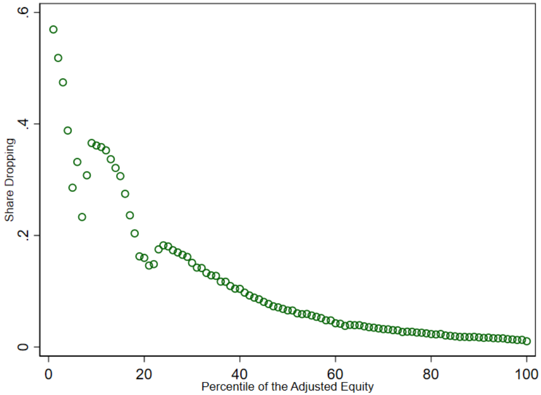


Figure 3.1: Share of Firms that Would Have Been Dropped due to Negative Book Equity

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Imputing TV at M&A

Code	Sector	Multiplier
1	agriculture, forestry and fishing	0.41
2	mining	0.35
3	construction	0.31
4	manufacturing	0.54
5	transportation, communication, electric, gas and sanitary service	0.60
6	wholesale trade	0.46
7	retail trade	0.69
8	finance, insurance and real estate	0.05
9	services	0.96

Table 3.1: Enterprise Value to Total Assets Ratios, by Sector

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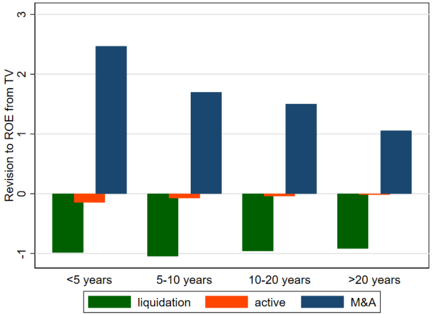
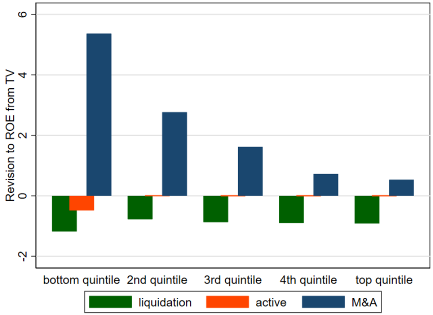
Effect of Capital Gain/Loss upon Exit on Firm's ROE



(a) By Firm Age



(b) By Firm Equity

- Roughly adding -100% at the time of liquidation
- Active firms' ROE is reduced slightly due to firms holding other exiting firms
- Biggest upward revisions to M&A of young and small firms, but very few of them

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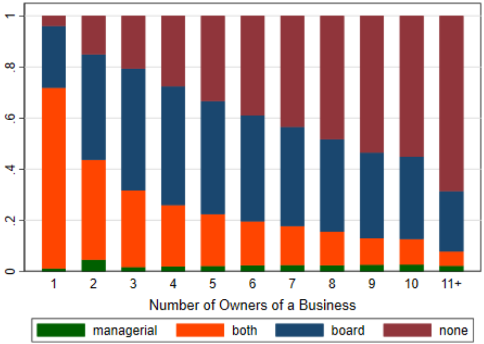
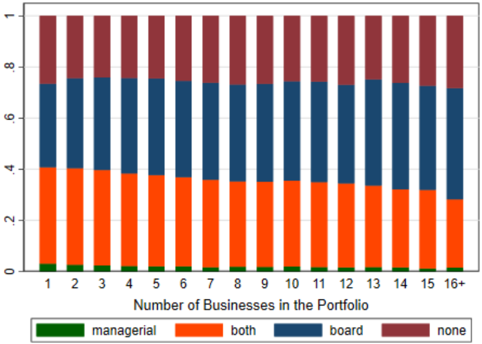
Composition of Roles Among Owners

We distinguish between four roles in a company:
managerial only (manager or accountant), board only (chairman, deputy, or member), both, and none.



(c) Firm View: % of equity owned by roles



(d) Person View: % of PE wealth owned by roles

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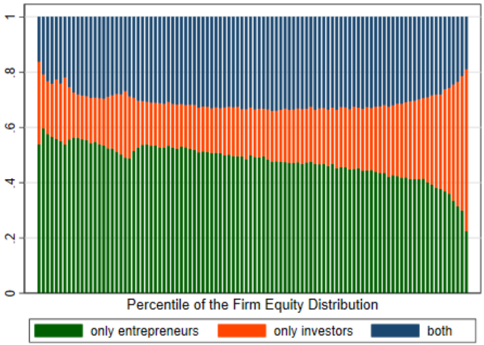
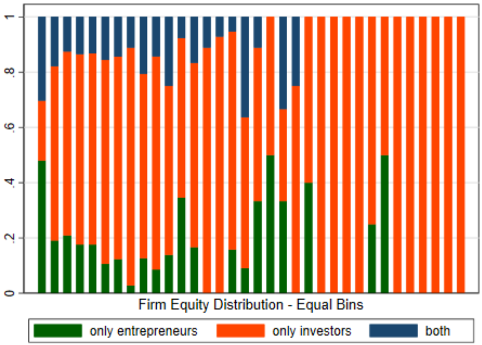
Composition of Ownership Types

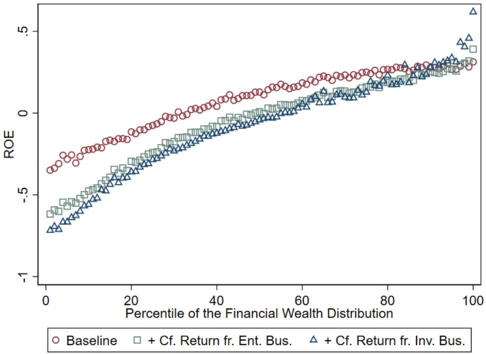
We distinguish between firms owned by entrepreneurs only, by investors only, or by a combination of both



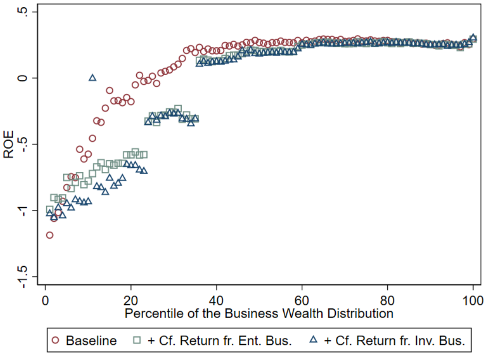


Back

Scale Dependence Counterfactuals



(g) By Financial Wealth



(h) By PE Wealth

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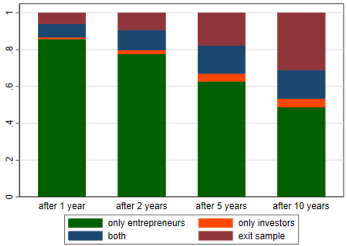
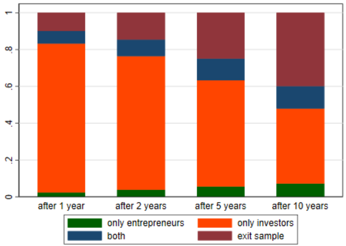
Life-Cycle Facts: Role Mobility of the "Initially Rich"?

We consider the top 20% of the business wealth distribution in 2005 by initial role:

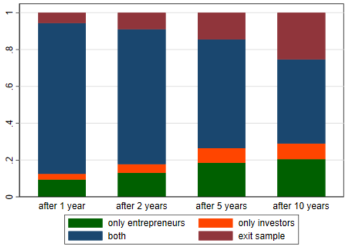
Which role do they have after 1,2,5,10 years?



(i) Only entrepreneurs (36%)



(j) Only investors (34%)



(k) Both (30%)

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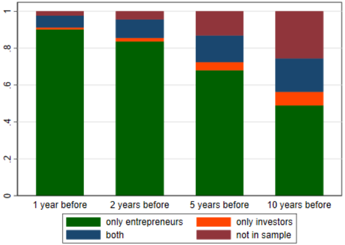
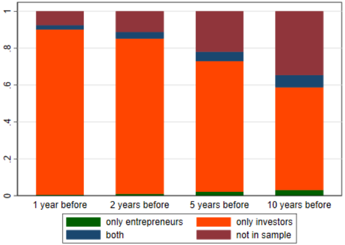
Life-Cycle Facts: Role Mobility of the "Eventually Rich"

We consider the top 20% of the business wealth distribution in 2018:

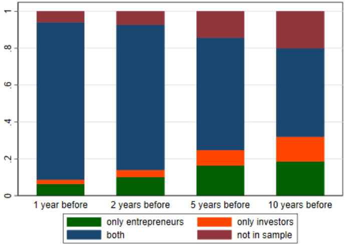
Which role did they have 1,2,5,10 years earlier?



(l) Only entrepreneurs (38%)



(m) Only investors (25%)



(n) Both (37%)

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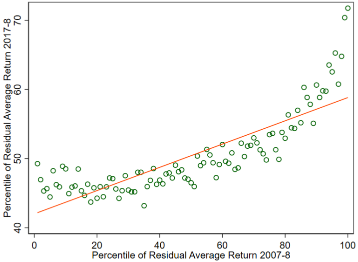
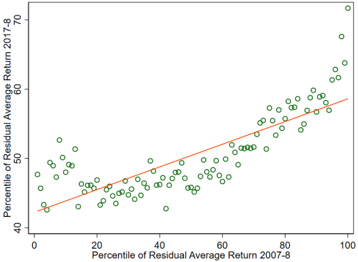
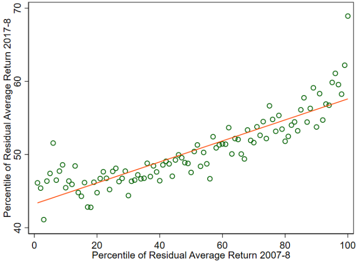
Type Dependence Counterfactuals



(o) Baseline



(p) CF1



(q) CF2

- Less persistence at the top if replacing investment returns by market average returns

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