Careers and Wages in Family Firms: Evidence from Matched Employer-Employee Data

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- Key message from recent labor econ literature: “where you work matters”

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  - Firms supply different amenities to workers and compensating diffs explain differences in wages across employers.

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- Leads to the question: how do different ownership structures impact wage inequality?

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  - FFs more focused on long-term goals and committed to building positive relationships with their employees.

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- Existing literature on labor market effects of FFs faced two key challenges
  - Based on firm-level data → impossible to control for worker selection.
  - Able to observe family firm status only for a subset of (highly selected) firms (e.g. firms listed in the stock market).

This Paper

- Studies the impact of family firms on the Italian wage structure
- We leverage three linked datasets
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    2. Firms financial records (for LLCs).
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    - Hard to obtain “top-jobs” in FFs.
    - Promotions lead to lower wage gains in FFs.
    - Why? FFs are reluctant to delegate decision-making to non-family members.

Data Sources

- Worker-level data—Inps
    - Matched employer-employee covering the universe of workers in the private sector.
- Firm Balance Sheets—Cerved
    - Financial data of Italian non-financial LLCs.
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- Period of analysis: 2006-2017.

What is a family firm?

- FFs →Majority of shares belong to a single family.
- Step 1: pin-down “ultimate” owner
  - If firm is controlled by another firm, we track the owning firm’s shareholders.
  - Each ultimate shareholder is then assigned a share computed using the “weakest” link principle.

    La Porta et al., 1999, Faccio and Lang, 2002, Claessens et al., 2000,
- Step 2: understand if owners belong to the same family.
  - INPS does not provide family linkages.
  - Same family if two individuals share the same last name or live in the same address.
- Validate our measure computed in 2018 with the one computed by CERVED (based on family ties derived from real estate registries) for medium/large firms
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- Family firm status for >900,000 firms!

Details

Table 1: Summary Statistics

	Family Firms	Non-Family Firms
Firm size	14.056	31.782
Value Added per Worker	45.919	63.303
Labor Costs per Worker	30.491	39.462
Average Weekly Wage	436.833	510.696
Share Males	0.651	0.634
Average Age	39.555	39.839
Share Temporary Contracts	0.21	0.221
Share Part-Time Contracts	0.184	0.168
Share Managers	0.004	0.01
Share Middle-Managers ("Quadri")	0.01	0.04
Number of Persons	9,972,643	9,421,821
Number of Firms	607,200	292,213
Number of Person-Year Observations	46,664,781	44,310,305
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Wage Policies of Family Firms

- Goal: estimate and decompose the average wage policy of a family firm.
- "Ground-up" approach Card-Rothstein-Yi (2023)
- First step: estimate the wage policy of firm *j* via AKM

$$logw_{it} = \alpha_i + \psi_{j(i,t)} + X'_{it}\beta + r_{it} \tag{1}$$

  - $j(i,t)$: function mapping the dominant employer of worker *i* in period *t*.
  - α_i : worker fixed effect (portable component).
  - ψ_j firm *j* pay premium (or discount).

- ψ_j capture the average wage effect of working for firm *j* under an "exogenous mobility" assumption.
- Exogenous mobility seems to provide a reasonable approximation of wages for various countries Card et al. (2013) for Germany; Card et al. (2015) for Portugal; Bonhomme et al. (2019) for Sweden; Song et al. (2019) for US; Lattanzio and Casarico (2023) for Italy

Decomposition

- The raw difference in wages b/w FFs and NFs can be decomposed as

$$\begin{aligned}\Delta w &\equiv E[logw_{it}|f(j(i,t)) = F] - E[logw_{it}|f(j(i,t)) = NF] \\ &= \underbrace{E[\alpha_i|f(j(i,t)) = F] - E[\alpha_i|f(j(i,t)) = NF]}_{\Delta_{\alpha,F} \equiv \text{worker selection component}} \\ &+ \underbrace{E[\psi_{j(i,t)}|f(j(i,t)) = F] - E[\psi_{j(i,t)}|f(j(i,t)) = NF]}_{\Delta_{\psi,F} \equiv \text{firm component}}.\end{aligned} \tag{2}$$

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- But we can do more! We can also decompose the firm component.
- Linear projection of firm effects (fit separately for F/NFs) onto productivity

$$\psi_j = \theta_{f(j)} + \pi_{f(j)} P_j + \nu_j, \tag{3}$$

- $P_j \equiv$ Productivity of firm j (proxied by its value added per worker).
- $(\pi_F, \pi_{NF}) \equiv$ rent-sharing coefficients.
- $(\theta_F - \theta_{NF}) \equiv$ systematic difference in pay b/w FFs and NFs unrelated to productivity/bargaining.

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- Oaxaca decomposition of the firm-component $\Delta_{\psi,F}$

$$\begin{aligned}\Delta_{\psi,F} &\equiv E[\psi_{j(i,t)}|f(j(i,t)) = F] - E[\psi_{j(i,t)}|f(j(i,t)) = NF] \\ &= \underbrace{\pi_{NF}\{E[P_j|f(j) = F] - E[P_j|f(j) = NF]\}}_{\text{productivity component}} \\ &+ \underbrace{(\pi_F - \pi_{NF})E[P_j|f(j) = F]}_{\text{bargaining component}} + \underbrace{\theta_F - \theta_{NF}}_{\text{systematic component unrelated to productivity / bargaining}}.\end{aligned} \tag{4}$$

Table 2: Decomposing the Family Firm Wage Discount

	Non-Family Firm	Family Firm	Difference
Log Weekly Wage (adjusted)	5.86	6.03	-0.16
Person Effects	0.05	-0.03	-0.08
Firm Effects	0.05	-0.03	-0.08
Log Value Added per Worker	3.73	3.56	-0.17

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▸ Go to AKM Fixed Effects – Regression Results
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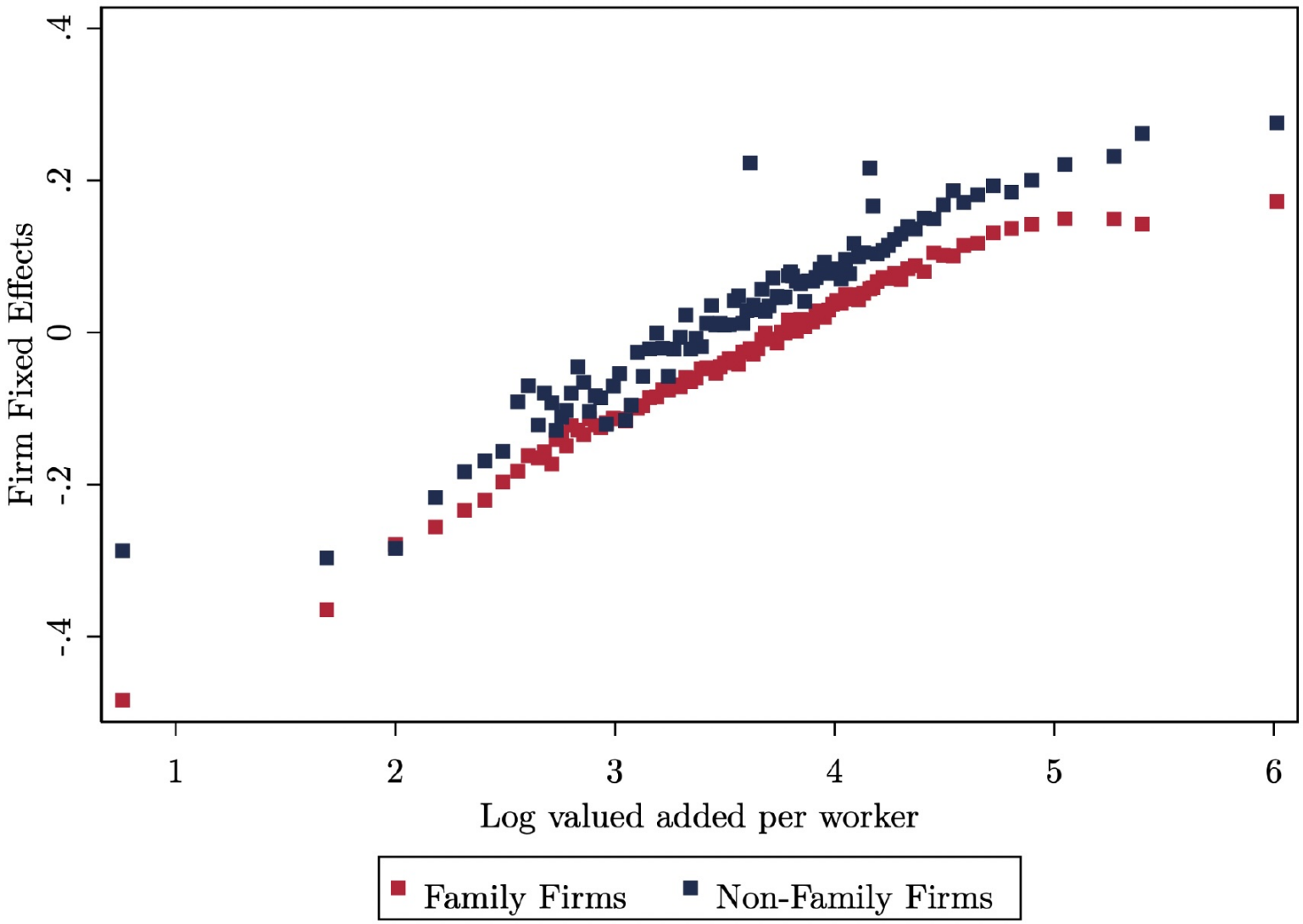
▸ AKM effects by Education—College
▸ Decomposition using Starting Wage



▸ Go to AKM Fixed Effects and Productivity (Weighted by Firm Size) ▸ Go to Family Firm Discount and Location ▸ FFPD by industries

Is it compensating differentials?

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- Previous research suggests that FFs provide higher employment stability.

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- Challenges: hard to measure amenities + need a framework where frictions prevent utility of work from being equalized across workplaces

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- Solution: use the revealed preference approach of Sorkin (2018).

- Utility of worker i if employed by firm j

$$U_{ij} = \underbrace{v_j}_{\text{Systematic Component / Pagerank}} + \underbrace{\epsilon_{ij}}_{\text{Type 1 EV idiosyncratic term}} \tag{5}$$

- Pagerank component can be identified from the following recursive formula

$$\exp(v_j) = \sum_{\ell \in \mathcal{B}_j} \omega_{j,\ell} \exp(v_\ell), \qquad \text{for } j = 1, \ldots, J, \tag{6}$$

  where $\omega_{j,\ell}$ is the number of workers who voluntarily move from employer ℓ to employer j, scaled by the number of workers who voluntarily leave employer j.

“Hedonic” Family Firms?

- If FFs offer non-wage amenities that allow them to pay lower wages then we should have

$$E[v_{j(i,t)}|f(j(i,t)) = F] - E[v_{j(i,t)}|f(j(i,t)) = NF] = 0 \tag{7}$$

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- We reject this null...

	(1)	(2)	(3)	(4)	(5)
Family Firm	-0.70***	-0.58***	-0.30***	-0.28***	-0.23***
	(0.08)	(0.07)	(0.02)	(0.02)	(0.01)
AKM FE		1.51***	1.32***	1.17***	0.93***
		(0.21)	(0.10)	(0.08)	(0.05)
Std. of Dep. Var.	1.45	1.45	1.45	1.45	1.45
# of Firms	313,375	310,584	310,584	310,584	310,584
Industry FE			X	X	
Province FE				X	
LLM FE					X

▸ Go to Observable Amenities

Taking stock

- FFs pay on average 16 log points lower than NFFs.
- About half of this gap is explained by worker-selection.
- 25% of the remaining gap due to differences in productivity.
- Higher-rent sharing in FFs.
- Left with a 10 log points difference in average pay.
  - Unexplained by compensating diffs.
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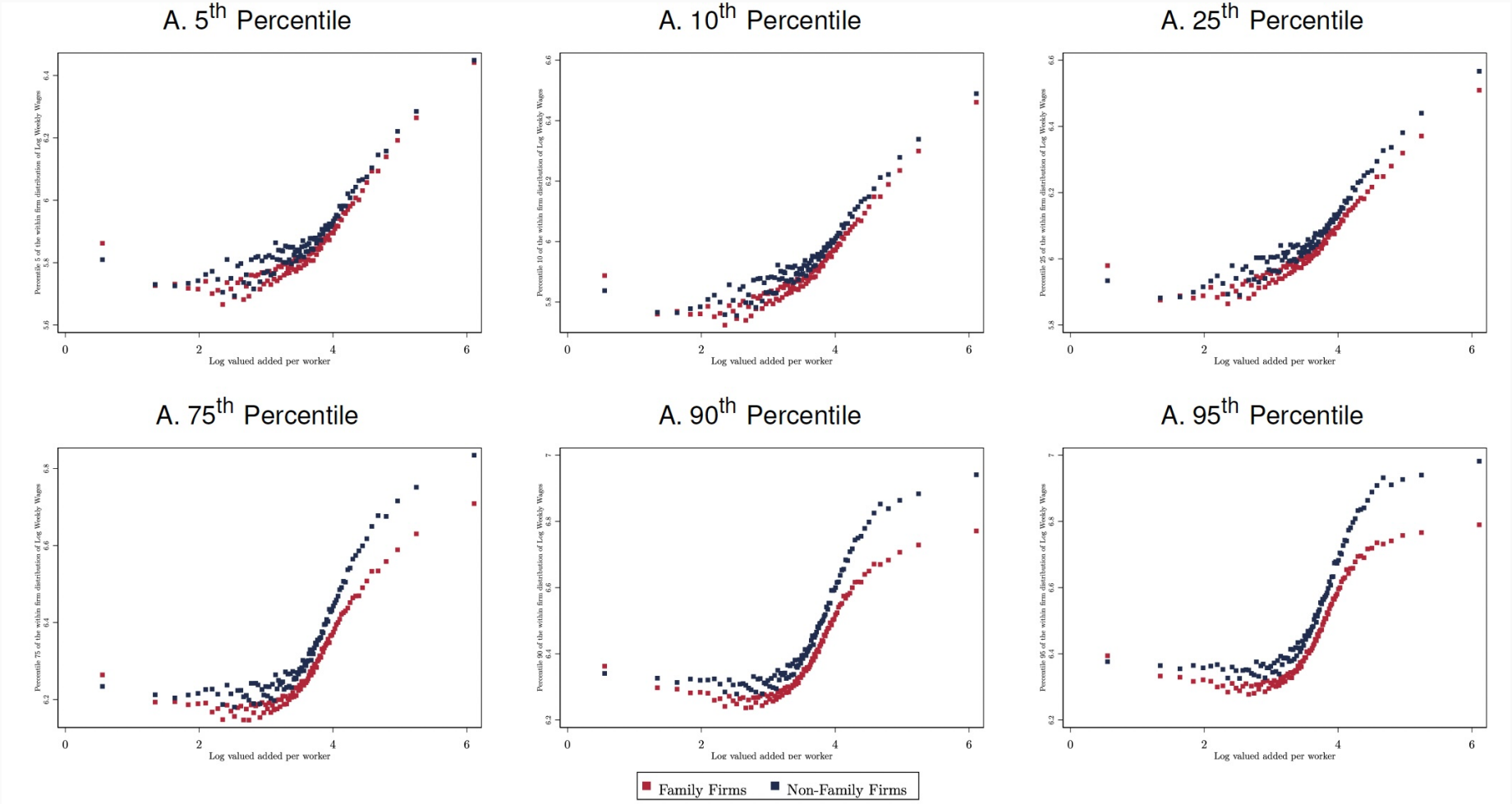
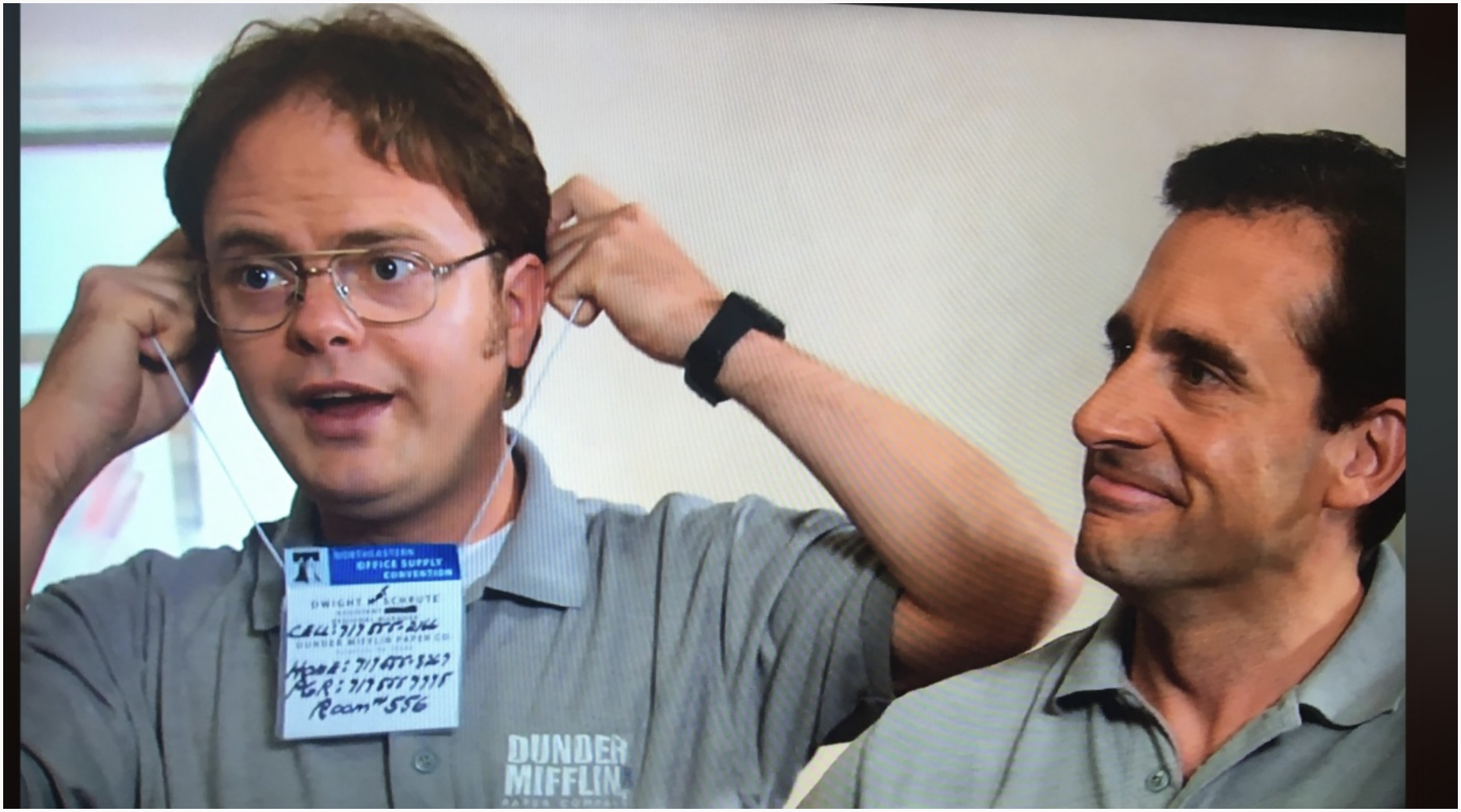
  - Unexplained by compensating diffs.
  - In fact, FFs supply worse amenities than NFFs $\rightarrow$ FFs amplify inequality!
- Next: evidence of a glass ceiling within FFs.
  - FFs prevent reaching higher rungs of the within-firm job ladder.

Higher wage compression in FFs

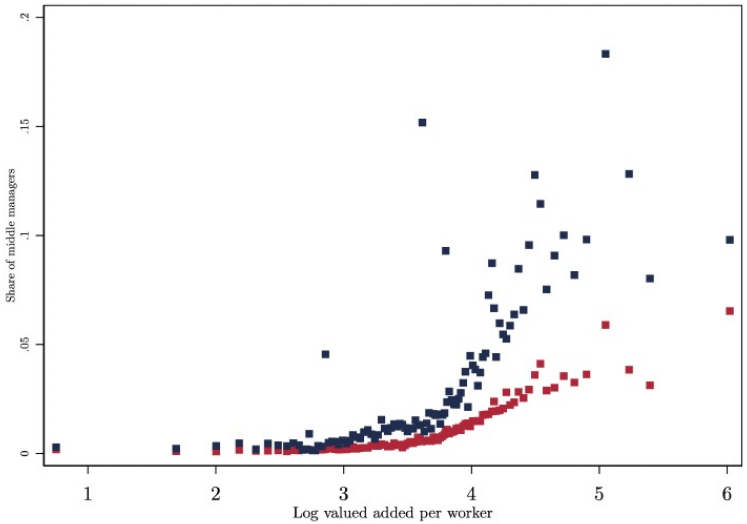


Managerial Positions in our Data...

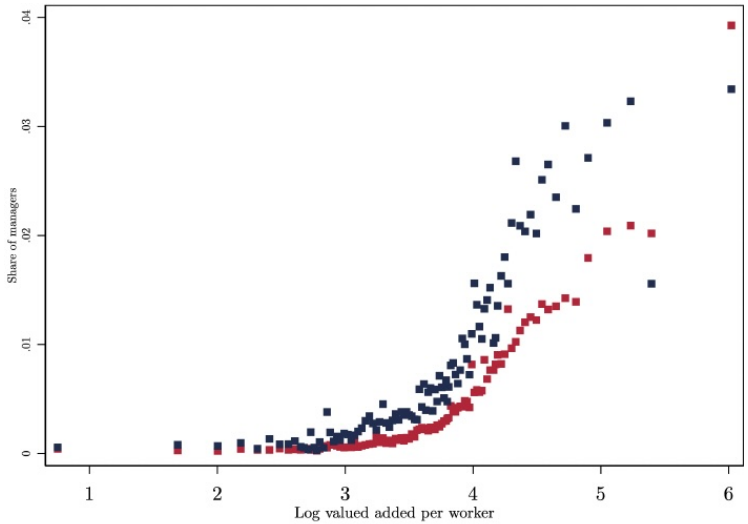


Fewer managers and fewer promotions in FFs

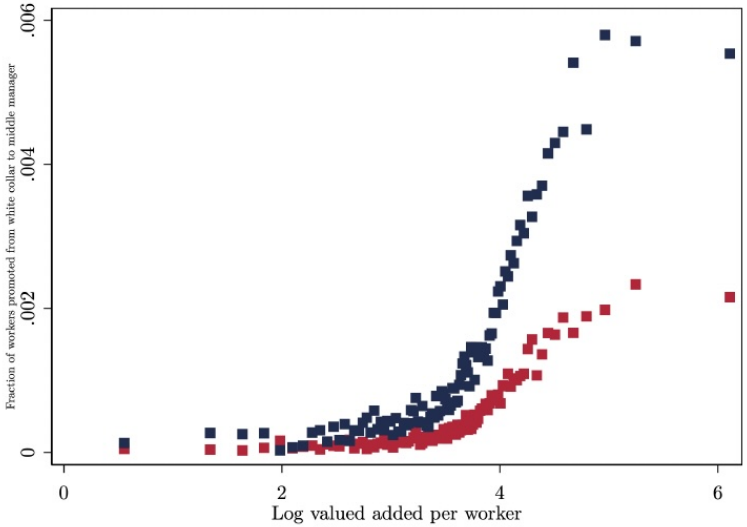
A. Fraction of Middle Man. Workers



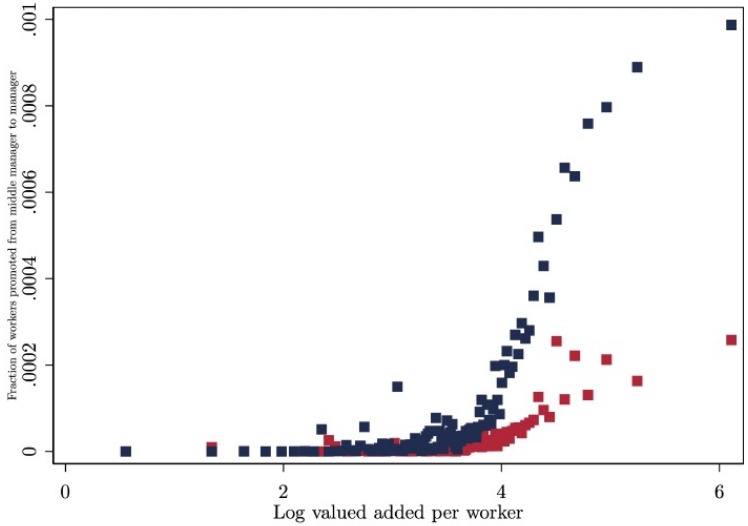
B. Fraction of Managers



C. Transitions to Middle Management



D. Transitions to Manager



Returns to Promotions in Managerial Positions

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- Experiment: take two similar workers employed by similar firms in similar jobs.
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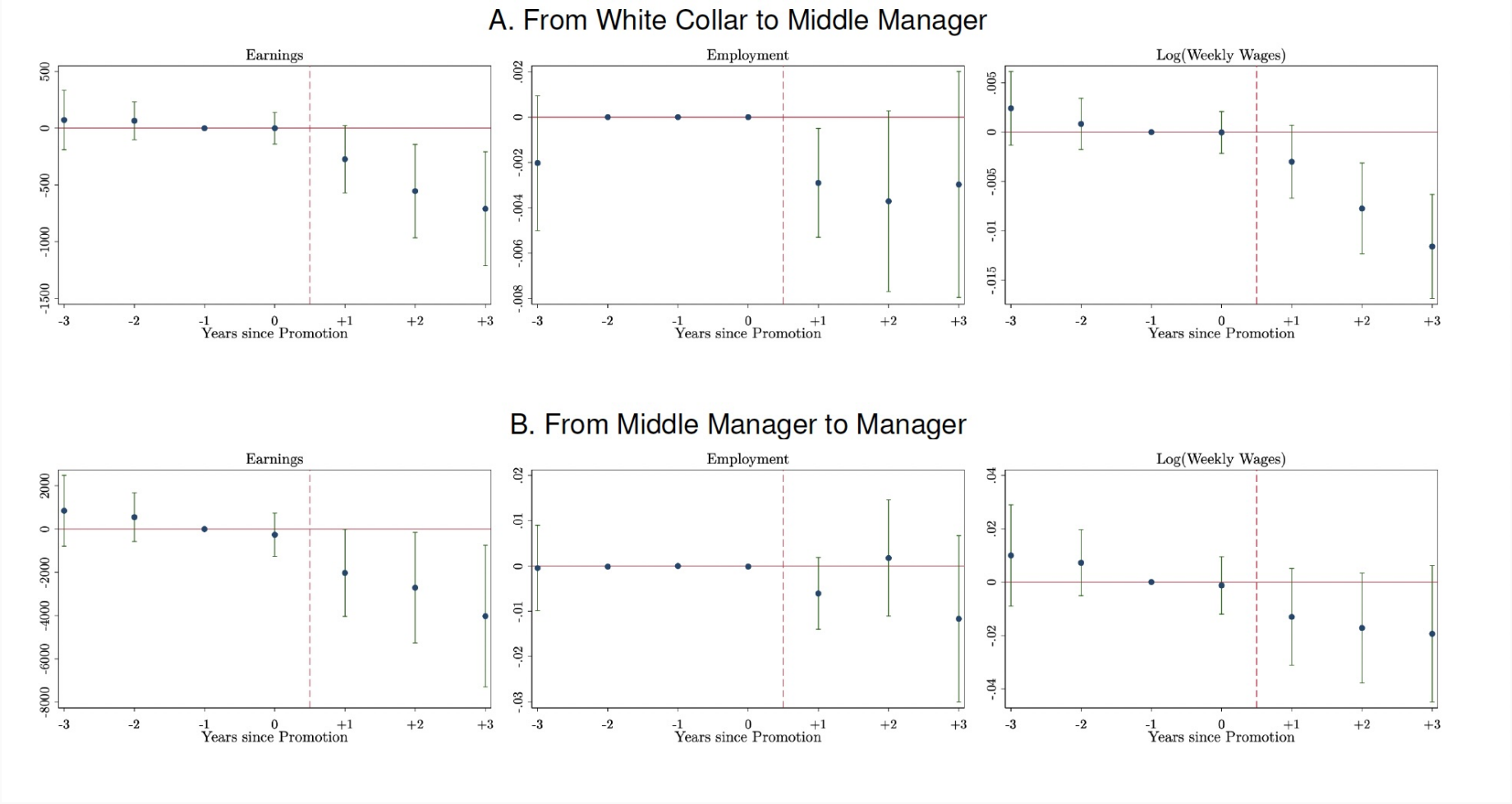
- One promotion in FFs, the other in NFs.
- Investigate whether promotion leads to different returns using the following event-study regression

$$y_{it} = \alpha_i + \lambda_t + \sum_{k=a}^{b} \mathbf{1}\{t = t_i^* + k\}\beta_k + \sum_{k=a}^{b} (\mathbf{1}\{t = t_i^* + k\} \times FF_i)\theta_k + \eta_{it} \qquad (8)$$

  - t_i^* is the year of promotion of worker i.
  - *FFi* dummy equal to 1 if worker was promoted by a FF.
  - Run regression on a matched sample of promoted workers ($\approx$ 30,000 promotions—-97% of them to middle managerial position).
  - Matching based on pre-promotion wages, logarithm of firm size, logarithm of value added per worker, age, industry, employment type, and gender; 2+ tenure.

Lower returns to promotions!



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- Implication:
    - Losing the top decision maker in family firms (where knowledge is concentrated) should be more disruptive than in non-family firms (where knowledge is shared)

CEO Deaths

- We identify top decision maker (CEO or, if not present, president)

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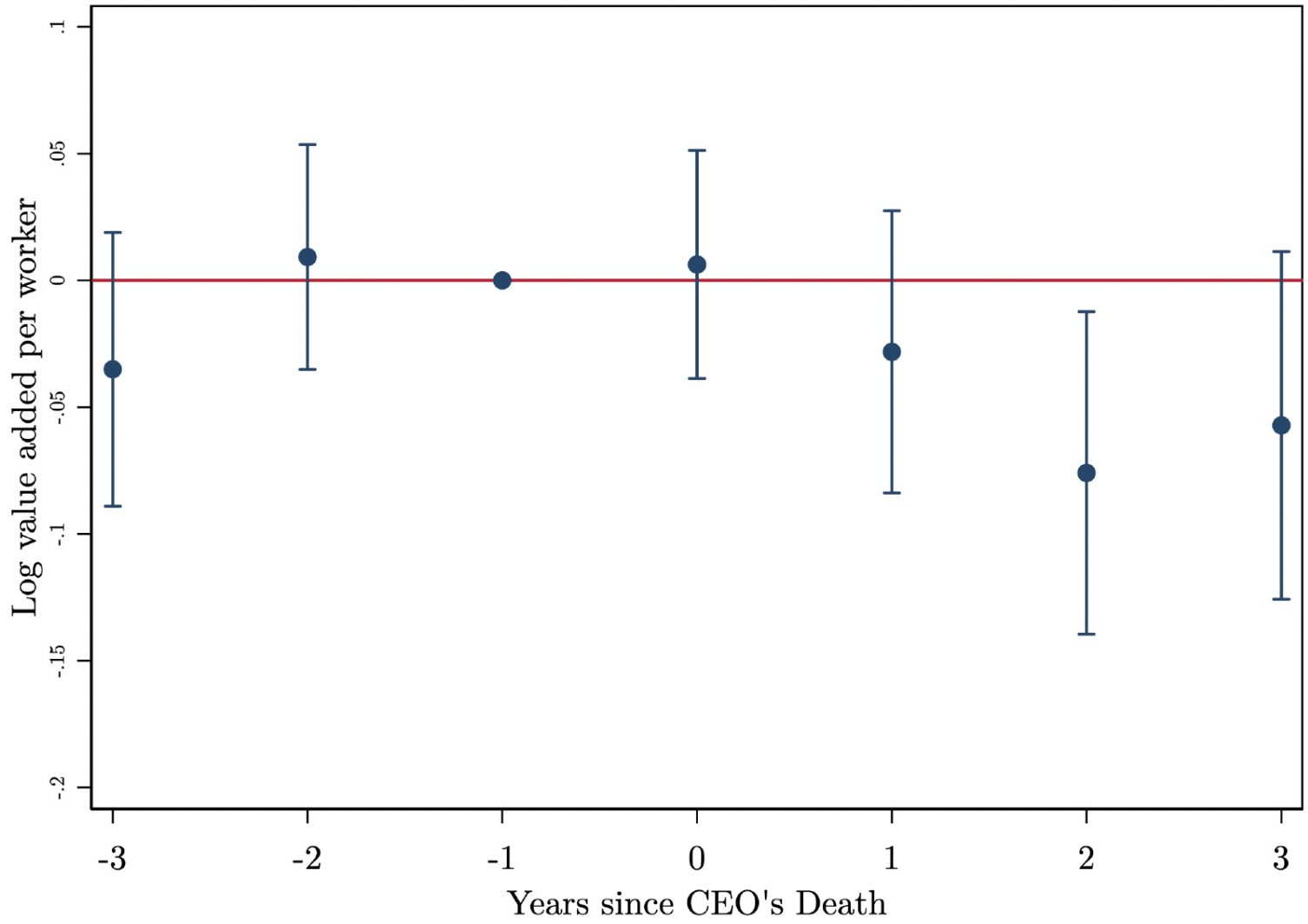
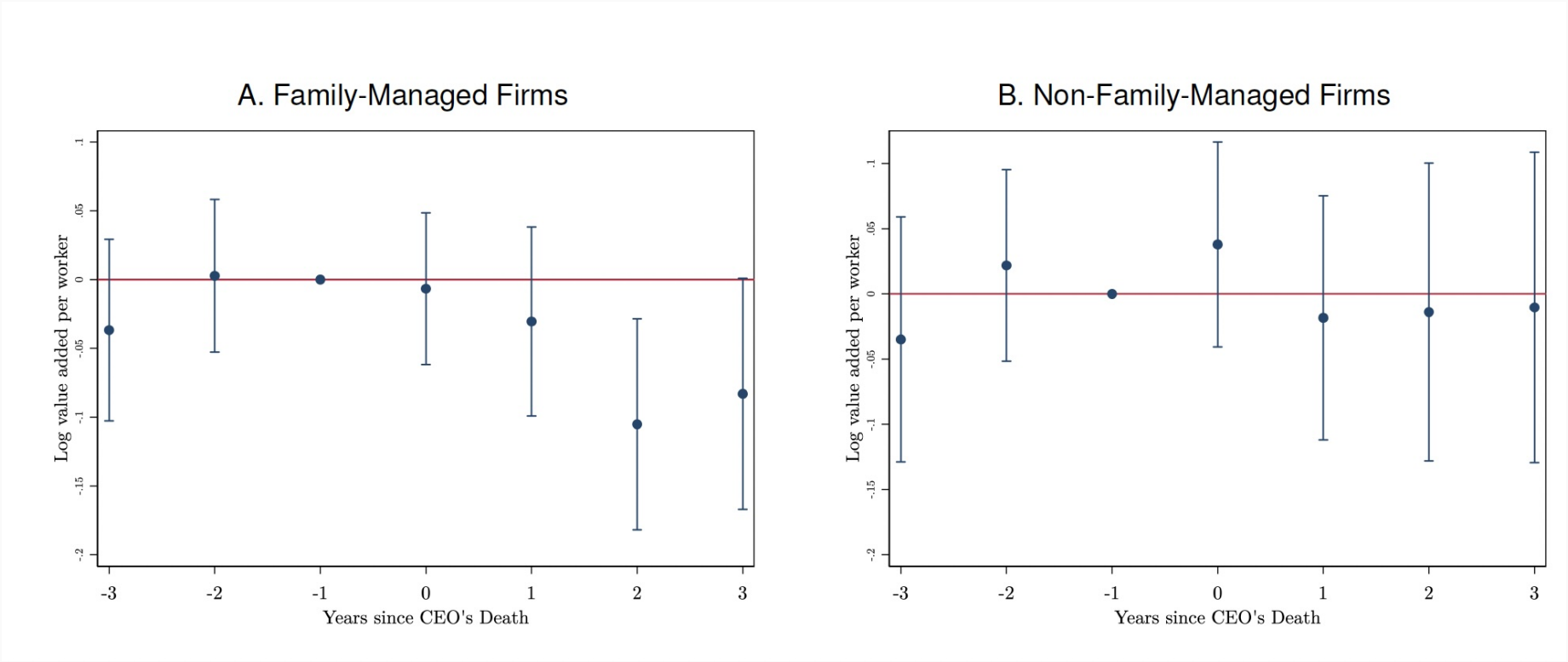
- Treated and control firms matched on industry, size and productivity

CEO Deaths and Firm Productivity



Family-Managed vs Non-Family Managed Firms



▸ Go to Productivity around CEO Death Events

▸ Go to Placebo Test

Conclusions

- Family firms pay lower wages than non-family firms.
- Gap only partially explained by worker/firm selection.
- Family firms do not supply better amenities to workers.
- Evidence of a glass-ceiling effect:
  - Fewer top-jobs available within family firms.
  - Promotions to top-jobs lead to lower returns in FFs.
  - Channel: FFs want to retain knowledge and power within the family.
- Paper $\rightarrow$ model that formalizes the presence of a glass-ceiling within FFs.

THANKS

APPENDIX

A Simple Model

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- Key ingredient: trade-off in promoting skilled workers:
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- Assumption: family firms have stronger preference for retaining decision-making power

Timeline

$t = 0$

Matching and hiring:

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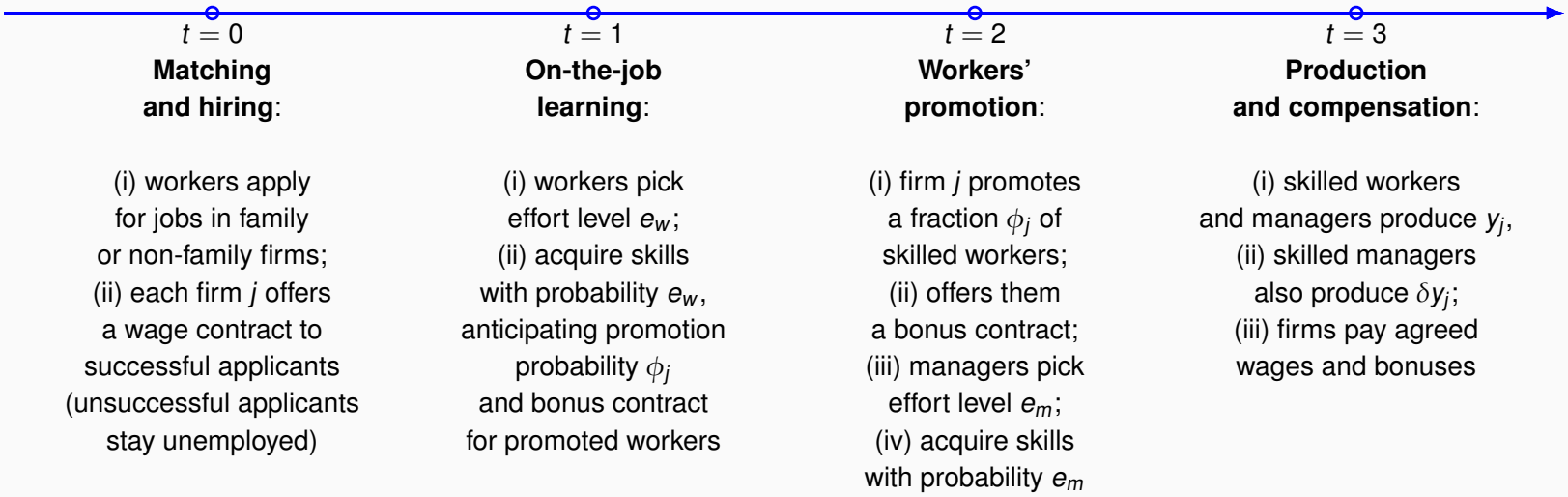
Production and compensation:

(i) skilled workers and managers produce y_j, (ii) skilled managers also produce δy_j; (iii) firms pay agreed wages and bonuses

Timeline



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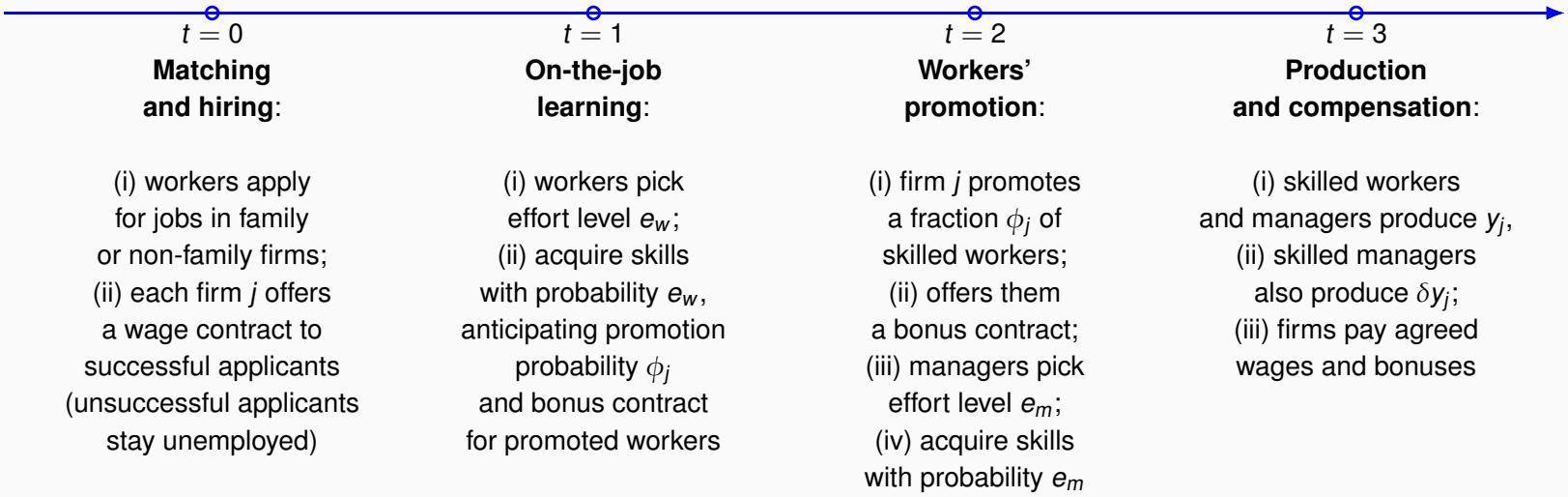

- Promotion rate ϕ_j leads to loss of private benefits $\frac{\beta_j \phi_j^2}{2}$
- Key assumption: β_j is greater in family firms $\rightarrow$ they place a higher value on private benefits of control

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   - Taste for private benefit β_j interacts with productivity y_j, leading to higher promotion gap in high-productivity firms

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   - Intuition: they expect a less rewarding career

Predictions: labor market equilibrium

- Since any worker prefers working in a non-family firm, and the supply of jobs in F and NF firms is fixed, what balances the labor market?
- Workers can only apply to one of the two groups
- Relative to vacancies, more workers apply to NF firms, so they have a lower probability of being hired $\rightarrow$ applicants to jobs in NF firms are more likely to end up unemployed
- So, even though NF firms deliver higher utility to their employees, *ex ante* workers who apply to the two types of firms have the same expected utility

Step 1 – Classify Shareholders

- Two types of shareholders: Individual and other firms
- Easy to distinguish, as firms' fiscal codes do not have letters
- With fiscal codes and denominations of shareholders can obtain:
  - name and surname
  - date of birth
  - gender
  - address
  - place of birth (hence, nationality)

Step 2 – Reconstruct Control Chains

- When a firm is partially owned by a firm, we go back over the control chain until we can trace its controlling shareholders
- In these cases, there is no unambiguous way to allocate control rights
- We follow the literature and use Weakest Link Principle (WLP)
    - assign control rights to the ultimate shareholder by computing the minimum value of voting rights across the control chain
- Example:
    - Giovanni Verdi owns 40% of Verdi S.p.a.
    - Verdi S.p.a. owns 50% of Rossi S.r.l.
    - Rossi S.r.l. owns 10% of Bianchi S.p.a.
    - according to the WLP, Giovanni Verdi has control rights of 10% (the minimum of 40%, 50%, and 10%) in Bianchi S.p.a.
- Intuition: a chain is only as strong as its weakest link

Step 3 – Identifying Family Ties

- Two individuals are assumed to belong to the same family if:
  - they have the last name, or
  - they have the same address and different gender

Step 4 – Family Firm Classification

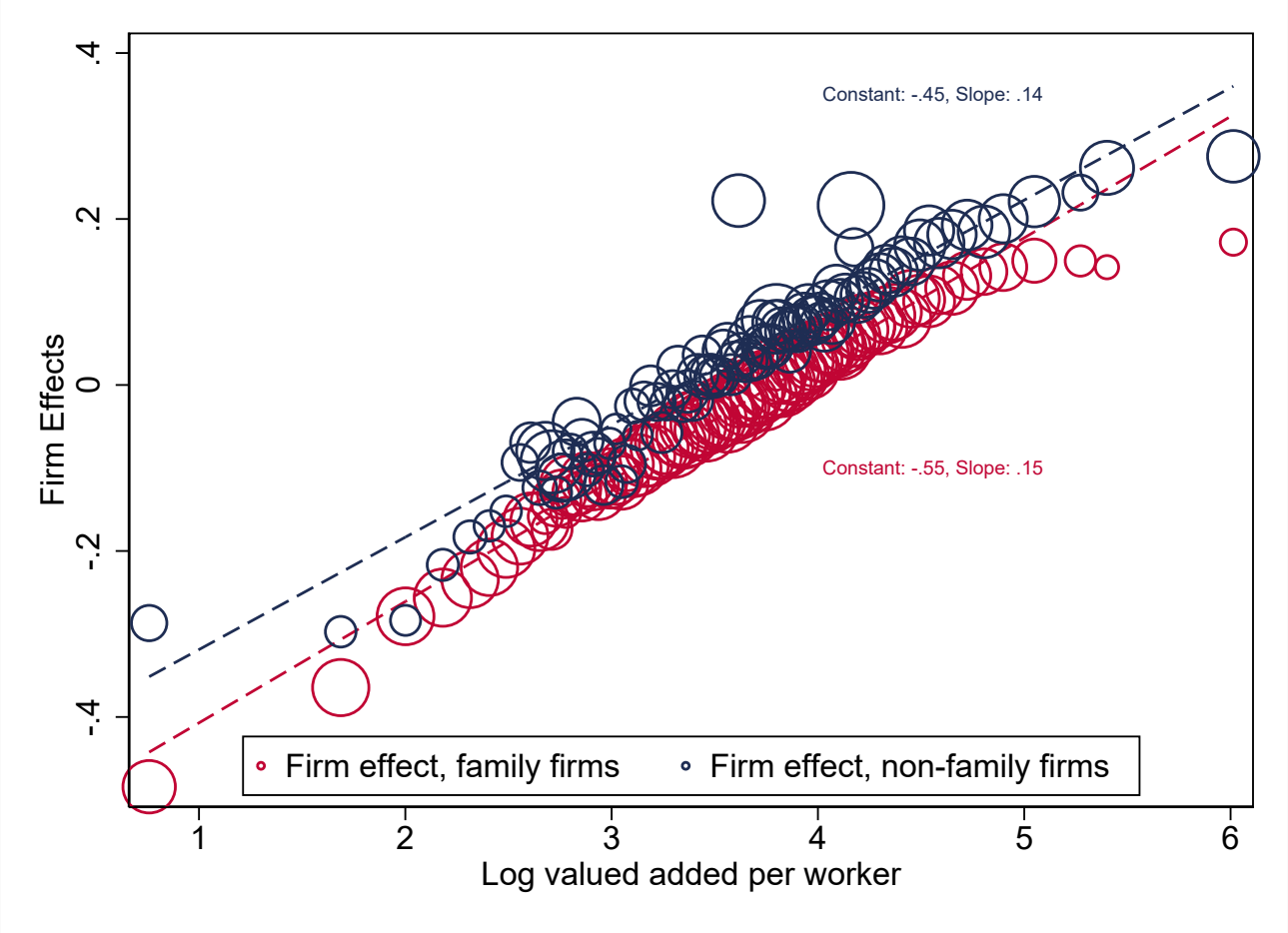
- Firms are classified as:
  - family firms – if the members of a family own more than 50% of the shares
  - family-managed firms – if the firm is a family firm and the top manager belongs to the controlling family

Validation

- Cerved has built a “family firm” flag for a sample of about 70,000 medium and large firms in 2018
- Family connections are identified through land registry certificates (visure catastali)
- The two variables coincide for 93% of the observations in the overlapping sample
- However, for the same year, our sample includes over 1.2 million firms
- Note: the overall accuracy is likely higher, as smaller firms have simpler ownership structure

◂ Back

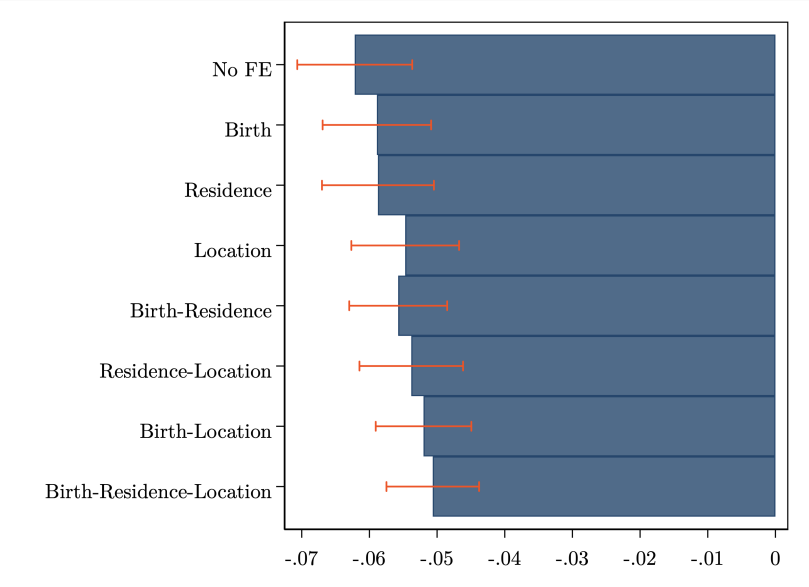
AKM Fixed Effects and Productivity (Weighted by Firm Size)



Back

Family Firm Discount and Location

- Two potential explanations for the family firm discount:
  1. Cost of living: family firms located in areas with low cost of living
  2. Location preferences: easier to find a job close to home in a family firm than in a non-family firm
- We regress firm fixed effect on family firm dummy, log of value added per worker, and city combination dummies
- The wage discount is only marginally affected when controlling for location of birth, work and residence



◂ Back

AKM Fixed Effects – Regression Results

- Result robust to controlling for productivity, industry, geography, and local labor market fixed effects

	(1)	(2)	(3)	(4)	(5)
Family Firm	-0.082***	-0.059***	-0.047***	-0.042***	-0.038***
	(0.006)	(0.004)	(0.003)	(0.002)	(0.001)
log(Productivity)		0.137***	0.134***	0.113***	0.108***
		(0.002)	(0.002)	(0.002)	(0.002)
Std Dep. Variable	0.20	0.20	0.20	0.20	0.20
# of Observations	89,507,579	89,507,579	89,507,579	89,507,579	89,507,579
# of Firms	753,154	753,154	753,154	753,154	753,154
Industry FE			X	X	
Province FE				X	
LLM FE					X

◂ Back

AKM Fixed Effects – Firm Size Split

A. Small Firms

	(1)	(2)	(3)	(4)	(5)
Family Firm	-0.037***	-0.022***	-0.018***	-0.021***	-0.021***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
log(Productivity)		0.129***	0.123***	0.010***	0.096***
		(0.001)	(0.001)	(0.001)	(0.001)
Std Dep. Variable	0.22	0.22	0.22	0.22	0.22
# of Observations	38,546,175	38,338,488	38,338,488	38,338,488	38,338,488
# of Firms	720,714	701,128	701,128	701,128	701,128

B. Medium Firms

	(1)	(2)	(3)	(4)	(5)
Family Firm	-0.063***	-0.035***	-0.030***	-0.030***	-0.028***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
log(Productivity)		0.136***	0.130***	0.111***	0.103***
		(0.002)	(0.002)	(0.003)	(0.003)
Std Dep. Variable	0.17	0.17	0.17	0.17	0.17
# of Observations	20,827,828	20,786,330	20,786,330	20,786,330	20,786,330
# of Firms	30,874	30,642	30,642	30,642	30,642

C. Large Firms

	(1)	(2)	(3)	(4)	(5)
Family Firm	-0.068***	-0.049***	-0.041***	-0.027***	-0.020***
	(0.013)	(0.008)	(0.006)	(0.005)	(0.004)
log(Productivity)		0.140***	0.137***	0.096***	0.094***
		(0.005)	(0.005)	(0.007)	(0.007)
Std Dep. Variable	0.16	0.16	0.16	0.16	0.16
# of Observations	30,133,576	30,099,836	30,099,836	30,099,836	30,099,836
# of Firms	4,332	4,332	4,332	4,332	4,332
Industry FE			X	X	
Province FE				X	
LLM FE					X

Back

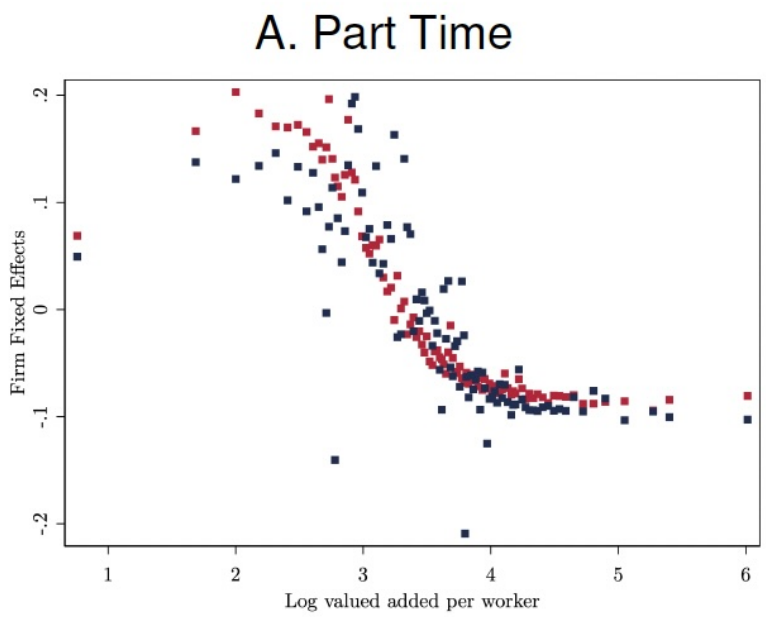
Systematic Utility provided by Family Firms (Cont'd)

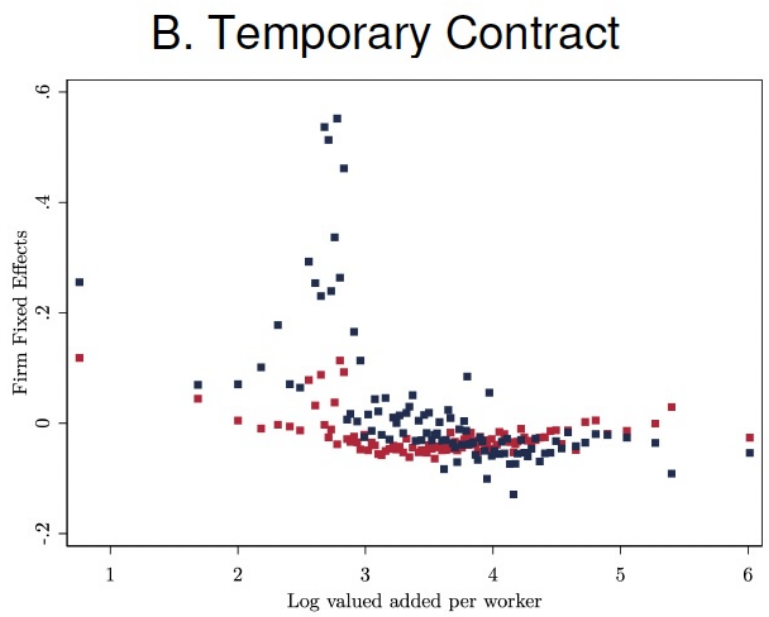
- Even after controlling for firm fixed effects, non-family firms generate more utility
- The result is robust to controlling for industry and worker's location

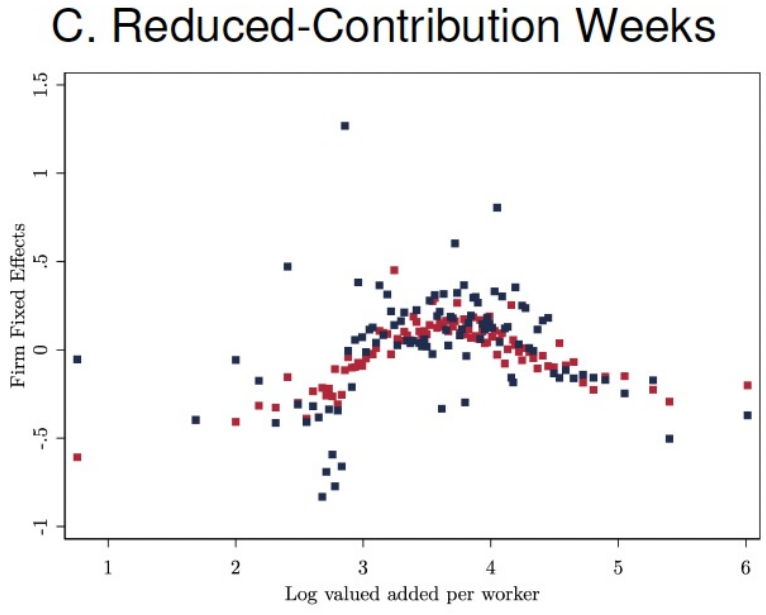
	(1)	(2)	(3)	(4)	(5)
Family Firm	-0.70***	-0.58***	-0.30***	-0.28***	-0.23***
	(0.08)	(0.07)	(0.02)	(0.02)	(0.01)
AKM FE		1.51***	1.32***	1.17***	0.93***
		(0.21)	(0.10)	(0.08)	(0.05)
Std. of Dep. Var.	1.45	1.45	1.45	1.45	1.45
# of Firms	313,375	310,584	310,584	310,584	310,584
Industry FE			X	X	
Province FE				X	
LLM FE					X

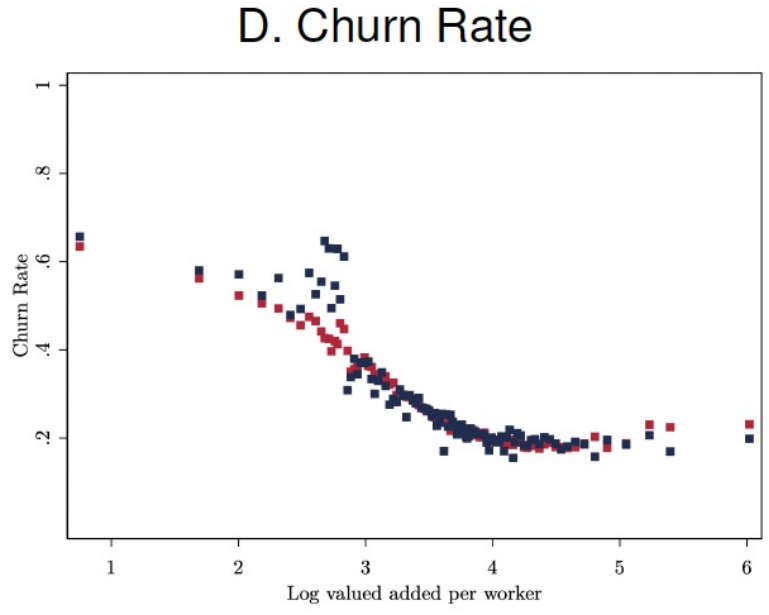
◂ Back

Observable Amenities

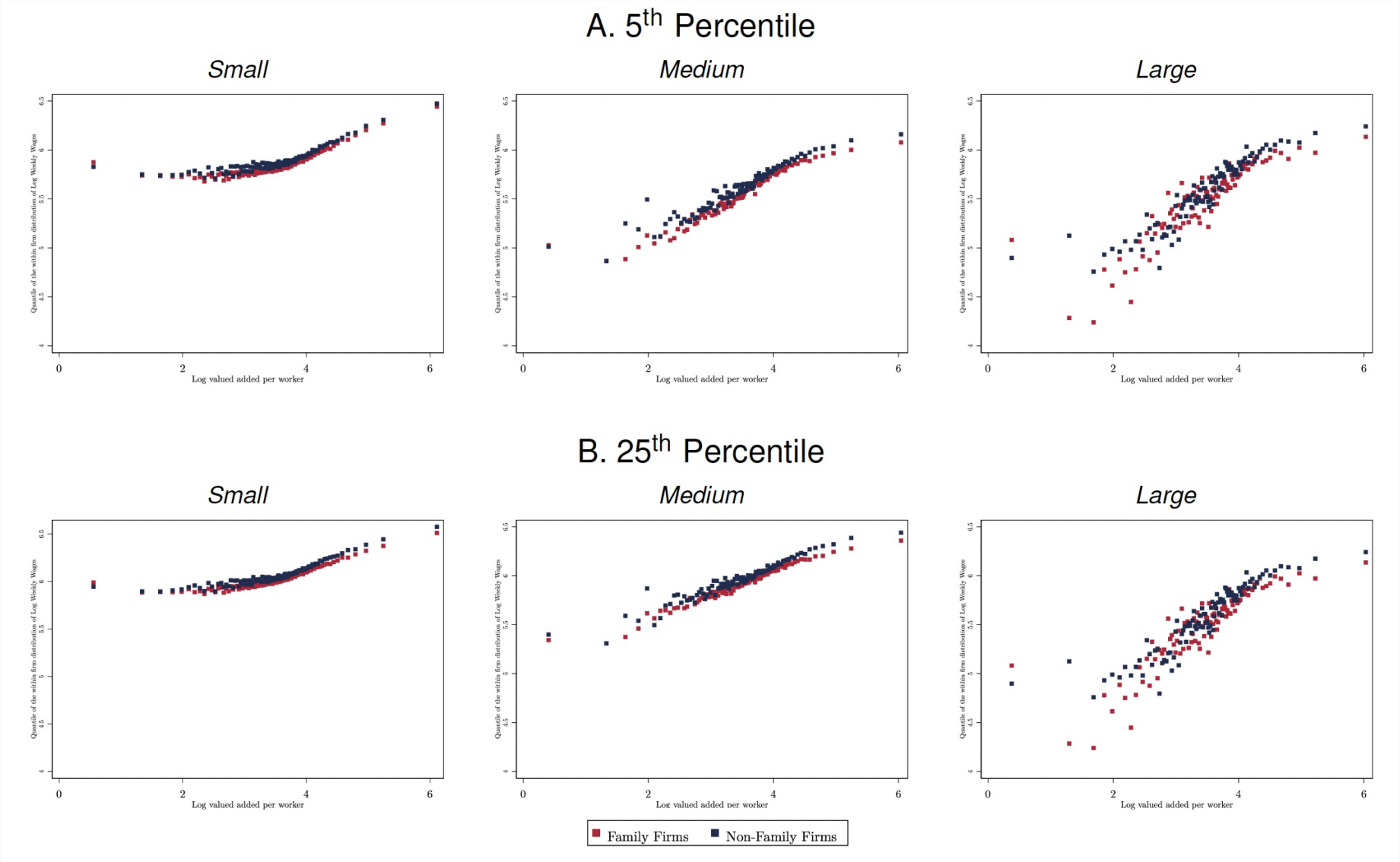




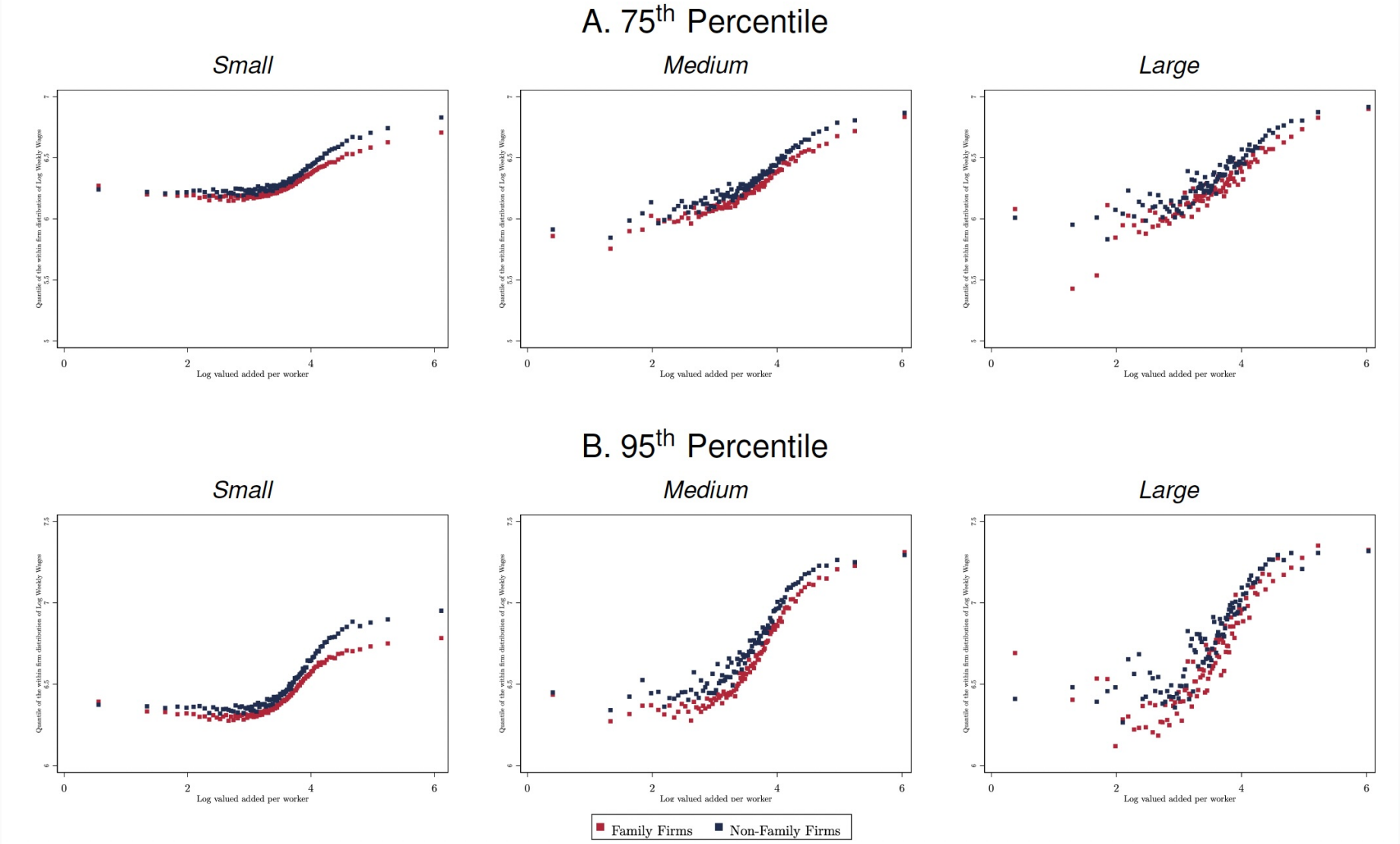




Within Inequality Controlling for size



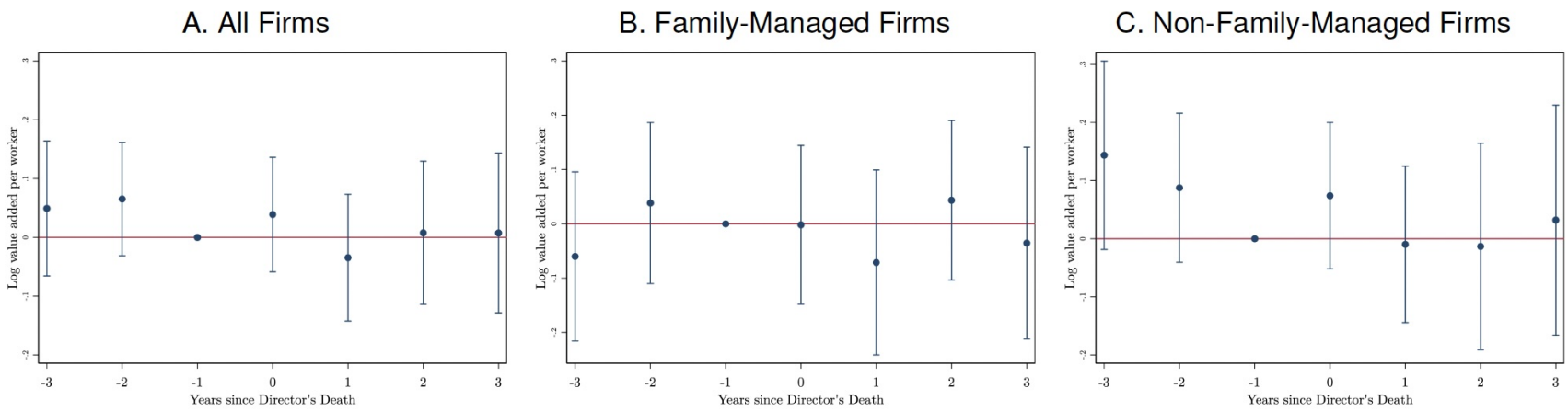
Within Inequality Controlling for size



Productivity around CEO Death Events

Placebo Test

- Effects may be due not to loss in know-how but to "emotional effect" of a family member's loss
- However, effects not observed when looking at (non-family) directors' deaths



Oaxaca Decomposition —Non-College

Table: Decomposing the Family Firm Wage Discount--->No College Educ

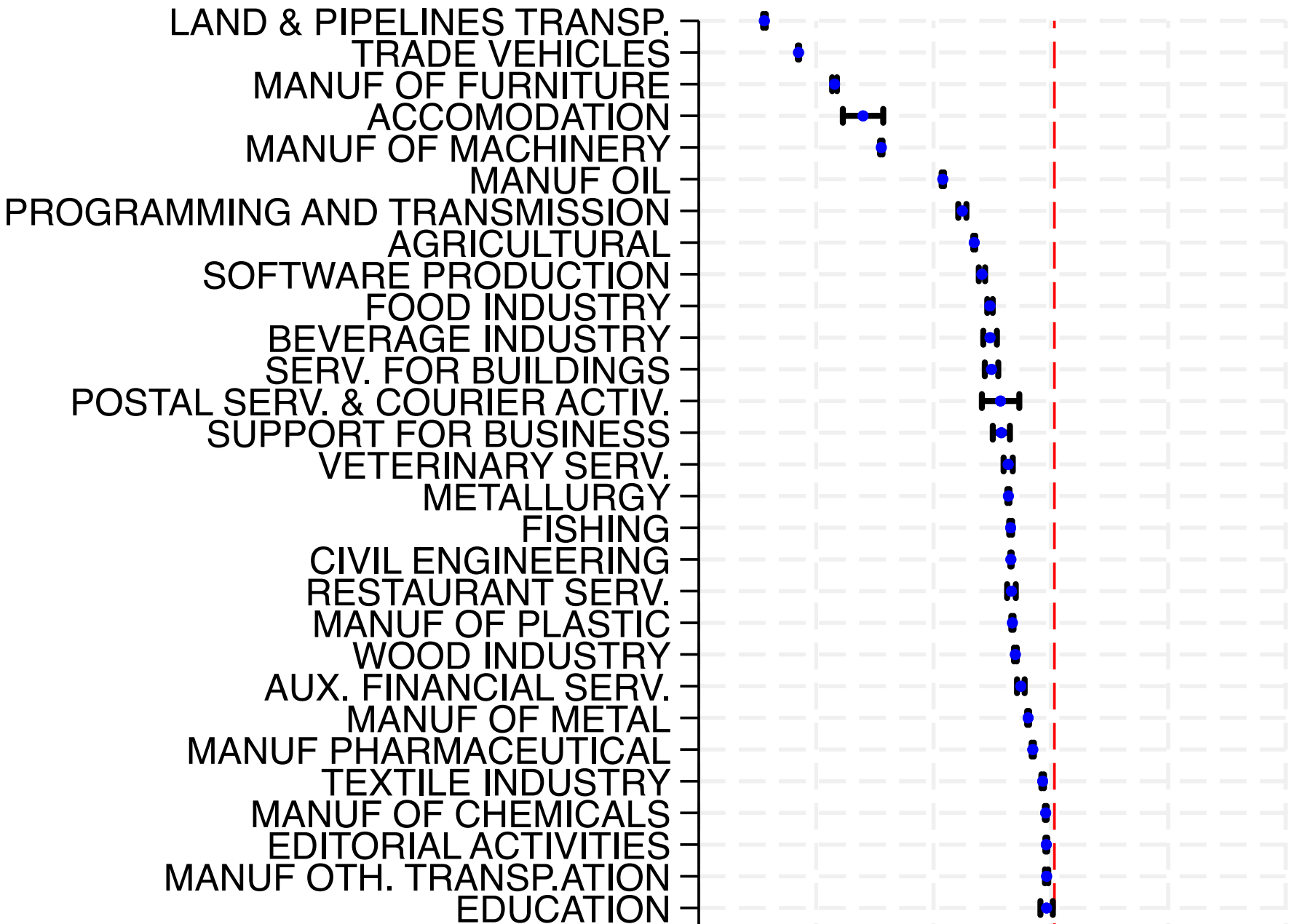
	Non-Family Firm	Family Firm	Difference
Log Weekly Wage (Raw)	5.86	6.03	-0.16
Person Effects	-0.01	-0.07	-0.06
Firm Effects	0.05	-0.02	-0.07
Log Value Added per Worker	3.59	3.47	-0.12
Regressing Firm Effects into Log VA/L			
Constant	-0.43	-0.49	-0.06
Coefficient	0.13	0.13	0.00
Decomposing the Difference in Firm Effects into...			
Bargaining Component	0.46	0.46	0.00
Productivity Component	0.48	0.46	-0.02
Avg Component unrelated to productivity / bargaining	-0.43	-0.49	-0.06

Oaxaca Decomposition —College

Table: Decomposing the Family Firm Wage Discount--- College Educ

	Non-Family Firm	Family Firm	Difference
Log Weekly Wage (Raw)	6.32	6.11	-0.22
Person Effects	0.14	0.00	-0.13
Firm Effects	0.04	-0.06	-0.10
Log Value Added per Worker	3.83	3.58	-0.25
Regressing Firm Effects into Log VA/L			
Constant	-0.49	-0.76	-0.28
Coefficient	0.14	0.20	0.06
Decomposing the Difference in Firm Effects into...			
Bargaining Component	0.50	0.70	0.21
Productivity Component	0.53	0.50	-0.03
Avg Component unrelated to productivity / bargaining	-0.49	-0.76	-0.28

FFPD (net of worker effects) by industries



Oaxaca of Starting Wages

Table 4: Decomposing the Family Firm Wage Discount on Starting Wages

	Non-Family Firm	Family Firm	Difference
Log Weekly Starting Wage	5.9728	5.8723	-0.1005
Person Effects	0.0266	-0.0159	-0.0424
Firm Effects	0.0346	-0.0180	-0.0525
Log Value Added per Worker	3.4276	3.3179	-0.1097
Rent-Sharing Coefficient	0.1279	0.1411	0.0132
Decomposing the Difference in Firm Effects into...			
Bargaining Component	0.4245	0.4683	0.0438
Productivity Component	0.4385	0.4245	-0.0140
Constant	-0.4013	-0.4874	-0.0861

Note: This table shows the average characteristics across family and non-family firms for the universe of employers with available financial information. The first row presents the average log weekly starting wage across family and non-family firms, weighted by the number of person-year observations. The latter is defined as the initial wage received by a worker from a given employer. We then show the average person effects and firm effects across family and non family firms after fitting a two-way AKM model on the log weekly starting wage in these data. In this AKM model, the employer fixed effect is represented by the unrestricted interaction between the unique tax identifier of the employer and a dummy for whether the employer is under family ownership or not. The fourth row shows the average log value added per worker while the fifth row shows the rent-sharing coefficient obtained after regressing the firm effect on a constant and log value added per worker separately across family and non-family firms. The last three columns then performs the Oaxaca decomposition where the difference in the firm effects across family and non family firm is divided into a productivity component (differences in average log value added per worker across family and non-family firms, weighted by the rent-sharing coefficient of non-family firms) and a bargaining component (differences in rent-sharing coefficient weighted using the distribution of log value added per worker of family firms). The last row reports the constant obtained when projecting the firm onto log value added per worker separately for family and non-family firms.