Hierarchies and Entrepreneurship: Evidence from Swedish Microdata

Joacim Tåg (IFN)
Thomas Åstebro (HEC Paris)
Peter Thompson (Emory University)

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What the paper does

- Documents a **hierarchy effect**
- The hierarchy effect explains up to **20%** of the small firm effect
- The hierarchy effect can be explained by
  - **Bureaucracy and preferences**
  - **Information processing and jack-of-all-trades**
  - Career concerns
  - (Stars and misfits)

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Outline

- Data
  - Sample
  - Entrepreneurship proxy
  - Hierarchy proxy
- The hierarchy effect
- Mechanisms
  - Bureaucracy and preferences
  - Information processing and jack-of-all-trades
  - Career concerns
- Takeaways

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Data

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Sample

- Registry data on Swedes from Statistics Sweden
  - Universe of workers aged 16 or up
  - Variables we use
    - Age
    - Martial status
    - Labor and capital income
    - Tenure
    - Education
    - **Occupation**
    - **Entrepreneurship status**
    - Firm link
    - Firm location
    - Firm industry
    - Firm size
- IFNCDB: value added

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Sample

- Restrictions
  - 2001-2008
  - Age 20-60
  - Private sector (exclude public sector, health education, fishing and agriculture)
  - Firms with: more than 5 workers + 75% have "accurate" occupation data.

- Final sample
  - Around 7,5 million worker-year observations
  - Covers 61% of value added and 53% employment

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Entrepreneurship proxy

- Statistics Sweden define "employed in own firm" if total income from own firm > 62.5% of other labor income.

- Entrepreneurship entry:
  1. Newly occupied in own business.
  2. New place of work.
  3. New firm.

- Entrepreneurship type:
  - Self-employed = sole proprietorships (1.2)
  - Entrepreneurs = limited liability companies (5.3)

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Entrepreneurship proxy

Table 1

Sample size

Year	Firms	Workers	To other firm	To self employment	To entrepreneurship
2001	20,364	1,042,267	155,063	3,061	465
2002	19,051	1,155,587	156,242	3,451	434
2003	13,535	1,079,013	139,370	4,103	1,125
2004	11,831	1,048,657	137,992	4,249	1,103
2005	12,426	1,059,188	140,544	4,329	1,042
2006	13,026	1,060,428	146,305	3,763	1,268
2007	15,516	1,107,941	152,545	4,050	1,537
Total	105,749	7,553,081	1,028,061	27,006	6,974

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Hierarchy proxy

- Swedish occupation data, SSYK, builds on ISCO-88 hierarchical classification of occupations

- Methodology:
  - Aggregate into *4* occupational classes
  - A firm with **c** occupation classes has **L=c-1** LOM

- Aggregate occupations into *4* layers of management
  - Caliendo, Monte, Rossi-Hansberg (2013)
  - Tåg (2013)

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Occupational classifications, skill levels, and rank

SSYK Occupational Classification	Skill Level	Occupation Class
1. Legislators, senior officials & managers	NA	**3. CEOs:** SSYK 121 (Directors and chief executives), 131 (Managers of small enterprises), 111 (legislators and senior government officials), 112 (senior officials of special-interest organizations) **2. Senior staff:** SSYK 122 (Production and operations managers), 123 (Other specialist managers)
2. Professionals	4	**1. Supervisors:** SSYK 200-399 (Professionals, technicians and associate professionals)
3. Technicians & associate professionals	3	
4. Clerks	2	**0. Production workers:** SSYK 400-999 (Clerks, service workers and shop sales workers, skilled agricultural and fishery workers, craft and related trades workers, plant and machine operators and assemblers, and elementary occupations).
5. Service workers & shop sales workers	2	
6. Skilled agricultural & fishery workers	2	
7. Craft & related trades workers	2	
8. Plant & machine operators & assemblers	2	
9. Elementary occupations	1	
0. Armed forces	NA	Omitted

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Hierarchy proxy

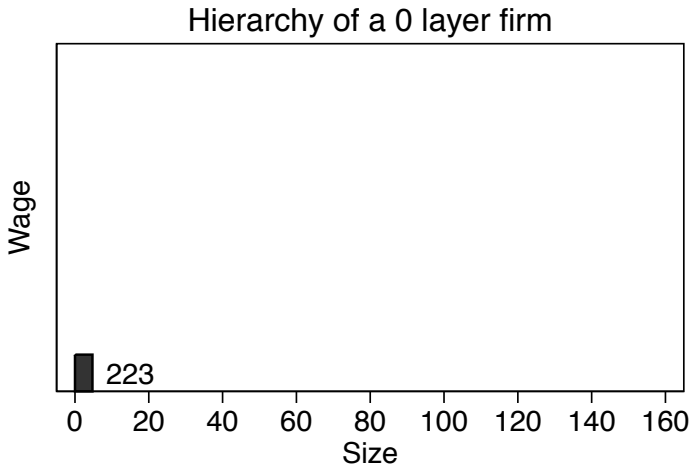
Table 6

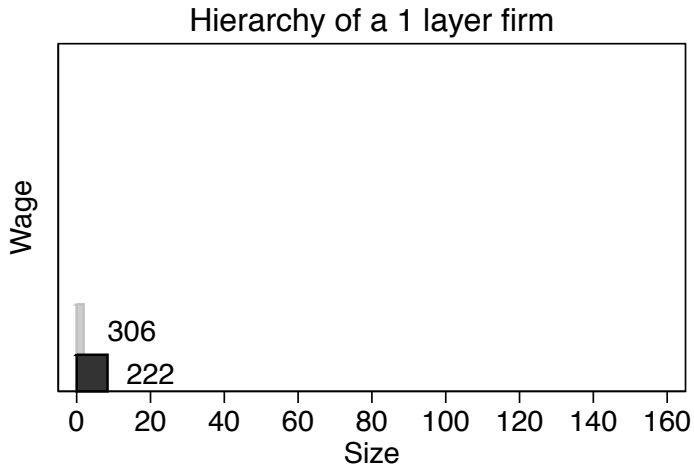
Descriptive statistics of sample by layers of management in firm

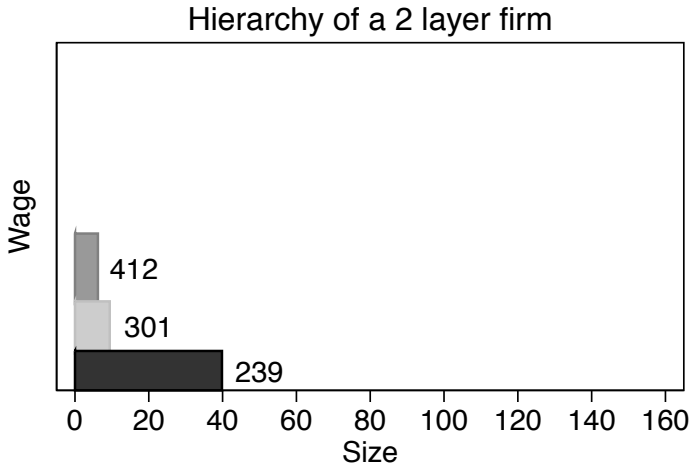
Layers of management	*N*	Means				Median Wage
		Value Added per worker	Employees	Wage	Wage Dispersion	
0	21,627	477	13	235	317	225
1	35,245	594	18	253	383	237
2	28,773	717	62	288	457	268
3	20,104	817	268	319	468	295
Total	105,749	646	77	271	406	254

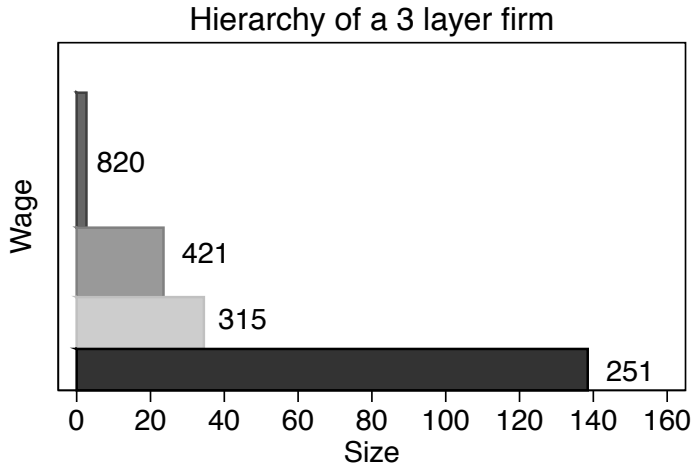
N is the number of firm-year observations. Value added per worker, annual wages and wage dispersion are in unit of 1,000 SEK at 2005 prices

Hierarchy proxy









The hierarchy effect

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Estimation

- Multinomial logit
- Outcome variable
  - Entrepreneurship
  - Self employment
  - Other firm
  - Stay (omitted)
- Explanatory variable
  - Layers of management
- Control variables
  - Age (+sqr)
  - Gender
  - Log (labor income)
  - Tenure (+sqr)
  - Occupation class
  - Education
  - Firm size
  - Firm location
  - Firm industry
  - Year

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Table 7

Worker Transitions. Multinomial Logit Estimation

	Model A			**Model B**		
	Entrepre-neurship (1)	Self-employment (2)	Other firm (3)	Entrepre-neurship (4)	Self-employment (5)	Other firm (6)
CEOs	1.054***	0.010	-0.034***	1.124***	0.046	-0.030**
	(0.067)	(0.060)	(0.012)	(0.068)	(0.060)	(0.012)
Senior staff	0.994***	0.400***	0.278***	1.048***	0.419***	0.282***
	(0.054)	(0.036)	(0.007)	(0.054)	(0.037)	(0.007)
Supervisors	0.748***	0.259***	0.031***	0.776***	0.269***	0.033***
	(0.039)	(0.020)	(0.003)	(0.039)	(0.020)	(0.003)
Firm layers: 1				-0.250***	-0.200***	-0.042***
				(0.061)	(0.032)	(0.007)
Firm layers: 2				-0.336***	-0.243***	-0.078***
				(0.060)	(0.032)	(0.007)
Firm layers: 3				-0.461***	-0.215***	-0.055***
				(0.063)	(0.034)	(0.007)
Size 50-100	-0.470***	-0.388***	-0.063***	-0.379***	-0.350***	-0.052***
	(0.047)	(0.026)	(0.005)	(0.049)	(0.027)	(0.005)
Size 100-500	-0.770***	-0.661***	-0.136***	-0.645***	-0.616***	-0.123***
	(0.038)	(0.021)	(0.004)	(0.042)	(0.024)	(0.004)
Size 500-1500	-0.831***	-0.851***	-0.255***	-0.684***	-0.808***	-0.243***
	(0.044)	(0.025)	(0.004)	(0.049)	(0.029)	(0.005)
Size >1500	-1.281***	-1.172***	-0.579***	-1.120***	-1.123***	-0.567***
	(0.043)	(0.023)	(0.004)	(0.050)	(0.028)	(0.005)
N	6,865,026	6,865,026	6,865,026	6,865,026	6,865,026	6,865,026

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Figure 4. *Percentage reduction in regression coefficients on firm size obtained upon adding controls for layers of management.*

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Explaining the hierarchy effect

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Bureaucracy and preferences

- **Story:**
  - Entrepreneurial people hate bureaucracy
  - Self-selects into flatter firms
  - Firms with fewer layers have an overrepresentation of workers that prefer entrepreneurship

- **Test:** utility from entrepreneurship implies these are
  1. Less financially successful
  2. Persist longer in entrepreneurship

Table 9

Performance of entrepreneurs, two years after business creation

	OLS Regressions			
	Log(Total income)		Survival	
	Entrepreneurs (1)	Self-employed (2)	Entrepreneurs (3)	Self-employed (4)
CEOs and Directors	0.032	-0.013	-0.030*	-0.069***
	(0.026)	(0.027)	(0.018)	(0.026)
Managers	-0.003	-0.032*	-0.019	-0.060***
	(0.021)	(0.016)	(0.014)	(0.016)
Supervisors	0.010	-0.014	0.008	-0.022**
	(0.015)	(0.009)	(0.011)	(0.009)
Firm layers: 1	0.043*	0.004	-0.042**	-0.029**
	(0.024)	(0.014)	(0.017)	(0.014)
Firm layers: 2	0.074***	-0.008	-0.049***	-0.036***
	(0.024)	(0.014)	(0.017)	(0.014)
Firm layers: 3	0.069***	-0.002	-0.047***	-0.038***
	(0.025)	(0.015)	(0.018)	(0.014)
Size 50-100	-0.018	-0.001	0.016	-0.008
	(0.020)	(0.012)	(0.014)	(0.012)
Size 100-500	-0.026	0.011	0.021*	0.010
	(0.017)	(0.011)	(0.012)	(0.010)
Size 500-1500	-0.006	0.018	0.031**	-0.010
	(0.020)	(0.013)	(0.014)	(0.012)
Size 1500>	-0.008	0.020	0.020	-0.033***
	(0.019)	(0.012)	(0.014)	(0.012)
Observations	5,769	19,276	5,769	19,276
R squared	0.72	0.76	0.71	0.25

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Information processing and jack-of-all-trades

- **Story (part 1):**
  - Firms are hierarchies of knowledge
  - Workers pass problems they cannot solve to managers, who pass them on to other managers
  - Managers use workers to economize on costs, more knowledgeable workers cost more
  - => Flatter firms have more knowledgeable workers

- **Story (part 2):**
  - Entrepreneurs are jack-of-all-trades: success in entrepreneurship requires broad knowledge

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Information processing and jack-of-all-trades

- **Tests:** multinomial logit per layer of management

1. Higher relative position in hierarchy associated with greater propensity for entrepreneurship

2. More layers of management, stronger effect of top position.

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Table 10

Worker Transitions, Multinomial Logit estimations

	THREE LAYERS			TWO LAYERS			ONE LAYER		
	Entrepreneurship	Self-employment	Other firm	Entrepreneurship	Self-employment	Other firm	Entrepreneurship	Self-employment	Other firm
Top	1.460***	0.534***	0.300***	0.747***	0.314***	0.187***	0.516***	-0.017	-0.233***
	(0.099)	(0.081)	(0.014)	(0.090)	(0.064)	(0.012)	(0.081)	(0.052)	(0.011)
Second	1.153***	0.426***	0.293***	0.565***	0.255***	0.068***			
	(0.074)	(0.046)	(0.008)	(0.065)	(0.037)	(0.007)			
Third	0.865***	0.249***	0.035***						
	(0.055)	(0.027)	(0.004)						
Size 50-100	-0.311***	-0.192***	-0.035***	-0.394***	-0.343***	-0.055***	-0.555***	-0.469***	-0.086***
	(0.081)	(0.048)	(0.009)	(0.079)	(0.046)	(0.008)	(0.122)	(0.065)	(0.012)
Size 100-500	-0.641***	-0.514***	-0.097***	-0.624***	-0.575***	-0.182***	-0.909***	-0.764***	-0.040***
	(0.067)	(0.041)	(0.008)	(0.065)	(0.039)	(0.007)	(0.163)	(0.083)	(0.013)
Size 500-1500	-0.667***	-0.708***	-0.248***	-0.792***	-0.754***	-0.222***	-1.275***	-1.136***	-0.219***
	(0.071)	(0.043)	(0.008)	(0.090)	(0.054)	(0.009)	(0.257)	(0.166)	(0.022)
Size 1500>	-1.243***	-1.024***	-0.513***	-1.074***	-1.107***	-0.675***	-0.708***	-1.191***	-0.753***
	(0.074)	(0.042)	(0.008)	(0.091)	(0.056)	(0.010)	(0.191)	(0.129)	(0.022)
Constant	-12.625***	-2.989***	3.428***	-13.137***	-3.345***	2.765***	-13.776***	-4.065***	2.917***
	(0.425)	(0.179)	(0.027)	(0.573)	(0.263)	(0.044)	(0.864)	(0.366)	(0.068)
Observations	4,561,415	4,561,415	4,561,415	1,525,459	1,525,459	1,525,459	548,383	548,383	548,383

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Top	1.460***	0.534***	0.300***	0.747***	0.314***	0.187***	0.516***	-0.017	-0.233***
	(0.099)	(0.081)	(0.014)	(0.090)	(0.064)	(0.012)	(0.081)	(0.052)	(0.011)
Second	1.153***	0.426***	0.293***	0.565***	0.255***	0.068***			
	(0.074)	(0.046)	(0.008)	(0.065)	(0.037)	(0.007)			
Third	0.865***	0.249***	0.035***						
	(0.055)	(0.027)	(0.004)						
Size 50-100	-0.311***	-0.192***	-0.035***	-0.394***	-0.343***	-0.055***	-0.555***	-0.469***	-0.086***
	(0.081)	(0.048)	(0.009)	(0.079)	(0.046)	(0.008)	(0.122)	(0.065)	(0.012)
Size 100-500	-0.641***	-0.514***	-0.097***	-0.624***	-0.575***	-0.182***	-0.909***	-0.764***	-0.040***
	(0.067)	(0.041)	(0.008)	(0.065)	(0.039)	(0.007)	(0.163)	(0.083)	(0.013)
Size 500-1500	-0.667***	-0.708***	-0.248***	-0.792***	-0.754***	-0.222***	-1.275***	-1.136***	-0.219***
	(0.071)	(0.043)	(0.008)	(0.090)	(0.054)	(0.009)	(0.257)	(0.166)	(0.022)
Size 1500>	-1.243***	-1.024***	-0.513***	-1.074***	-1.107***	-0.675***	-0.708***	-1.191***	-0.753***
	(0.074)	(0.042)	(0.008)	(0.091)	(0.056)	(0.010)	(0.191)	(0.129)	(0.022)
Constant	-12.625***	-2.989***	3.428***	-13.137***	-3.345***	2.765***	-13.776***	-4.065***	2.917***
	(0.425)	(0.179)	(0.027)	(0.573)	(0.263)	(0.044)	(0.864)	(0.366)	(0.068)
Observations	4,561,415	4,561,415	4,561,415	1,525,459	1,525,459	1,525,459	548,383	548,383	548,383

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Table 10

Worker Transitions, Multinomial Logit estimations

	THREE LAYERS			TWO LAYERS			ONE LAYER		
	Entrepreneurship	Self-employment	Other firm	Entrepreneurship	Self-employment	Other firm	Entrepreneurship	Self-employment	Other firm
Top	1.460***	0.534***	0.300***	0.747***	0.314***	0.187***	0.516***	-0.017	-0.233***
	(0.099)	(0.081)	(0.014)	(0.090)	(0.064)	(0.012)	(0.081)	(0.052)	(0.011)
Second	[illegible]	0.426***	0.293***	[illegible]	0.255***	0.068***			
	(0.074)	(0.046)	(0.008)	(0.065)	(0.037)	(0.007)			
Third	0.865***	0.249***	0.035***						
	(0.055)	(0.027)	(0.004)						
Size 50-100	-0.311***	-0.192***	-0.035***	-0.394***	-0.343***	-0.055***	-0.555***	-0.469***	-0.086***
	(0.081)	(0.048)	(0.009)	(0.079)	(0.046)	(0.008)	(0.122)	(0.065)	(0.012)
Size 100-500	-0.641***	-0.514***	-0.097***	-0.624***	-0.575***	-0.182***	-0.909***	-0.764***	-0.040***
	(0.067)	(0.041)	(0.008)	(0.065)	(0.039)	(0.007)	(0.163)	(0.083)	(0.013)
Size 500-1500	-0.667***	-0.708***	-0.248***	-0.792***	-0.754***	-0.222***	-1.275***	-1.136***	-0.219***
	(0.071)	(0.043)	(0.008)	(0.090)	(0.054)	(0.009)	(0.257)	(0.166)	(0.022)
Size 1500>	-1.243***	-1.024***	-0.513***	-1.074***	-1.107***	-0.675***	-0.708***	-1.191***	-0.753***
	(0.074)	(0.042)	(0.008)	(0.091)	(0.056)	(0.010)	(0.191)	(0.129)	(0.022)
Constant	-12.625***	-2.989***	3.428***	-13.137***	-3.345***	2.765***	-13.776***	-4.065***	2.917***
	(0.425)	(0.179)	(0.027)	(0.573)	(0.263)	(0.044)	(0.864)	(0.366)	(0.068)
Observations	4,561,415	4,561,415	4,561,415	1,525,459	1,525,459	1,525,459	548,383	548,383	548,383

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Career Concerns

- **Story:**
  - Firms have hierarchies to motivate workers
  - Firms with fewer layers do not allow entrepreneurial individuals to make a career within the firm, so they leave.

- **Tests: lower probability of entrepreneurship if**
  1. Within firm standard deviation of wages is higher
  2. Within firm wage-rank slope is higher
  3. Relative firm wage-rank slope is higher

Table 11

Worker Transitions. Multinomial Logit Estimation

	Model A			Model B			Model C		
VARIABLES	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm
CEOs and directors	1.278***	0.445***	0.295***	1.254***	0.454***	0.306***	1.257***	0.453***	0.306***
	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)
Senior staff	1.053***	0.415***	0.304***	1.041***	0.424***	0.309***	1.042***	0.424***	0.309***
	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)
Supervisors	0.821***	0.205***	0.058***	0.820***	0.212***	0.062***	0.821***	0.212***	0.061***
	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)
Firm layers: 2	-0.040	0.033	-0.059***	-0.044	0.052	-0.034***	-0.040	0.052	-0.031***
	(0.073)	(0.041)	(0.007)	(0.074)	(0.042)	(0.007)	(0.074)	(0.042)	(0.007)
Firm layers: 3	-0.138*	0.059	-0.035***	-0.135*	0.087**	-0.005	-0.131*	0.086**	-0.003
	(0.072)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)
Log(wage)	0.569***	-0.768***	-0.510***	0.608***	-0.770***	-0.509***	0.607***	-0.770***	-0.509***
	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)
Firm mean log(wage)	-0.097	0.254***	-0.081***	-0.190**	0.136***	-0.152***	-0.193**	0.136***	-0.149***
	(0.093)	(0.051)	(0.008)	(0.091)	(0.048)	(0.008)	(0.091)	(0.048)	(0.008)
Firm log(wage) standard deviation	0.514***	0.565***	0.347***						
	(0.139)	(0.081)	(0.014)						
Wage slope				-0.188*	0.067	0.137***			
				(0.100)	(0.058)	(0.009)			
Relative wage slope							-0.059	0.026	0.066***
							(0.039)	(0.022)	(0.004)
Observations	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Regressions include four firm size dummies, age, age squared, female, education, tenure, tenure squared, industry, year and county, and a constant.

Table 11

Worker Transitions. Multinomial Logit Estimation

	Model A			Model B			Model C		
VARIABLES	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm
CEOs and directors	1.278***	0.445***	0.295***	1.254***	0.454***	0.306***	1.257***	0.453***	0.306***
	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)
Senior staff	1.053***	0.415***	0.304***	1.041***	0.424***	0.309***	1.042***	0.424***	0.309***
	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)
Supervisors	0.821***	0.205***	0.058***	0.820***	0.212***	0.062***	0.821***	0.212***	0.061***
	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)
Firm layers: 2	-0.040	0.033	-0.059***	-0.044	0.052	-0.034***	-0.040	0.052	-0.031***
	(0.073)	(0.041)	(0.007)	(0.074)	(0.042)	(0.007)	(0.074)	(0.042)	(0.007)
Firm layers: 3	-0.138*	0.059	-0.035***	-0.135*	0.087**	-0.005	-0.131*	0.086**	-0.003
	(0.072)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)
Log(wage)	0.569***	-0.768***	-0.510***	0.608***	-0.770***	-0.509***	0.607***	-0.770***	-0.509***
	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)
Firm mean log(wage)	-0.097	0.254***	-0.081***	-0.190**	0.136***	-0.152***	-0.193**	0.136***	-0.149***
	(0.093)	(0.051)	(0.008)	(0.091)	(0.048)	(0.008)	(0.091)	(0.048)	(0.008)
Firm log(wage) standard deviation	0.514***	0.565***	0.347***						
	(0.139)	(0.081)	(0.014)						
Wage slope				-0.188*	0.067	0.137***			
				(0.100)	(0.058)	(0.009)			
Relative wage slope							-0.059	0.026	0.066***
							(0.039)	(0.022)	(0.004)
Observations	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Regressions include four firm size dummies, age, age squared, female, education, tenure, tenure squared, industry, year and county, and a constant.

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Table 11

Worker Transitions. Multinomial Logit Estimation

	Model A			Model B			Model C		
VARIABLES	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm
CEOs and directors	1.278***	0.445***	0.295***	1.254***	0.454***	0.306***	1.257***	0.453***	0.306***
	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)
Senior staff	1.053***	0.415***	0.304***	1.041***	0.424***	0.309***	1.042***	0.424***	0.309***
	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)
Supervisors	0.821***	0.205***	0.058***	0.820***	0.212***	0.062***	0.821***	0.212***	0.061***
	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)
Firm layers: 2	-0.040	0.033	-0.059***	-0.044	0.052	-0.034***	-0.040	0.052	-0.031***
	(0.073)	(0.041)	(0.007)	(0.074)	(0.042)	(0.007)	(0.074)	(0.042)	(0.007)
Firm layers: 3	-0.138*	0.059	-0.035***	-0.135*	0.087**	-0.005	-0.131*	0.086**	-0.003
	(0.072)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)
Log(wage)	0.569***	-0.768***	-0.510***	0.608***	-0.770***	-0.509***	0.607***	-0.770***	-0.509***
	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)
Firm mean log(wage)	-0.097	0.254***	-0.081***	-0.190**	0.136***	-0.152***	-0.193**	0.136***	-0.149***
	(0.093)	(0.051)	(0.008)	(0.091)	(0.048)	(0.008)	(0.091)	(0.048)	(0.008)
Firm log(wage) standard deviation	0.514***	0.565***	0.347***						
	(0.139)	(0.081)	(0.014)						
Wage slope				-0.188*	0.067	0.137***			
				(0.100)	(0.058)	(0.009)			
Relative wage slope							-0.059	0.026	0.066***
							(0.039)	(0.022)	(0.004)
Observations	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Regressions include four firm size dummies, age, age squared, female, education, tenure, tenure squared, industry, year and county, and a constant.

Table 11

Worker Transitions. Multinomial Logit Estimation

	Model A			Model B			Model C		
VARIABLES	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm	Entrepre-neurship	Self-employment	Other firm
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	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)	(0.097)	(0.086)	(0.014)
Senior staff	1.053***	0.415***	0.304***	1.041***	0.424***	0.309***	1.042***	0.424***	0.309***
	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)	(0.063)	(0.041)	(0.007)
Supervisors	0.821***	0.205***	0.058***	0.820***	0.212***	0.062***	0.821***	0.212***	0.061***
	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)	(0.047)	(0.024)	(0.004)
Firm layers: 2	-0.040	0.033	-0.059***	-0.044	0.052	-0.034***	-0.040	0.052	-0.031***
	(0.073)	(0.041)	(0.007)	(0.074)	(0.042)	(0.007)	(0.074)	(0.042)	(0.007)
Firm layers: 3	-0.138*	0.059	-0.035***	-0.135*	0.087**	-0.005	-0.131*	0.086**	-0.003
	(0.072)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)	(0.073)	(0.041)	(0.007)
Log(wage)	0.569***	-0.768***	-0.510***	0.608***	-0.770***	-0.509***	0.607***	-0.770***	-0.509***
	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)	(0.045)	(0.013)	(0.003)
Firm mean log(wage)	-0.097	0.254***	-0.081***	-0.190**	0.136***	-0.152***	-0.193**	0.136***	-0.149***
	(0.093)	(0.051)	(0.008)	(0.091)	(0.048)	(0.008)	(0.091)	(0.048)	(0.008)
Firm log(wage) standard deviation	0.514***	0.565***	0.347***						
	(0.139)	(0.081)	(0.014)						
Wage slope				-0.188*	0.067	0.137***			
				(0.100)	(0.058)	(0.009)			
Relative wage slope							-0.059	0.026	0.066***
							(0.039)	(0.022)	(0.004)
Observations	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282	5,952,282

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Regressions include four firm size dummies, age, age squared, female, education, tenure, tenure squared, industry, year and county, and a constant.

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Takeaways

- Documents a distinct **hierarchy effect**
- The hierarchy effect explains up to **20%** of the small firm effect
- The hierarchy effect can be explained by
  - **Bureaucracy and preferences**
  - **Information processing and jack-of-all-trades**
  - Career concerns
  - (Stars and misfits)
- Results not specific to Sweden

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Thank you for your attention!

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