

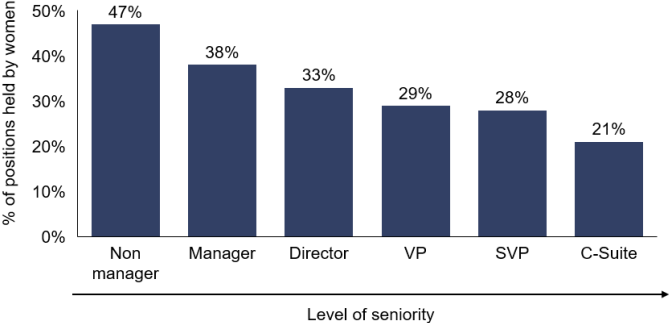
Peer Effects and the Gender Gap in Corporate Leadership: Evidence from MBA Students

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2023 ASSA: Gender Gaps session

Women underrepresented in corporate leadership positions

Female Representation in the Corporate Pipeline



Source: LeanIn.Org and McKinsey & Company, 2020

Role of Social Connections

Social connections play key role for career outcomes

(Granovetter, 1973; Bewley, 1999; Calvo-Armengol and Jackson, 2004)

- ▶ One explanation for gender gap: “Old Boy’s Clubs” (Cullen and Perez-Truglia, 2021)
- ▶ Women have limited access to informal networks in the workplace
- ▶ Men tend to hold more powerful positions
- ▶ ⇒ social connections with *male peers* valuable for women



Role of Social Connections



- ▶ However, women face different challenges than men in the workplace
- ▶ Female peers can provide useful information and support
 - ▶ For example, information on firms that support women's career advancement
- ▶ ⇒ social connections with *female peers* valuable for women

Role of Social Connections



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- ▶ Female peers can provide useful information and support
 - ▶ For example, information on firms that support women's career advancement
- ▶ ⇒ social connections with *female peers* valuable for women

Research question: How does **gender composition** of social connections affect women's advancement into leadership positions?

This Paper

Sample: MBA graduates from a top U.S. business school for cohorts 2000-2018

Strategy: Exposure to female peers from quasi-random assignment to sections

Data: School administrative data + detailed CV data with work history up to 2019 + firm-level data

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Findings:

1. Female MBAs **24%** less likely to hold senior leadership
2. 1SD (4pp) ↑ in female share ⇒ **8.4%** ↑ in likelihood of being senior manager
3. Results driven by **female-friendly firms**

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Mechanisms: Qualitative interviews and quantitative analysis (in progress)

Outline

Setting

Data

Descriptive Analysis

Empirical Strategy

Results

Role of Female-Friendly Firms

Mechanisms

Conclusions

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Setting and MBA Section Assignment

- ▶ Full-time 2-year MBA graduates
 - ▶ Each year MBA students quasi-randomly assigned to 8 sections of 60 students
 - ▶ Students in same sections take core classes together
 - ▶ Core classes: almost 50% of MBA curriculum in first year
 - ▶ Close social ties
- (Yang, Chawla, and Uzzi 2019; Lerner and Malmendier 2013)

Assignment

Share of Female Peers across Sections

Treatment: share of female students in section

1. Meaningful variation across sections within classes [Female Share](#) [Variation](#)
2. Distribution of female share across sections as good as random [Simulation](#) [Tests](#)

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Individual and Section Level Data

1. School Administrative Data

- ▶ 2000-2018: Aggregate stats on number of students by section, gender, and race
 - ▶ **Treatment variable** - share of female students per section

Individual and Section Level Data

1. School Administrative Data

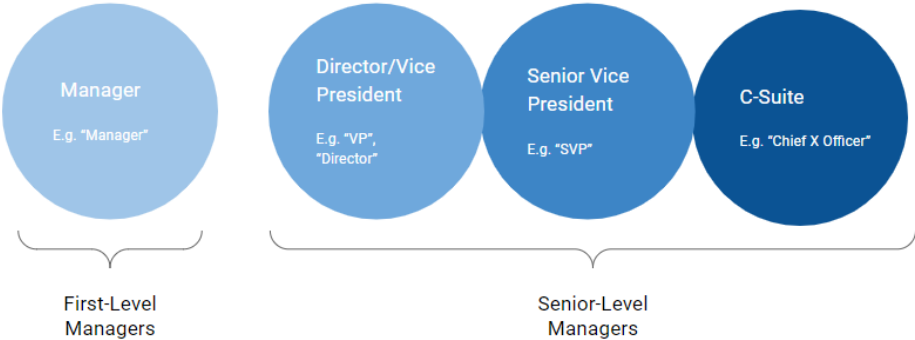
- ▶ 2000-2018: Aggregate stats on number of students by section, gender, and race
 - ▶ **Treatment variable** - share of female students per section

2. Public LinkedIn Profiles

- ▶ Sample: MBAs from classes of 2000-2018 currently in U.S.
- ▶ Public LinkedIn profiles for 77% of the full-time MBAs [Alumni Directory](#) [Matching](#)
[Match Statistics](#)
- ▶ Complete self-reported education and employment history up to 2019
 - ▶ Employers, start and end dates, job titles, schools attended, degrees received

Identification of Management Positions

Based on keywords in job titles listed on CVs Job Titles Responsibilities Survey



Notes: Definitions from LeanIn.Org and McKinsey & Company, 2020

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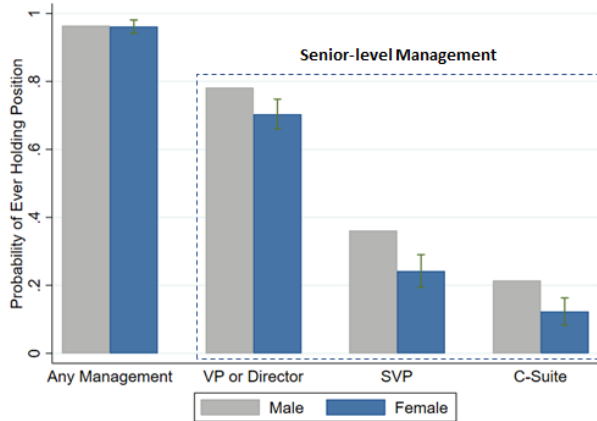
Mechanisms

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Descriptive Analysis

Gender Gap in Senior Management

Probability of Ever Entering Management Positions at 15 Years Post MBA by Gender



- ▶ 96% of graduates become managers
- ▶ No gender gap in overall management positions, but gap in senior management

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Empirical Specification

$$y_{ikct} = \alpha_1 \overline{FemaleShare}_{-i,kc} \times Male_i + \alpha_2 \overline{FemaleShare}_{-i,kc} \times Female_i + \alpha_3 Female_i + \sum_{j=0,1} (\delta_c + \phi_t + \omega_{ct}) \times I(Female_i = j) + X_{ikct} \gamma' + \epsilon_{ikct} \quad (1)$$

- ▶ $\overline{FemaleShare}_{-i,kct}$: share of section female peers of i
- ▶ Class FE, Year FE, Female FE, and their interactions
- ▶ X_{ikct} : vector of individual and section-level controls [Full List](#)
- ▶ SE clustered at the section level

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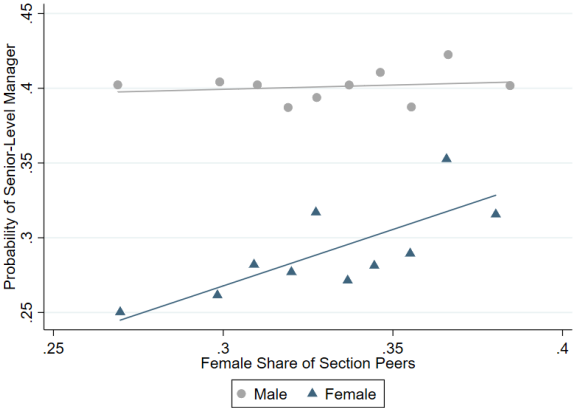
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Probability of Holding a Senior Management Position

Probability of Senior-Level Manager



► Positive effect of female peers on women but no effect on men

Probability of Holding a Senior Management Position

Effect on Senior Management

	(1) Senior-Level Manager
Female share × Male	0.0315 (0.115)
Female share × Female	0.822*** (0.204)
<i>p</i> -value Male vs. Female	0.000
Female Mean	0.391
Male Mean	0.534
R^2	0.173
N	51440
Class × Year × Female FE	Yes
Stratification Controls	Yes
Pre-MBA Characteristics Controls	Yes
Section-level Controls	Yes

- ▶ 1SD (4pp) increase in female share
≈ 2.5 additional women per section
⇒ 8.4% increase in probability of becoming senior manager

Controls

Section Controls

Number of Years

Years to First Position

External-Internal Promotions

Quality

Robustness

Compensation (Imputed)

Over Time

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Role of Female-Friendly Firms

What drives the increase in female senior managers?

Role of **firm characteristics**

▶ Data:

1. Firm size and industry (*LinkedIn Company Profiles*)
2. Total and base annual compensation by gender and job title (*Glassdoor*)
3. 18 metrics + overall rating (1-5) of firm female-friendliness (*InHerSight.com*)

- ▶ Women not moving to smaller or lower-paying firms Manager and Size Manager and Comp
- ▶ However, firms may differ along other dimensions beneficial for women's career advancement
- ▶ Growing literature on importance of **female-friendly workplaces** for women
(Goldin2014; Goldin and Katz 2016; Hotz et al. 2018)

Results driven by female-friendly firms

Female-friendly firms: above-median overall rating on InHerSight.com

Components

	Senior Manager	
	(1) Female-Friendly Firms	(2) Non Female-Friendly Firms
Female share \times Female	1.243*** (0.394)	-0.468 (0.402)
Female Mean	0.161	0.118
Male Mean	0.238	0.186
R^2	0.167	0.242
N	28505	28505
Class \times Year \times Female FE	Yes	Yes

1. Increase in likelihood to [enter female-friendly firms](#) [Entries](#)
 - ▶ Effect emerges starting from 7-8 years post-MBA: when female MBA graduates have young children and gender wage gap increases [Entries - Descriptives](#) [Components Above Median](#)
2. Increase in [promotions](#) (suggestive): *Conditional* on the type of firm, women with more female peers are more likely to be promoted in female-friendly firms [Conditional](#)

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Mechanisms: Qualitative Approach

Method: Qualitative interviews using an in-depth narrative approach (Bergman et al. 2019) by sociology Ph.D. student

- ▶ Unstructured interviews with follow-up questions on topics of interest

Goal: Identify key channels and inform larger quantitative survey in Winter 2023

Sample: 45 MBA alumnae

Content: Career trajectories, challenges, role of MBA peers and female network

Preliminary Evidence: 4 Key Mechanisms

1. Emotional Support →
2. Improved Academic Environment →
3. Gender-Specific Information →
 - ▶ Firm Benefits and Culture
 - ▶ Work-life Balance and Related Policies
4. Job Referrals →
 - ▶ Female classmates more likely to work in same firm if from same section Referrals
 - ▶ Effect driven by female-friendly firms

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Conclusion

- ▶ Female MBAs 24% less likely to hold senior leadership position
- ▶ **Female MBA peers increases women's chances of entering senior management positions**
- ▶ Effect driven by female-friendly firms
- ▶ Qualitative evidence: 4 key channels
 - ▶ Emotional support
 - ▶ Improved academic environment
 - ▶ Gender-specific information
 - ▶ Job referrals
- ▶ Next steps: test relative importance of mechanisms in quantitative survey
- ▶ **Key Takeaway:** Gender composition of MBA peers can reduce gender gap in corporate leadership positions Counterfactual

THANK YOU

FEEDBACK AND COMMENTS ARE MUCH APPRECIATED:

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Robustness

- ▶ Missing data [Missing Data](#)
- ▶ Placebo tests:
 - ▶ Random re-assignment of sections [Re-assignment](#)
 - ▶ Pre-MBA years [Pre-MBA](#)
- ▶ Alternative definitions and sample restrictions [Alternative Sample](#)
- ▶ Alternative specifications:
 - ▶ Event-study design [Event Study](#)
 - ▶ Clustering at the class level [Class Clustering](#)
 - ▶ Logistic model [Logit](#)

Effect Concentrated in Male-Dominated Industries

Results concentrated in male-dominated **industries**

- ▶ Stronger effects in settings where women underrepresented [Male-Dom](#)
- ▶ No evidence of shift across industries, higher *promotion* rates

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Role of Female Peers in Male-Dominated Industries

Are these peer effects magnified in settings where women are underrepresented?

For example, **male-dominated industries**: finance, tech, consulting [Male Dom. Industries](#)

Women face more barriers in access to informal networks (Cullen and Perez-Truglia 2019)

- ▶ Female peers may represent substitutes for these networks

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Role of Female Peers in Male-Dominated Industries

	Senior Manager	
	(1) Male Dominated Industries	(2) Female Dominated Industries
Female share \times Female	0.605** (0.243)	-0.0269 (0.107)
Female Mean	0.201	0.074
Male Mean	0.344	0.072
R^2	0.097	0.033
N	45389	45389
Class \times Year \times Female FE	Yes	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

- ▶ Effects are stronger in **male-dominated industries**
- ▶ Effects driven by higher **promotion rates**, not entries

Entries

Conditional

Industries

Alumni Directory Records

- ▶ Contains full name, year of graduation and current employment
- ▶ Importantly, includes MBA section identifier which allows us to assign students to peer groups
- ▶ 96% of graduates are represented in the alumni directory [Coverage](#)

[Matching](#)

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Matching

Matching to MBAs Graduates: 77% of the full-time MBAs to public LinkedIn profiles

- ▶ 2011-2018: matched to administrative records by administrative personnel
- ▶ 2000-2010: matched to alumni directory by researchers [Alumni Directory](#)
 - ▶ We manually matched based on the following variables:
 - ▶ Name and surname: For people who may have changed names after marriage, we searched for them online
 - ▶ Business school name listed on the social media profile
 - ▶ Employment history
- ▶ 2009 excluded because 80% of profiles are private

Coverage Rate of Alumni Directory

Coverage Rate of Alumni Directory, 2000-2010 Records

	Overall		Male		Female	
	N	Non-Missing Share	N	Non-Missing Share	N	Non-Missing Share
Admin Data	4720	1.000	3210	1.000	1503	1.000
Alumni Directory	4532	0.960	3132	0.976	1380	0.918

Notes: Sample includes graduating classes 2000-2010, excluding 2009.

Data: Female-Friendly Rating

- ▶ Overall rating (1-5) - summary measure of firms' female-friendliness
 - ▶ Women anonymously rate their firms on 18 topics such as flexibility, parental leave, female leadership
1. Gender Equal Opportunities
 2. Work Schedule Flexibility
 3. Professional Enrichment
 4. Fair Compensation
 5. Family Friendliness
 6. Workplace Culture

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1. Gender Equal Opportunities

- ▶ Equal Opportunities for Women and Men
- ▶ Management Opportunities
- ▶ Women in Leadership

2. Work Schedule Flexibility

3. Professional Enrichment

4. Fair Compensation

5. Family Friendliness

6. Workplace Culture

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1. Gender Equal Opportunities

2. Work Schedule Flexibility

- ▶ Paid Time Off
- ▶ Flexible Work Hours
- ▶ Ability to Telecommute

3. Professional Enrichment

4. Fair Compensation

5. Family Friendliness

6. Workplace Culture

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 - ▶ Wellness Initiatives
 - ▶ Learning Opportunities
 - ▶ Sponsorship or Mentorship Program
 - ▶ Do you feel your growth and success are (or were) priorities for your manager(s) at this company?
 - ▶ Do you feel you receive(d) the necessary feedback to succeed at your job and achieve your goals?
 4. Fair Compensation
 5. Family Friendliness
 6. Workplace Culture

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 2. Work Schedule Flexibility
 3. Professional Enrichment
 4. Fair Compensation
 - ▶ Salary Satisfaction
 - ▶ When reflecting on your pay when you were first hired at this firm, do you feel you were paid fairly?
 5. Family Friendliness
 6. Workplace Culture

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 3. Professional Enrichment
 4. Fair Compensation
 5. Family Friendliness
 - ▶ Maternity and Adoptive Leave
 - ▶ Family Growth Support
 - ▶ Does this firm support employees caring for other members of their family other than children?
 6. Workplace Culture

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1. Gender Equal Opportunities
 2. Work Schedule Flexibility
 3. Professional Enrichment
 4. Fair Compensation
 5. Family Friendliness
 6. Workplace Culture
 - ▶ The People You Work With
 - ▶ Social Activities and Environment
 - ▶ Support for Diversity
 - ▶ Sense of Belonging
 - ▶ Employer Responsiveness

Match Statistics

Data Source	Units	Unit Match Rate	Unit-Year Observations	Unit-Year Match Rate
A. Individuals – Cohorts 2000-2008, 2010-2018				
All 2-Year Full-Time MBAs	8509	1.000		
LinkedIn Profiles	6556	0.770	66514	1.000
LinkedIn Profiles (US Locality Only)	5098	0.599	52160	0.784
B. Firms – Cohorts 2000-2008, 2010-2018				
All Firms Listed on LinkedIn Profiles	6590	1.000	52160	1.000
LinkedIn Company Profiles	4397	0.667	44742	0.858
Glassdoor	2868	0.435	35493	0.680
InHerSight	1399	0.212	28168	0.540
FairyGodBoss	434	0.066	19305	0.370
Women On Board	587	0.089	16531	0.317
C. Administrative Data – Cohorts 2011-2018				
All 2-Year Full-Time MBAs	3425	1.000		
LinkedIn Profiles	2783	0.813	14875	1.000
LinkedIn Profiles (US Locality Only)	2097	0.612	10992	0.739
D. Survey Data – Cohorts 2000-2008, 2010-2015				
Full Sample	328	1.000	4246	1.000
2-Year Full-Time MBA	160	0.488	2195	0.517

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Summary Statistics – Demographics and Pre-MBA Background

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	All	Male	Female	Difference p-value in par.
A. Demographics				
Female	0.36 (0.48)			
Age	29.88 (1.98)	30.20 (2.06)	29.35 (1.73)	0.85** (0.00)
U.S. Citizen	0.65 (0.48)	0.62 (0.49)	0.70 (0.46)	-0.08** (0.00)
Race				
White	0.65 (0.48)	0.69 (0.46)	0.59 (0.49)	0.11** (0.00)
Asian	0.20 (0.40)	0.17 (0.38)	0.25 (0.43)	-0.07** (0.00)
Black / Hispanic	0.13 (0.33)	0.12 (0.32)	0.14 (0.35)	-0.03* (0.06)
Other	0.02 (0.13)	0.01 (0.12)	0.02 (0.15)	-0.01 (0.12)
GMAT	716.45 (35.70)	720.76 (33.84)	709.04 (37.57)	11.72** (0.00)
B. Pre-MBA Background				
Pre-MBA Years of Experience	5.00 (1.95)	5.10 (1.98)	4.80 (1.87)	0.30** (0.00)
Any Management Experience	0.39 (0.49)	0.38 (0.49)	0.41 (0.49)	-0.02 (0.13)
Any Senior-Level Management Experience	0.13 (0.34)	0.14 (0.35)	0.12 (0.32)	0.02* (0.05)
Average Total Compensation (Imp.) ('000s)	123.35 (120.74)	132.85 (134.42)	106.97 (90.29)	25.89** (0.00)

Summary Statistics – Academic and Career Outcomes [Back](#)

	All	Male	Female	Difference p-value in par.
A. Academic Outcomes (Person Level)				
Overall GPA	3.52 (0.27)	3.54 (0.28)	3.48 (0.27)	0.06** (0.00)
Fraction Finance Classes	0.15 (0.11)	0.17 (0.11)	0.12 (0.08)	0.05** (0.00)
B. Career Outcomes (Person-Year Level)				
Any Management Role	0.75 (0.43)	0.75 (0.43)	0.75 (0.44)	0.00 (0.47)
Senior-Level Manager	0.43 (0.50)	0.47 (0.50)	0.34 (0.47)	0.14** (0.00)
Employed	0.99 (0.09)	0.99 (0.07)	0.99 (0.12)	0.01** (0.00)
Cumulative Months of Nonemployment	0.57 (3.56)	0.40 (2.77)	0.91 (4.76)	-0.51** (0.00)
Base Compensation (Imp.) (000's)	133.00 (52.00)	141.53 (53.18)	117.37 (45.82)	24.16** (0.00)
Total Compensation (Imp.) (000's)	223.31 (315.35)	253.25 (371.37)	168.42 (155.85)	84.83** (0.00)
Male-Dominated Industry	0.59 (0.49)	0.64 (0.48)	0.48 (0.50)	0.15** (0.00)
Firm Size	5888.06 (4453.50)	5706.69 (4475.86)	6261.87 (4383.98)	-555.18** (0.00)
Female-Friendly Firm	0.74 (0.44)	0.74 (0.44)	0.74 (0.44)	0.00 (0.90)
Top 100 MBA Firm	0.34 (0.47)	0.32 (0.47)	0.38 (0.48)	-0.06** (0.00)
P&L Role	0.60	0.60	0.60	0.00

Definition of Managers

Identify management positions based on keywords in job titles listed on CVs

*Senior-Level Management Roles:*¹

- ▶ **C-Suite:** Executives such as CEO, CFO, COO, responsible for company operations and profitability (“Chief X Officer”, “President”)
 - ▶ Avg 8.6 years post grad
- ▶ **Senior Vice Presidents:** Senior leaders with significant business unit or functional oversight (“SVP”, “General Manager”, “Managing Director”)
 - ▶ Avg 7.8 years post grad
- ▶ **Vice President and Director:** Leaders responsible for activities/initiatives within a sub-business unit, or who report directly to SVP (“VP”, “Director”, “Regional Managers”)
 - ▶ Avg 5.4 years post grad

Low-Level Management Roles:

- ▶ **Managers:** Leaders responsible for teams and discrete functions or operating units (“Manager”, “Senior Product Manager”)
 - ▶ Avg 3.8 years post grad

Manager Responsibilities (Survey Data)

Summary Statistics by Job Title

	(1) Manager	(2) Director	(3) VP	(4) SVP	(5) C-Level
Firm Hierarchy (1=Lowest,5=Highest)	2.74 (0.73)	3.28 (0.58)	3.62 (0.62)	4.01 (0.61)	4.61 (0.57)
Total Reports	14.40 (42.57)	26.77 (66.08)	137.78 (355.20)	296.06 (986.17)	554.73 (1508.10)
Weekly Hours	53.43 (11.74)	51.93 (11.73)	59.31 (10.83)	55.87 (14.09)	56.04 (10.30)
Total Compensation	185314.86 (86019.66)	242184.96 (96963.00)	344097.26 (134468.00)	392922.02 (132811.37)	345059.71 (147157.58)
Observations	683	820	915	536	495

Notes: Sample includes graduating classes 2000-2015, excluding 2009.

Explaining the Gender Differences in Senior Management

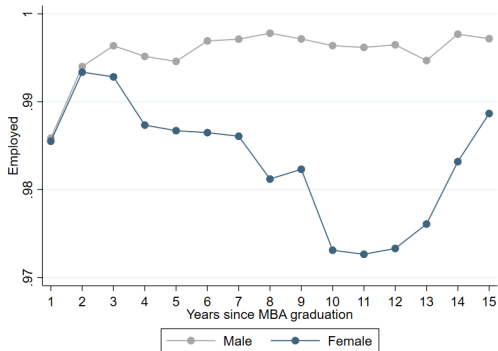
Gender Gap in Senior Management: Pooled Sample

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.128*** (0.0138)	-0.126*** (0.0138)	-0.122*** (0.0138)	-0.120*** (0.0138)	-0.111*** (0.0136)	-0.0959*** (0.0137)
Class x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Pre-MBA Characteristics		Yes	Yes	Yes	Yes	Yes
Pre-MBA Industry FE			Yes	Yes	Yes	Yes
Cummulative Months of Career Break				Yes	Yes	Yes
Post-MBA Characteristics					Yes	Yes
Post-MBA Industry FE						Yes
Mean	0.490	0.490	0.490	0.490	0.490	0.490
Mean (Male)	0.543	0.543	0.543	0.543	0.543	0.543
R^2	0.219	0.224	0.229	0.230	0.251	0.272
N	27309	27309	27309	27309	27309	27309

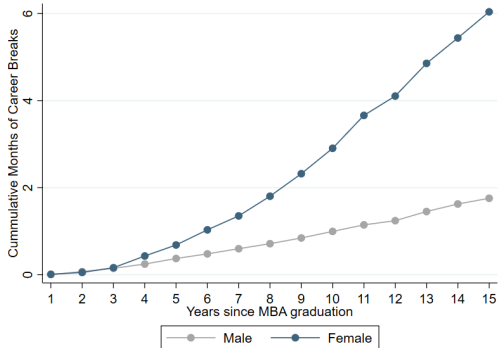
Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Gender Differences in Employment and Career Breaks

Employment



Total Months of Career Breaks



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Gender Differences in Firm Characteristics (Senior Managers Only)

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	Males	Females	Difference
Female-Friendly Firm	0.70 (0.46)	0.73 (0.44)	-0.03** (0.00)
Male Dominated Industry	0.83 (0.38)	0.73 (0.44)	0.10** (0.00)
Firm Size	4903.25 (4514.14)	4998.76 (4465.30)	-95.51 (0.17)
Total Employee Reviews	1491.55 (3596.17)	1598.67 (3589.31)	-107.12* (0.09)
Female Share of Employee Reviews	0.38 (0.22)	0.47 (0.22)	-0.08** (0.00)
Female Sr. Manager Share	0.30 (0.21)	0.37 (0.23)	-0.07** (0.00)
Average Firm Total Compensation (000's)	195.80 (1785.55)	161.97 (569.85)	33.83 (0.22)
Average Firm Total Compensation for Senior Managers (000's)	961.81 (26197.71)	321.62 (442.71)	640.20 (0.14)
Gender Gap in Firm Total Compensation (%)	0.15 (0.41)	0.10 (0.58)	0.06** (0.00)
Gender Gap in Firm Total Compensation for Senior Managers (%)	0.09 (1.20)	0.03 (0.71)	0.07** (0.00)
P&L Responsibilities	0.65 (0.48)	0.65 (0.48)	-0.00 (1.00)
Observations	18333	6376	24709

Notes: Sample includes senior managers from graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Gender Differences in Manager Characteristics (Senior Managers Only – Survey Sample) [Back](#)

	Males	Females	Difference
Total Compensation	357466.80 (128130.32)	279613.67 (128939.32)	77853.12** (0.00)
Weekly Hours	56.99 (12.15)	54.02 (15.43)	2.98** (0.00)
Total Reports	164.42 (770.14)	35.65 (85.43)	128.77** (0.00)
Firm Size	18477.98 (20510.81)	21300.13 (19482.12)	-2822.14* (0.03)
P & L Responsibilities	0.53 (0.50)	0.29 (0.45)	0.25** (0.00)
Ambition to be CEO in 5 Years	0.45 (0.50)	0.12 (0.32)	0.34** (0.00)
Asked for Raise	0.43 (0.49)	0.44 (0.50)	-0.01 (0.68)
Asked for Raise Successfully	1.00 (0.05)	0.93 (0.26)	0.07** (0.00)
Asked for Promotion	0.39 (0.49)	0.40 (0.49)	-0.01 (0.77)
Asked for Promotion Successfully	0.93 (0.26)	0.99 (0.09)	-0.06** (0.01)
Observations	888	312	1200

Notes: Sample includes senior managers from graduating classes 2000-2015, excluding 2009. * $p < 0.10$ ** $p < 0.05$

Gender Gap in Senior Management: Pooled Sample (Includes Additional Firm Characteristics)

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.114*** (0.0249)	-0.111*** (0.0246)	-0.110*** (0.0245)	-0.110*** (0.0245)	-0.118*** (0.0240)	-0.110*** (0.0239)
Class x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Pre-MBA Characteristics		Yes	Yes	Yes	Yes	Yes
Pre-MBA Industry FE			Yes	Yes	Yes	Yes
Cummulative Months of Career Break				Yes	Yes	Yes
Post-MBA Characteristics					Yes	Yes
Post-MBA Industry FE						Yes
Mean	0.419	0.419	0.419	0.419	0.419	0.419
Mean (Male)	0.473	0.473	0.473	0.473	0.473	0.473
R^2	0.314	0.329	0.335	0.335	0.382	0.395
N	6625	6625	6625	6625	6625	6625

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Gender Gap in Senior Management: Linked Administrative Sample, 2011-2018

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female	-0.0932*** (0.0254)	-0.0867*** (0.0255)	-0.0747*** (0.0256)	-0.0758*** (0.0257)	-0.0571** (0.0242)	-0.0473* (0.0249)	-0.0382 (0.0249)
Class x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-MBA Characteristics		Yes	Yes	Yes	Yes	Yes	Yes
Pre-MBA Industry FE			Yes	Yes	Yes	Yes	Yes
Cumulative Months of Career Break				Yes	Yes	Yes	Yes
Post-MBA Characteristics					Yes	Yes	Yes
Post-MBA Industry FE						Yes	Yes
GMAT, % Finance Classes, Kellogg GPA							Yes
Mean	0.316	0.316	0.316	0.316	0.316	0.316	0.316
R^2	0.171	0.191	0.214	0.214	0.288	0.317	0.317
N	4669	4669	4669	4669	4669	4669	4669

Notes: Sample includes graduating classes 2011-2018. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Gender Gap in Senior Management: Pooled Sample (Survey Data)

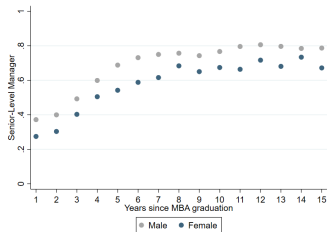
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female	-0.132** (0.0536)	-0.133** (0.0536)	-0.126** (0.0551)	-0.109* (0.0582)	-0.123* (0.0653)	-0.118* (0.0656)	-0.104 (0.0644)
Weekly Hours		0.000373 (0.00214)	0.000323 (0.00215)	0.000247 (0.00213)	0.000294 (0.00213)	-0.0000968 (0.00211)	-0.000150 (0.00210)
Children			0.0130 (0.0227)	0.0205 (0.0241)	0.0188 (0.0242)	0.0147 (0.0246)	0.00477 (0.0244)
Pre-School Child Care Responsibilities (%)				-0.00156 (0.00161)	-0.00184 (0.00178)	-0.00189 (0.00179)	-0.00126 (0.00174)
Employment Gap after First Child (Weeks)					0.00171 (0.00381)	0.00245 (0.00384)	0.00166 (0.00375)
Ambition to be CEO in 5 Years						0.0764 (0.0494)	0.0773 (0.0491)
Class x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Experience and Industry Controls	No	No	No	No	No	No	Yes
Mean	0.693	0.693	0.693	0.693	0.693	0.693	0.693
R^2	0.108	0.108	0.109	0.111	0.112	0.117	0.144
N	3025	3025	3025	3025	3025	3025	3025

Notes: Sample includes graduating classes 2000-2015, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Senior-Level Management Positions by Industry

[Back](#)

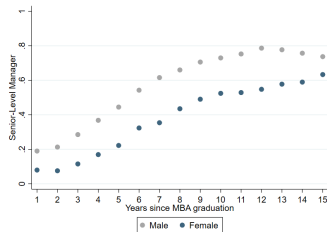
Finance



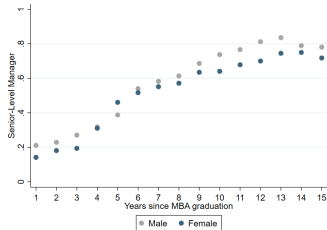
Consulting



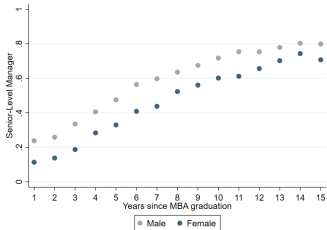
Consumer Goods



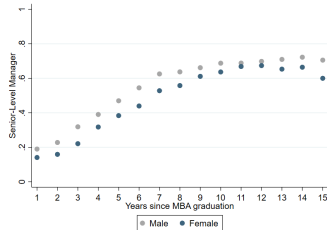
Healthcare



Tech

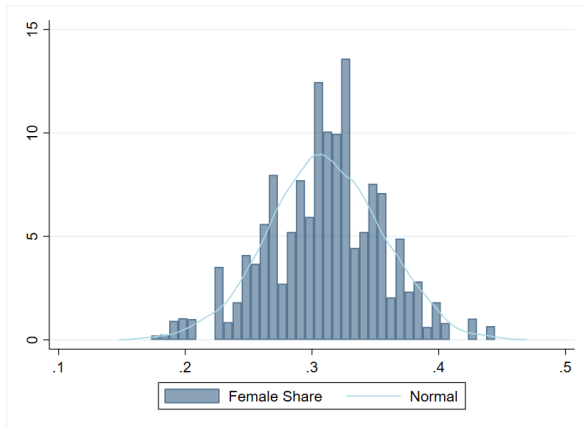


Other



Female Share Distribution

Distribution of Female Students per Section



List of Controls

We control for:

- ▶ Stratification variables
 - ▶ Attended top 20 US undergraduate university based on US News Ranking
- ▶ Individual-level characteristics that predict the probability of senior manager
 - ▶ Having any senior management experience
 - ▶ Having worked in finance
- ▶ Section-level characteristics that are correlated with female share
 - ▶ Share of section with management experience
 - ▶ Share of section with senior-level management experience
 - ▶ Share of section that worked in finance
 - ▶ Share of section that worked in consulting
 - ▶ Share of section that worked in other industries
 - ▶ Share of section that worked in a P&L role
 - ▶ Share of white students
 - ▶ Share of foreign students

Identification of Peer Effects

Three main identification challenges in estimating the causal effect of peers

(Manski 1993; Sacerdote 2001; Brock and Durlauf 2001; Moffitt 2001; de Paula 2017; Charles, Hurst, and Notowidigdo 2018; Caeyers and Fafchamps 2021):

- ▶ Selection bias: endogenous selection of peers
 - ▶ Exogenous variation in female share across MBA sections
- ▶ Unobserved correlated effects: contemporaneous shocks
 - ▶ Inclusion of class fixed effect
 - ▶ Treatment is a function of predetermined characteristics
- ▶ Reflection bias: individuals in the same peer group affect each other
 - ▶ Outcome as a function of individuals background characteristics and peers average background characteristics

Identification Assumption and Randomization Test

- ▶ Distribution of female share across section as good as random
- ▶ Natural first test: correlation between student's gender and section female share
- ▶ Exclusion bias: systematic negative correlation between individual's characteristic and her peers
- ▶ Two randomization tests that account for this:
 - ▶ Guryan, Kroft, and Notowidigdo (2009) [Test](#)
 - ▶ Caeyers and Fafchamps (2021) [Test](#)

[Back - Setting](#)

[Back - Identification](#)

Randomization Test

[Back - Setting](#)[Back - Identification](#)[Additional](#)

Following Guryan, Kroft, and Notowidigdo (2009):

$$x_{ikc} = \pi_1 + \pi_2 \bar{x}_{-i,k} + \pi_3 \bar{x}_{-i,c} + \delta_c + X_{ikc} \gamma' + u_{ikc} \quad (2)$$

Dependent variable: female dummy

	2000-2018	
	(1) No Controls	(2) With Controls
Section Female Share	0.00172 (0.0155)	0.00158 (0.0155)
Class Female Share	-278.0*** (2.750)	-278.0*** (2.752)
R^2	.9868657	.986868
N	5087	5087
Class FE	Yes	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Randomization Test

[Back - Setting](#)[Back - Identification](#)[Additional](#)

- ▶ No bias correction term in the estimating equation as in Guryan, Kroft, and Notowidigdo (2009)
- ▶ Caeyers and Fafchamps (2021) net out the asymptotic exclusion bias

$$\tilde{x}_{ikc} = \phi_1 + \phi_2 \bar{x}_{-ikc} + \delta_c + u_{ikc} \quad (3)$$

- ▶ $\tilde{x}_{ikc} = x_{ikc} - \rho \bar{x}_{-ikc}$
- ▶ ρ is the asymptotic limit of the bias

	2000-2018	
	(1) No Controls	(2) With Controls
Female share	-0.866 (0.635)	-0.931 (0.655)
R^2	0.0188	0.00756
N	5087	4367
Class FE	Yes	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Randomization Test

[Back - Setting](#)[Back - Identification](#)

- ▶ Caeyers and Fafchamps (2021) net out the asymptotic exclusion bias

$$\tilde{x}_{ikc} = \phi_1 + \phi_2 \bar{x}_{-ikc} + \delta_c + u_{ikc} \quad (4)$$

- ▶ $\tilde{x}_{ikc} = x_{ikc} - \rho \bar{x}_{-ikc}$
- ▶ ρ is the asymptotic limit of the bias

	(1) Female Top 20 Undergrad	(2) Female Senior Manager	(3) Female Finance
Female share	0.211 (0.236)	0.142 (0.132)	-0.333 (0.282)
R^2	0.0297	0.0124	0.0157
N	1758	1640	1546
Class FE	Yes	Yes	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Joint F-Test

[Back - Setting](#)[Back - Identification](#)

	(1) Female Share
Female	-0.00169 (0.0104)
Female & Attended Top-20 Undergrad	0.000905 (0.00250)
Female & Worked as Senior Manager	0.00118 (0.00276)
Female & Worked in Finance	-0.00321 (0.00224)
R^2	0.519
N	4365
F-test	0.559
Class FE	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Randomization Test [Back](#)

Following Guryan, Kroft, and Notowidigdo (2009):

$$x_{ikc} = \pi_1 + \pi_2 \bar{x}_{-i,k} + \pi_3 \bar{x}_{-i,c} + \delta_c + X_{ikc} \gamma' + u_{ikc} \quad (5)$$

Dependent variable: female dummy

	2000-2018		2011-2018	
	(1) No Controls	(2) With Controls	(3) No Controls	(4) With Controls
Average(X), Section Peers	-0.554 (0.420)	-0.556 (0.420)	-0.385 (0.693)	-0.382 (0.694)
Average(X), Class Peers	1.130*** (0.288)	1.098*** (0.294)	0.897* (0.461)	0.864* (0.455)
R^2	.0072721	.008816	.0046117	.0071015
N	5087	5087	2090	2090
Class FE	Yes	Yes	Yes	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Randomization Test Back

- ▶ No bias correction term in the estimating equation as in Guryan, Kroft, and Notowidigdo (2009)
- ▶ Caeyers and Fafchamps (2021) net out the asymptotic exclusion bias

$$\tilde{x}_{ikc} = \phi_1 + \phi_2 \bar{x}_{-ikc} + \delta_c + u_{ikc} \quad (6)$$

- ▶ $\tilde{x}_{ikc} = x_{ikc} - \rho \bar{x}_{-ikc}$
- ▶ ρ is the asymptotic limit of the bias

	2000-2018		2011-2018	
	(1) No Controls	(2) With Controls	(3) No Controls	(4) With Controls
Female share	-0.866 (0.635)	-0.931 (0.655)	-0.574 (0.917)	-0.587 (0.875)
R^2	0.0188	0.00756	0.0145	0.00359
N	5087	4367	2090	1989
Class FE	Yes	Yes	Yes	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Probability of Holding a Senior Management Position [Back](#)

Effect of Female Peers on Senior Management: Pooled Sample

	(1) Senior-Level Manager	(2) Senior-Level Manager	(3) Senior-Level Manager	(4) Senior-Level Manager
Female share \times Male	0.0315 (0.115)	-0.0885 (0.0916)	-0.0903 (0.0917)	-0.102 (0.0937)
Female share \times Female	0.822*** (0.204)	0.674*** (0.182)	0.673*** (0.182)	0.681*** (0.183)
<i>p</i> -value Male vs. Female	0.000	0.000	0.000	0.000
Female Mean	0.391	0.391	0.391	0.391
Male Mean	0.534	0.534	0.534	0.534
R^2	0.173	0.166	0.166	0.172
N	51440	51440	51440	51440
Class \times Year \times Female FE	Yes	Yes	Yes	Yes
Stratification Controls	Yes	No	Yes	Yes
Pre-MBA Characteristics Controls	Yes	No	No	Yes
Section-level Controls	Yes	No	No	No

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Section-Level Characteristics Correlated with Proportion of Female Peers

Section Characteristics	(1) Full Sample	(2) Mean for Above Median Female Share Sections	(3) Mean for Below Median Female Share Sections	(4) Coefficient	(5) p -value
<i>Share of Section with ...</i>					
Pre-MBA Years of Experience	5.024	5.062	4.982	0.001	0.975
Any Management Experience	0.405	0.413	0.396	0.114	0.015**
Any Senior-Level Management Experience	0.131	0.135	0.126	0.196	0.021**
Entrepreneur	0.024	0.024	0.024	-0.199	0.275
Finance	0.338	0.318	0.361	-0.145	0.021**
Consulting	0.173	0.178	0.168	-0.128	0.043**
Consumer Goods	0.117	0.125	0.109	0.141	0.063*
Healthcare	0.056	0.051	0.061	-0.062	0.582
Tech	0.201	0.193	0.209	-0.031	0.551
Other Industries	0.374	0.388	0.360	0.120	0.027**
Less than 200 Employees	0.223	0.220	0.226	-0.038	0.508
200-4,999 Employees	0.220	0.217	0.223	0.064	0.292
5000+ Employees	0.727	0.728	0.726	-0.108	0.062*
Worked in Female-Friendly Firm	0.746	0.736	0.757	-0.025	0.631
Worked in a P&L Role	0.429	0.446	0.410	0.148	0.003***
US Locality	0.772	0.775	0.770	0.157	0.034**
Top 20 Undergrad	0.249	0.251	0.247	0.098	0.227
White	0.433	0.439	0.427	0.267	0.007***
Foreign	0.308	0.295	0.321	-0.486	0.000***
Observations	148	77	71	148	148

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Number of Years in Senior Management Positions [Back](#)

Effect of Female Peers on Number of Years
in Senior Management Positions

	(1) Total Number of Years as Senior Manager Positions
Female share \times Female	10.84*** (2.880)
Female Mean	4.968
Male Mean	7.040
R^2	0.306
N	52094
Class \times Year \times Female FE	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Number of Years to First Senior Management Position [Back](#)

Effect of Female Peers on Years to First Senior Management Position

	(1) Years to First Senior Manager Position	(2) Total Positions as Senior Manager
Female share \times Female	-8.375*** (2.871)	1.362* (0.766)
Female Mean	4.940	1.126
Male Mean	4.359	1.562
R^2	0.088	0.314
N	3313	5087
Class \times Year \times Female FE	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Effect of Female Peers on External vs Internal Promotions

	Senior Manager	
	(1) External Promotion	(2) Internal Promotion
Female share \times Female	0.591*** (0.153)	0.303** (0.152)
Female Mean	0.269	0.132
Male Mean	0.343	0.197
R^2	0.212	0.037
N	50506	50506
Class \times Year \times Female FE	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Probability of Becoming a Senior Manager – One Knot Linear Spline

$$y_{ikct} = \beta_0 + \beta_1 \overline{FemaleShare}_{-i,kct} + \beta_2 \overline{FemaleShare}_{-i,kct} \times I(\overline{FemaleShare}_{-i,kct} > Median) + \sum_{j=0,1} (\delta_c + \phi_t + \omega_{ct}) \times I(Female_j = j) + X_{ikct} \gamma' + \epsilon_{ikct} \quad (7)$$

	(1) Senior-Level Manager
Female Share Below Median	0.939*** (0.284)
Female Share Above Median	0.603 (0.375)
<i>p</i> -value Below Median vs. Above Median	0.514
Female Mean	0.391
Male Mean	0.534
N	51440
Class × Year × Female FE	Yes

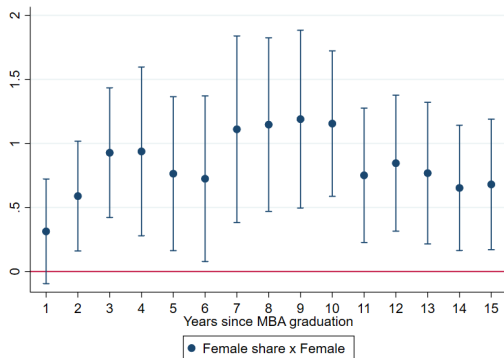
Probability of Becoming a Senior Manager – One Knot Linear Spline Back

$$y_{ikct} = \beta_0 + \beta_1 \overline{FemaleShare}_{-i,kct} + \beta_2 \overline{FemaleShare}_{-i,kct} \times I(\overline{FemaleShare}_{-i,kct} > Cutoff) + \sum_{j=0,1} (\delta_c + \phi_t + \omega_{ct}) \times I(Female_i = j) + X_{ikct} \gamma' + \epsilon_{ikct} \quad (8)$$

	(1) Senior-Level Manager (Cutoff: 25th)	(2) Senior-Level Manager (Cutoff: Median)	(3) Senior-Level Manager (Cutoff: 75th)
Female Share Below Cutoff	0.913*** (0.317)	0.938*** (0.285)	0.926*** (0.256)
Female Share Above Cutoff	0.781** (0.310)	0.608 (0.374)	0.348 (0.495)
<i>p</i> -value Below Cutoff vs. Above Cutoff	0.779	0.520	0.341
Female Mean	0.391	0.391	0.391
Male Mean	0.534	0.534	0.534
N	51440	51440	51440
Class x Year x Female FE	Yes	Yes	Yes

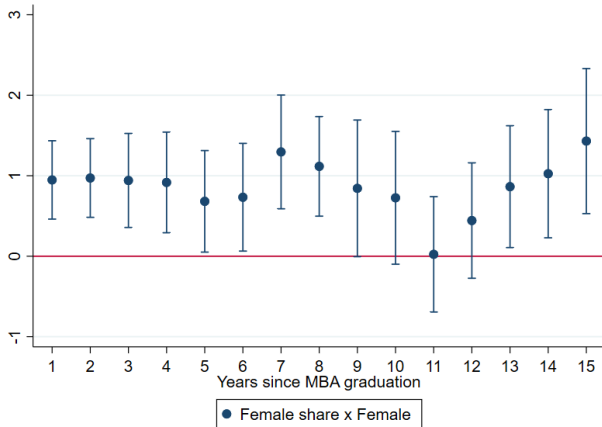
Probability of Ever Becoming a Senior Manager by Year Since Graduation

Effect of Female Peers on Ever Holding Senior-Level Management Positions



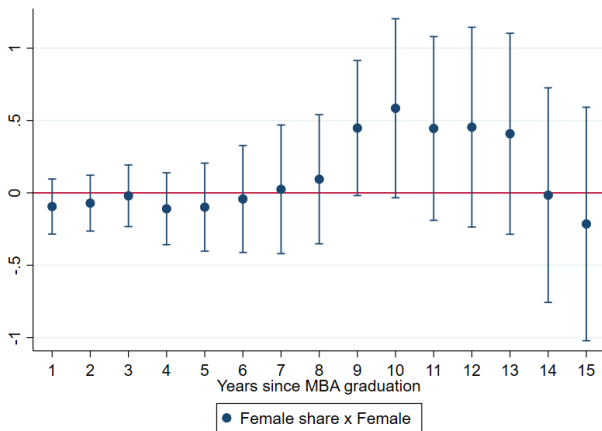
Probability of Holding a Director or VP Position by Year Since Graduation

Effect of Female Peers on Holding Director and VP Positions



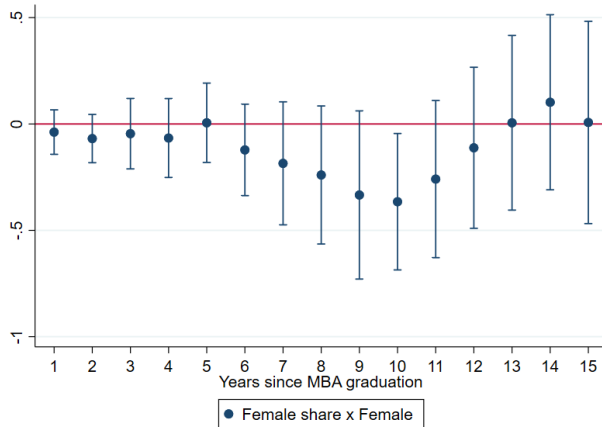
Probability of Holding an SVP Position by Year Since Graduation

Effect of Female Peers on Holding SVP Positions



Probability of Holding an C-level Position by Year Since Graduation

Effect of Female Peers on Holding C-level Positions



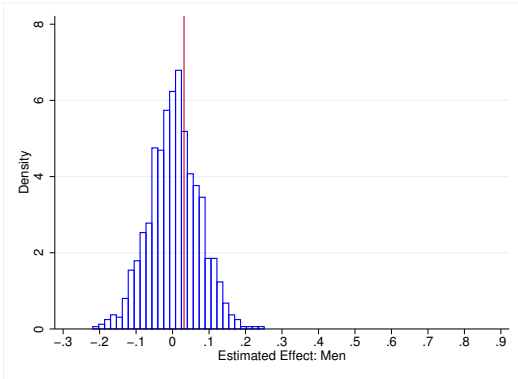
Missing Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Matched to LinkedIn Profile 2000-2010	Matched to LinkedIn Profile (US Sample Only) 2000-2010	Matched to LinkedIn Profile 2011-2018	Matched to LinkedIn Profile (US Sample Only) 2011-2018	Matched to LinkedIn Company Profile	Matched to Glassdoor	Matched to InHerSight
Female share × Female	-0.166 (0.227)	0.0976 (0.344)	-0.171 (0.128)	-0.0644 (0.109)	-0.135 (0.0937)	-0.126 (0.135)	-0.215 (0.162)
R^2	0.0228	0.0104	0.553	0.342	0.256	0.121	0.0936
N	4512	4512	2888	2888	55984	55984	55984
Class FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	No	No	Yes	Yes	Yes
Class × Year × Female FE	No	No	No	No	Yes	Yes	Yes
Level of Observations	Person	Person	Person	Person	Person-Year	Person-Year	Person-Year

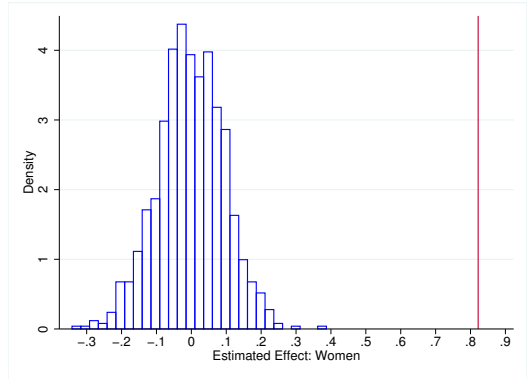
Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Robustness

Men



Women



[Back](#)

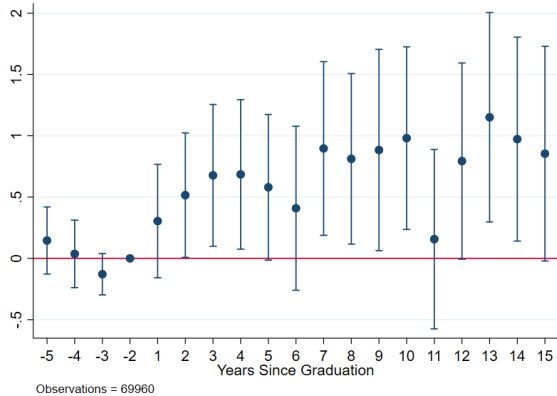
Effect of Female Peers on Senior Management: Robustness

	(1) Year -4	(2) Year -3	(3) Year -2
Female share \times Female	0.0616 (0.102)	-0.0902 (0.0831)	0.0218 (0.0855)
Female Mean	0.075	0.095	0.106
Male Mean	0.083	0.110	0.123
R^2	0.572	0.764	0.868
N	4669	4710	4716

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Robustness

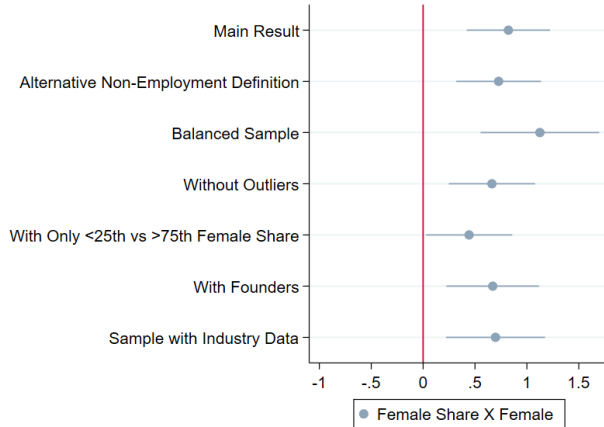
Probability of Senior-Level Manager: Event Study



Notes:

Robustness

Effect of Female Peers on Senior Management: Robustness



Effect of Female Peers on Senior Management: Robustness

	Senior Manager							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Main Result	Alternative Non-Employment Definition	Balanced Sample	Without Outliers	With Only $\leq 25^{th}$ vs $\geq 75^{th}$ Female Share	With Founders	Sample with Industry Data	Sample with Female-Friendly Firm Data
Female share \times Female	0.822*** (0.204)	0.728*** (0.208)	1.125*** (0.292)	0.663** (0.260)	0.443* (0.244)	0.671*** (0.228)	0.698*** (0.244)	0.535* (0.295)
Female Mean	0.391	0.382	0.462	0.393	0.380	0.391	0.394	0.350
Male Mean	0.534	0.531	0.606	0.535	0.505	0.534	0.533	0.488
R^2	0.173	0.169	0.129	0.173	0.184	0.189	0.193	0.247
N	51440	52083	24340	50400	26054	51440	45389	28093
Class \times Year \times Female FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Effect of Female Peers on Senior Management: Clustering at Alternative Levels

	Senior Manager		
	(1) Clustered at Section Level (Main Result)	(2) Clustered at Class Level	(3) Two Way Clustering at Individual and Year Level
Female share \times Female	0.822*** (0.204)	0.822*** (0.195)	0.822*** (0.254)
Female Mean	0.391	0.391	0.391
Male Mean	0.534	0.534	0.534
R^2	0.173	0.173	0.173
N	51440	51440	51440
Class \times Year \times Female FE	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

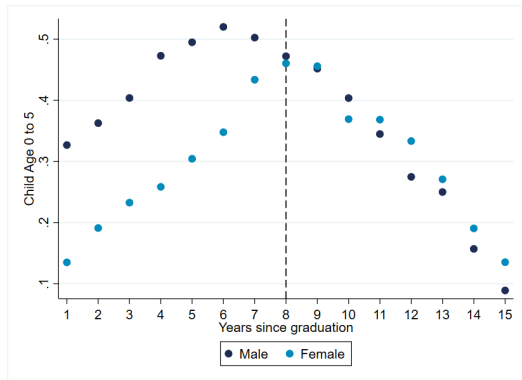
Effect of Female Peers on Senior Management: Logit

	(1) Senior-Level Manager (Linear)	(2) Senior-Level Manager (Logit)
Female share \times Male	0.0315 (0.115)	0.831 (1.408)
Female share \times Female	0.822*** (0.204)	5.328** (2.504)
<i>p</i> -value Male vs. Female	0.000	0.088
Female Mean	0.391	0.391
Male Female	0.534	0.534
R^2	0.173	
N	51440	51429
Class \times Year \times Female FE	Yes	Yes

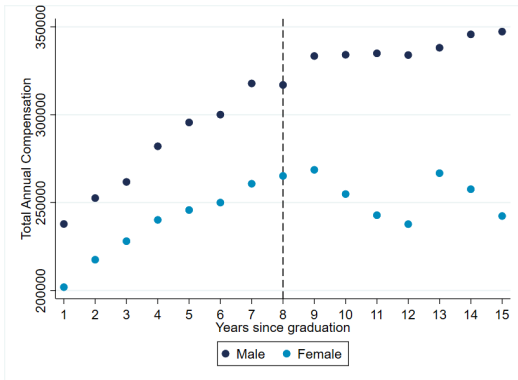
Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Role of Female Peers in Female-Friendly Firms

Having a Young Child 0-5 (Survey Data)

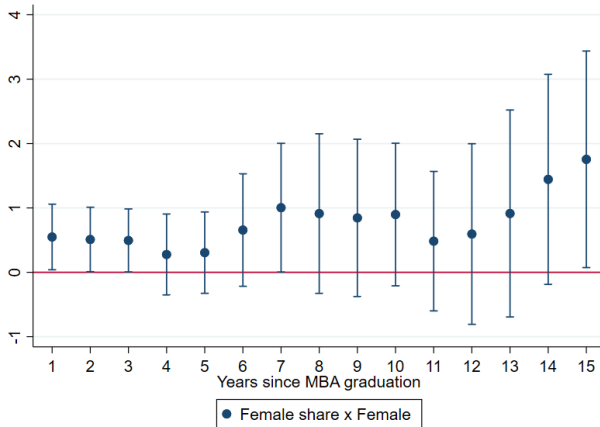


Total Annual Compensation (Survey Data)



Role of Female Peers in Female-Friendly Firms

Being a Senior Manager in a Female Friendly Firm



MBA Academic Performance and Finance Classes

Effect of Female Peers on GPA during MBA

	(1) Overall GPA	(2) Fraction Finance Classes
Female share \times Female	-0.103 (0.112)	-0.0246 (0.0443)
Mean	3.519	0.154
SD	0.273	0.105
R^2	0.0666	0.156
N	3425	3425

Notes: Sample includes graduating classes 2011-2018. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Elective Classes

	(1)	(2)	(3)	(4)	(5)	(6)
	Accounting	Finance	Management	Marketing	Operations	Strategy
Female share \times Female	-0.0146 (0.0192)	-0.0519 (0.0561)	0.0410 (0.0431)	0.0539 (0.0521)	-0.0682 (0.0473)	-0.0263 (0.0236)
Female Mean	0.033	0.129	0.057	0.198	0.053	0.041
Male Mean	0.044	0.203	0.070	0.142	0.061	0.032
R^2	0.096	0.182	0.335	0.133	0.047	0.532
N	3425	3425	3425	3425	3425	3425
Class \times Year \times Female FE	Yes	Yes	Yes	Yes	Yes	Yes

Senior Managers and Labor Market Attachment

Senior Managers and Labor Force

	(1)	(2)	(3)	(4)
	Employed	Cumulative Months In Non-Employment	Senior-Level Manager (Unconditional)	Senior-Level Manager (Conditional)
Female share \times Female	-0.0154 (0.0487)	4.502 (4.795)	0.822*** (0.204)	0.841*** (0.206)
Female Mean	0.985	1.707	0.391	0.403
Male Mean	0.995	0.633	0.534	0.542
R^2	0.025	0.077	0.173	0.183
N	49991	51482	51440	50428
Class \times Year \times Female FE	Yes	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Entrepreneurship

Effect of Female Peers on Entrepreneurship

	(1) Entrepreneurs
Female share \times Female	-0.184 (0.111)
Female Mean	0.035
Male Mean	0.040
R^2	0.019
N	51451
Class \times Year \times Female FE	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Senior Managers and Any Manager

Senior Managers and Any Manager

	(1) Any-Level Manager
Female share \times Female	0.229 (0.182)
Female Mean	0.744
Male Mean	0.767
R^2	0.058
N	51440
Class \times Year \times Female FE	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Senior Manager and Firm Size

Effect of Female Peers on Senior Manager and Firm Size

	Senior Manager		
	(1) Firm with Less than 200 Employees	(2) Firm with 200 to 4,999 Employees	(3) Firm with More than 5,000 Employees
Female share \times Female	0.171* (0.0878)	0.0258 (0.161)	0.495** (0.219)
Female Mean	0.064	0.089	0.240
Male Mean	0.106	0.115	0.313
R^2	0.035	0.037	0.089
N	45169	45169	45169
Class \times Year \times Female FE	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Firm Size

Effect of Female Peers on Firm Size

	(1) Number of Employees	(2) Less than 200 Employees	(3) 200 to 4,999 Employees	(4) More than 5,000 Employees
Female share \times Female	-1673.1 (2178.0)	-0.0449 (0.164)	-0.0246 (0.176)	0.0589 (0.246)
Female Mean	5975.751	0.158	0.147	0.678
Male Mean	5484.606	0.183	0.171	0.641
R^2	0.051	0.024	0.023	0.043
N	44759	45171	45171	45171
Class \times Year \times Female FE	Yes	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Senior Manager and Firm Compensation

Effect of Female Peers on Senior Manager and Firm Compensation

	Senior Manager			
	(1) Firm with Total Compensation Above Median	(2) Firm with Total Compensation Below Median	(3) Firm with Senior Total Compensation Above Median	(4) Firm with Senior Total Compensation Below Median
Female share \times Female	0.541 (0.494)	0.244 (0.286)	0.454 (0.442)	0.331* (0.195)
Female Mean	0.178	0.061	0.189	0.049
Male Mean	0.309	0.081	0.334	0.057
R^2	0.239	0.127	0.276	0.083
N	34459	34459	27582	27582
Class \times Year \times Female FE	Yes	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Firm Compensation

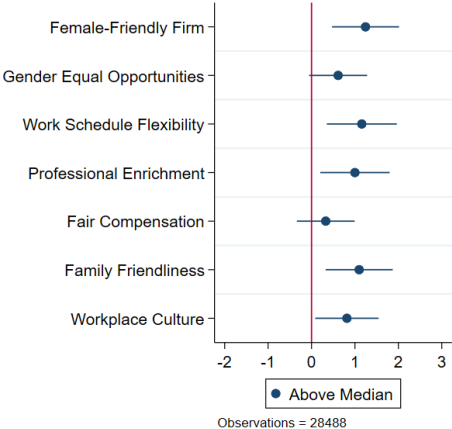
Effect of Female Peers on Firm Compensation

	(1)	(2)	(3)	(4)	(5)	(6)
	Base Annual Compensation	Senior Manager Base Annual Compensation	Total Annual Compensation	Senior Manager Total Annual Compensation	Gender Gap in Total Annual Compensation	Gender Gap in Senior Manager Total Annual Compensation
Female share \times Female	941.2 (13616.8)	-38378.5 (33415.0)	-609965.6 (417954.9)	-8728249.4 (5688277.1)	0.0226 (0.133)	-0.868 (0.694)
Mean	99202.9	178602.9	229065.3	1129945.9	0.152	0.0619
SD	32366.5	47720.9	6779868.3	43643042.0	0.426	1.324
R^2	0.600	0.407	0.0146	0.0153	0.179	0.0498
N	34457	27584	34457	27584	28091	23074
Class \times Year \times Female FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE						

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

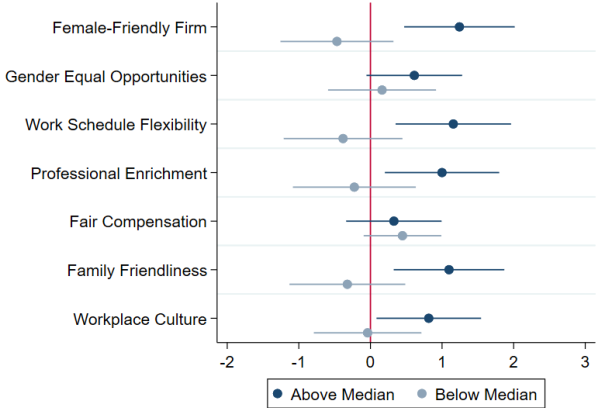
Role of Female Peers in Female-Friendly Firms

InHerSight Components



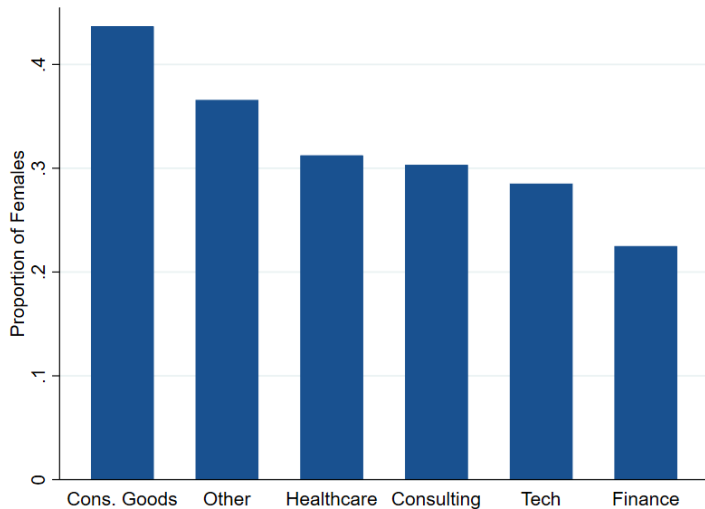
Role of Female Peers in Female-Friendly Firms

InHerSight Components



Observations = 28488

Female Representation by Industry



Role of Female Peers in Male-Dominated Industries

Effect of Female Peers on Probability of Senior Management in Male and Female Dominated Industries

	Senior Manager		
	(1) Male Dominated Industries	(2) Female Dominated Industries	(3) Male Dominated Industries
Female share \times Female	0.605** (0.243)	-0.0269 (0.107)	0.243 (0.260)
Female Mean	0.201	0.074	0.483
Male Mean	0.344	0.072	0.626
R^2	0.097	0.033	0.037
N	45389	45389	45391
Class \times Year \times Female FE	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

► Effects driven by higher **promotion rates**, not entries

Back

Role of Female Peers in Male-Dominated Industries

Effect of Female Peers on Probability of Senior Management in Male and Female Dominated Industries

	Senior Manager	
	(1) Restricted to Male Dominated Industries	(2) Restricted to Female Dominated Industries
Female share \times Female	0.821** (0.373)	0.0821 (0.371)
Female Mean	0.415	0.303
Male Mean	0.549	0.476
R^2	0.219	0.248
N	26339	8199
Class \times Year \times Female FE	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Heterogeneity by Male-Dominated Industries

Industries

	(1)	(2)	(3)	(4)	(5)	(6)
	Finance	Consulting	Consumer Goods	Healthcare	Technology	Other
Female share \times Female	0.285 (0.208)	-0.215 (0.159)	-0.120 (0.191)	0.329** (0.146)	0.0555 (0.261)	-0.175 (0.254)
Female Mean	0.162	0.125	0.192	0.077	0.208	0.273
Male Mean	0.276	0.136	0.117	0.078	0.247	0.223
R^2	0.062	0.057	0.025	0.016	0.027	0.021
N	45391	45391	45391	45391	45391	45391
Class \times Year \times Female FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Role of Female Peers in Female-Friendly Firms

Effect of Female Peers on Probability of Senior Management in Female-Friendly Firms

	Senior Manager	
	(1) Female-Friendly Firms	(2) Non Female-Friendly Firms
Female share \times Female	1.190*** (0.418)	-0.418 (0.831)
Female Mean	0.303	0.252
Male Mean	0.439	0.407
R^2	0.314	0.504
N	20893	7612
Class \times Year \times Female FE	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Female-Friendly Firms and Male-Dominated Industries [Back](#)

	Senior Manager (Restricted to Male Dominated Industries)	
	(1) Female-Friendly Firms	(2) Non Female-Friendly Firms
Female share \times Female	1.407** (0.562)	0.0990 (0.405)
Female Mean	0.239	0.089
Male Mean	0.294	0.136
R^2	0.205	0.248
N	16887	16887
Class \times Year \times Female FE	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Role of Female Peers in Female-Friendly Firms

Working in a Female Friendly Firm (Restricted to Male Dominated Industries)



Effect of Female Peers on Compensation

Imputed individual compensation using Glassdoor average compensation by firm, gender, and management level (senior manager, first-level manager, non-manager)

Effect of Female Peers on Compensation

	(1) Total Annual Compensation (Imp.)	(2) Base Annual Compensation (Imp.)	(3) Non-Base Annual Compensation (Imp.)
Female share \times Female	75.26 (69.89)	-11.32 (33.10)	86.57** (42.66)
Female Mean	117.482	90.861	26.621
Male Mean	178.865	117.206	61.658
R^2	0.173	0.263	0.105
N	26567	26567	26567
Class \times Year \times Female FE	Yes	Yes	Yes

Notes: Sample includes graduating classes 2000-2018, excluding 2009. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Female-Friendly Firms: Examples

Female-Friendly



It is a company with a culture and benefits that fully support women [...] From industry leading family support benefits, strong women in leadership, [...] flexible culture.

- ▶ InHerSight.com overall rating: 3.8
- ▶ Maternity leave policy: 4.1
- ▶ Flexible work schedule: 3.8

Non Female-Friendly



Benefits and perks are decent. Culture is strange. [...] the 'good old boys' club with lots of ancient technology and attitudes prevails in some areas.

- ▶ InHerSight.com overall rating: 3
- ▶ Maternity leave policy: 3.4
- ▶ Flexible work schedule: 2.4

First Post-MBA Placement

First Post-MBA Placement

	(1) Senior-Level Manager	(2) Male Dominated Industries	(3) Female-Friendly Firms	(4) Number of Employees	(5) Total Annula Compensation
Female share \times Female	0.300 (0.211)	-0.132 (0.257)	0.458 (0.810)	38.34 (3580.8)	-12191.2 (136151.1)
Female Mean	0.137	0.522	0.500	7018.639	154070
Male Mean	0.228	0.671	0.587	6398.706	163300
R^2	0.065	0.045	0.137	0.034	0.033
N	4972	4538	3239	4443	3580
Class \times Year \times Female FE	Yes	Yes	Yes	Yes	Yes

Job Referrals and Information Transmission

- ▶ Literature on importance of job referrals and private career information for career outcomes

(Granovetter 1973; Calvo-Armengol and Jackson 2004; Bolte, Immorlica, and Jackson 2021)

- ▶ Women may benefit from gender-specific private information
- ▶ Female peers can help women (esp. later in their careers):
 - ▶ identify and enter firms that support women in their career advancement
 - ▶ learn how to take advantage of female-friendly policies
 - ▶ i.e., maternity leave and flexible work schedules

Suggestive Evidence of Job Referrals and Information Transmission

Probability of Working in Same Firm

- ▶ Female classmates more likely to work in same firm if from same section Referrals
 - ▶ Not true for men
- ▶ Effect driven by female-friendly firms Female-Friendly Firms

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(Preliminary) Survey Descriptive Evidence

- ▶ Female MBAs *with children* are significantly more likely to respond
 - ▶ “Obtained top management position due to MBA peers”
 - ▶ “Secured jobs and promotions” through their MBA network

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 - ▶ “Obtained top management position due to MBA peers”
 - ▶ “Secured jobs and promotions” through their MBA network

Results suggest that female MBAs rely on their MBA peer network to identify firms and attain promotions

- ▶ Suggestive of search and information frictions for female-friendly firms

Referrals and Information Transmission

- ▶ Likelihood of working in same firm of a same-gender same-section classmate (Bayer et al. (2005), Schmutte (2015), Zimmerman (2019))
- ▶ Matched all MBAs to all classmates (same graduating year)

$$y_{i,j} = \alpha_1 \text{SameSection}_{i,j} \times \text{BothMales}_{i,j} + \alpha_2 \text{SameSection}_{i,j} \times \text{BothFemales}_{i,j} \\ + \alpha_3 \text{SameSection}_{i,j} + \alpha_4 \text{BothMales}_{i,j} + \alpha_5 \text{BothFemales}_{i,j} + \delta_c + \phi_f + u_{i,j}$$

- ▶ $y_{i,j}$ takes value 1 if i and j in same firm
- ▶ SameSection takes value 1 if i and j in same section
- ▶ BothMales (BothFemales) takes value 1 if i and j are both men (women)
- ▶ δ_c class FE
- ▶ γ_f firm FE

Referrals and Information Transmission

Probability of Entering Same Firm

	(1)
Same Section	0.000071 (0.000264)
Same Section \times Both Males	-0.000092 (0.000333)
Same Section \times Both Females	0.001260** (0.000640)
<i>p</i> -value Both Male vs. Both Female	.034460
Female Mean	.006549
Male Mean	.006420
R^2	.040879
N	11,991,054
Class \times Year FE	Yes
Firm FE	Yes

- ▶ Female classmates more likely to work in same firm if from same section
- ▶ Effect driven by family-friendly firms

Female-Friendly Firms

Back

Probability of Entering Same Firm

	(1)
Same Section × Both Males	0.000059 (0.000473)
Same Section × Both Males × Female-Friendly Firm	-0.000215 (0.000660)
Same Section × Mixed Gender	-0.000644 (0.000487)
Same Section × Mixed Gender × Female-Friendly Firm	0.000428 (0.000707)
Same Section × Both Females	-0.000118 (0.000946)
Same Section × Both Females × Female-Friendly Firm	0.002810** (0.001430)
<i>p</i> -value Both Male vs. Both Female	.055300
Female Mean	.006549
Male Mean	.006420
R^2	.050743
N	7,623,733
Class × Year FE	Yes
Firm FE	Yes

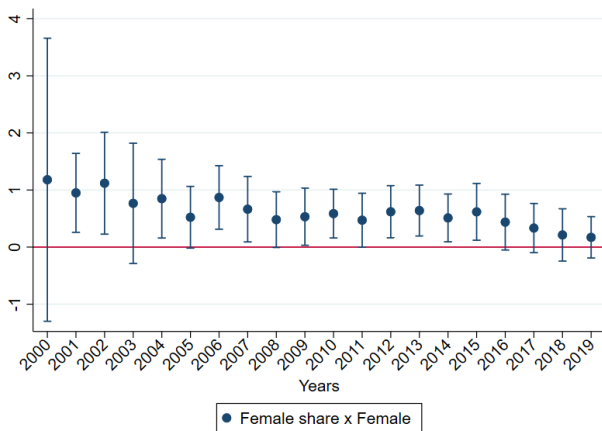
How Should We Allocate Female Students?

- ▶ Non-linear effect of female peers [Non-Linearity](#)
- ▶ Back-of-the-envelope counterfactual exercise
 - ▶ Assuming no change in share of female students in MBA program in 2000-2018
 - ▶ Students reallocation: female students in sections with at least 34% women
⇒ 2 to 5 additional female senior managers per graduating class (3.6% to 8.4% ↑)

[Back](#)

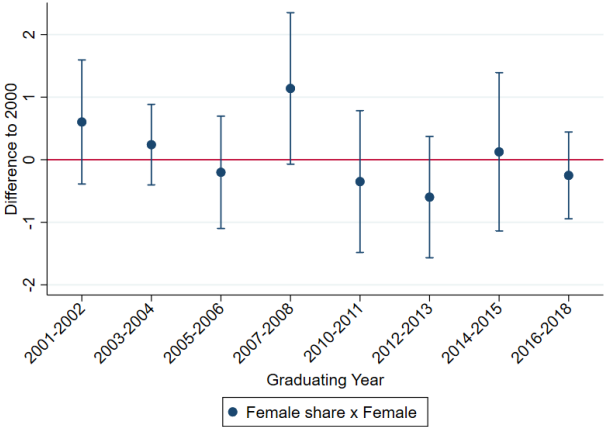
Probability of Holding a Senior Manager Position by Year

Effect of Female Peers on Holding Senior-Level Management Positions



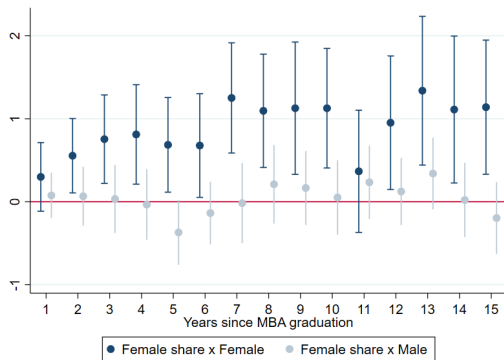
Probability of Holding a Senior Manager Position by Cohort

Effect of Female Peers on Holding Senior-Level Management Positions



Probability of Holding a Senior Manager Position by Year Since Graduation

Effect of Female Peers on Holding Senior-Level Management Positions



- ▶ 1SD (4pp) \uparrow in female share \Rightarrow 7.7% increase in probability of becoming senior manager 15 years post graduation
- ▶ No effect on men [Back](#)

Heterogeneity on Pre-Characteristics [Back](#)

Standardized Index: 3 pre-MBA characteristics that predict senior manager position

- ▶ Attended top 20 US undergraduate university based on US News Ranking
- ▶ Having any senior management experience
- ▶ Having worked in finance

Probability to Become Senior Manager

	Senior Manager
Female share × Female	0.587*** (0.209)
Female share × Female × Quality Index Above Median	1.164** (0.543)
Mean	0.488
SD	0.500
R^2	0.0806
N	51440
Class × Year × Female FE	Yes

Female Share and Gender of the Faculty

Gender of the Faculty

	(1) Female Faculty	(2) Any Female Faculty
Female share \times Female	0.111 (0.225)	0.450 (0.871)
R^2	0.402	0.226
N	48	48
Class FE	Yes	Yes

Notes: Sample includes graduating classes 2011-2018. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Identification of Peer Effects

Two main identification challenges in estimating causal effect of peers

(Manski 1993; Sacerdote 2001; Brock and Durlauf 2001; Moffitt 2001; de Paula 2017; Charles, Hurst, and Notowidigdo 2018; Caeyers and Fafchamps 2021):

- ▶ Endogenous selection of peers:

- ▶ Exogenous variation in female share across MBA sections

Female Share

Randomization

- ▶ Contemporaneous shocks:

- ▶ Treatment is a function of predetermined characteristics

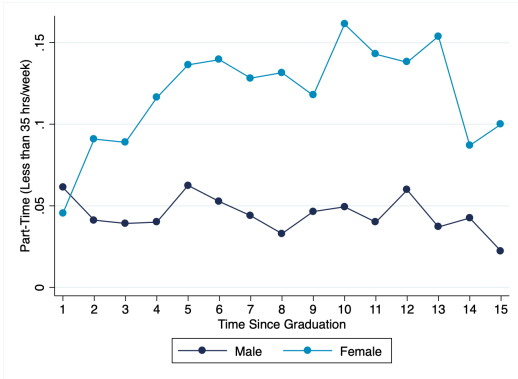
Faculty

Back

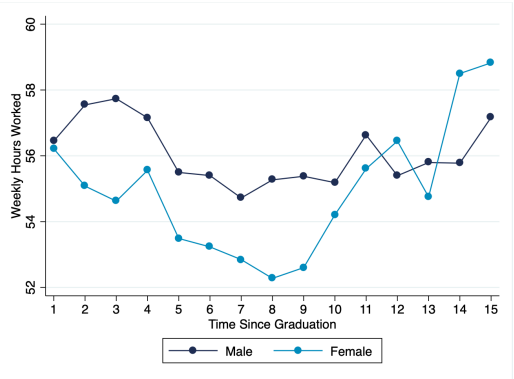
Challenges

Role of Female Peers in Female-Friendly Firms

Part-time (Survey Data)



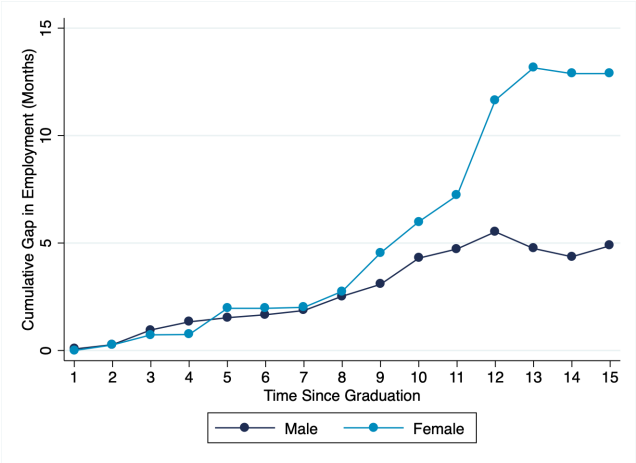
Weekly Hours (Survey Data)



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Role of Female Peers in Female-Friendly Firms

Total Month Gap (Survey Data)



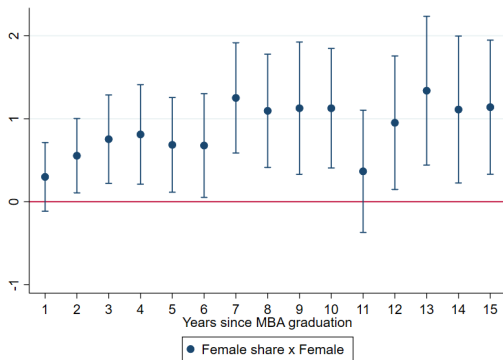
Female-Friendly Firms

“If you are working at businesses that are more “female-friendly,” it probably [...] allows more flexibility in the workforce, meaning, I have to leave every day at four to pick up my kid because that’s my job at home, but I’ll get back on. And the more that’s normalized and celebrated, the more [women] can kind of lean in and not drop down [...] when they have kids.” (MBA 2015)

Back

Probability of Holding a Senior Manager Position by Year Since Graduation

Effect of Female Peers on Holding Senior-Level Management Positions



- ▶ 1SD (4pp) \uparrow in female share \Rightarrow 7.7% increase in probability of becoming senior manager 15 years post graduation

Gender Gap in Senior Management Over Time Since Graduation

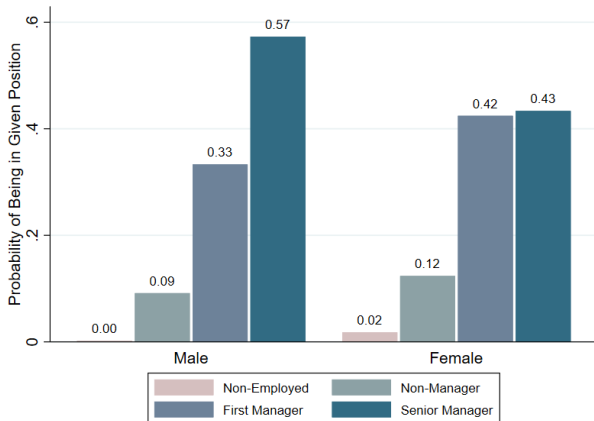
Probability of Holding Senior Management Position



- ▶ Gender gap emerges immediately post MBA and persists over time

Gender Gap in Promotion into Senior Management

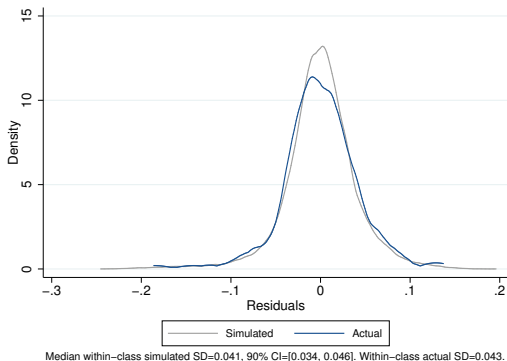
5-Year Transition Probabilities for First-Level Managers



Female first-level managers:

- ▶ 26% less likely to transition into senior management
- ▶ 56% more likely to transition into non-employment or non-management

Share of Female Students



No significantly different distribution of residualized actual and simulated female share (Bietenbeck 2020)

1. Emotional Support

*“I think we band together with other females. We create like this organic **community and being able to share stories**”*

*“There’s [a] shared lived experience... We are women in industry who are finding the **same challenges and factors that are influencing our advancement**, regardless of industry[...] We can understand those things and how we navigate them make sense to me.”*

Back

2. Improved Academic Environment

In the data:

- ▶ No empirical evidence of an effect on MBA academic performance and finance classes [GPA and Finance](#)

In the interviews:

- ▶ Ambition and self-confidence:

*“I feel like having a good group of women with whom you could be in small groups just makes it **less intimidating** [to ask questions]. I think that it’s just a safer environment, and so I think if you have that, from the beginning, like in your study groups [...], **it would just be a skill that you would learn in life.**”*

3. Gender-Specific Information

- ▶ Firm Benefits and Culture

*“If I receive an offer, I’m comfortable talking to a [female] friend [...] I’d ask how maternity leave works or generally what the female community looks like and what the support is. **I probably wouldn’t ask those questions [to a hiring manager] in the off chance the person uses this as a red flag.**”*

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3. Gender-Specific Information

- ▶ Firm Benefits and Culture
- ▶ Work-life Balance and Related Policies

*“I was one of the first people at an earlier stage company [...] to actually have kids [...] and so they had no idea what parental leave looks like [...]. I had to write up a document that scopes who to contact and how to leave my projects to other people. **I talked to several females from the [MBA] community who had already gone through this cycle, just to learn exactly how they left things.**”*

4. Job Referrals

In the data:

- ▶ Female classmates more likely to work in same firm if from same section
- ▶ Effect driven by female-friendly firms

Referrals

In the interviews:

- ▶ *“I received this opportunity through a recruiter, but was referred to me by a [MBA] friend.”*
- ▶ *“Early on getting out of school, one of my first good jobs out of business school I got through a classmate...**in the first [few] years, there was a lot more leaning on classmates in the network to find potential hires”***

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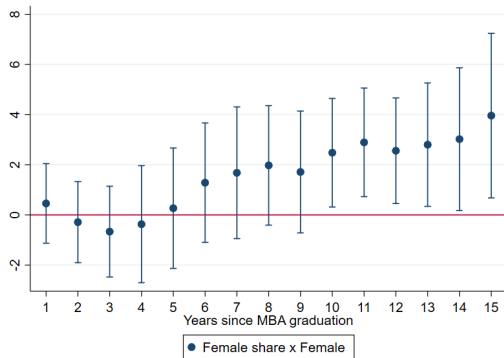
Students' Assignment Process

1. Students assigned to sections from 1 to 8 in alphabetical order
2. Check whether share of male students, white students, and students from a given university within set boundaries
3. If not, students randomly re-assigned to hit target

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Role of Female Peers in Female-Friendly Firms

Working in a Female Friendly Firm



- ▶ Women shift towards more female-friendly firms
- ▶ Effect concentrated when female MBA graduates have young children and gender wage gap increases

Share of Female Peers per Section

Within-Class Variation in Female Peers

