Board Gender Diversity and Firm Performance:

Evidence from Chinese Firms

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Introduction

Over the past decades, women have played more and more important roles in the workplace. The proportion of women directors also increases steadily around the world. They bring more diversity into the board with their variety of education, experience and perspectives. The question is, does gender diversity have any impact on firm performance? In this paper, we

- investigate board gender diversity in a big emerging market, China;
- properly tackle the endogeneity problem by utilizing historical episodes as exogenous shocks to higher-educated labor supply and board gender structures.

Institutional Background

- The system of college entrance examination *(Gaokao)* in China was disrupted by a massive socio-political movement from 1966 to 1976, *the Cultural Revolution*. Not until December 10, 1977, the *Gaokao* system was finally resumed.
- This long disruption of higher education caused a huge impact on a generation of young people (born before 1959 cohorts) who were deprived of the opportunity to access higher education.

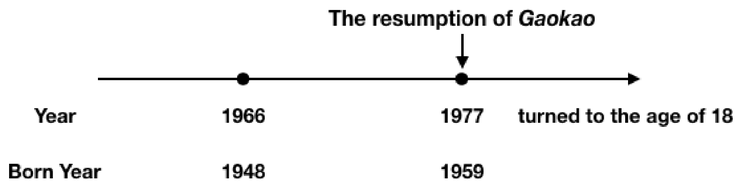

Figure 1: Time line

- Cohorts born between 1948 and 1953, who graduated in 1966, 1967 and 1968 from high school or middle school, were still allowed to take the Gaokao from 1977 to 1979. However, the opportunity cost for them to attend college was rather high.
- Women during that period had even fewer opportunities to continue a college education compared with men after marriage and having children.
- What's more, the Great Chinese Famine (1959-1961) and the subsequent Baby Boom reinforced the difference, as families tended to use most of the limited resource on sons back then.
- We find that these historical events have an impact on the high-skilled labor supply pool of directors in Chinese listed firms, causing a long-lasting effect on corporate board structure today.

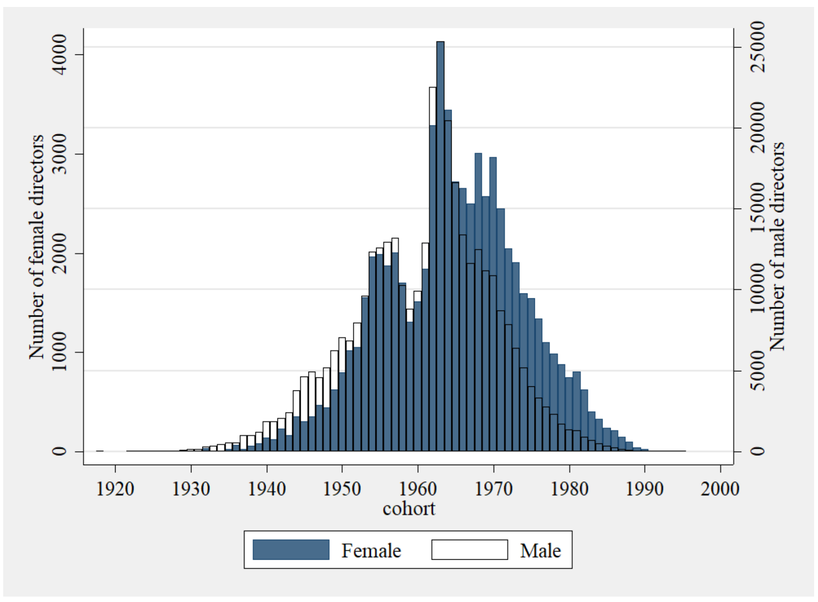

Figure 2: Number of directors in each cohort by gender (left)

Empirical Strategy

Baseline model

To test the effect of board gender diversity on firm performance, we test the following regression as our baseline model,

$$ROA_{i,t} = \beta_1 FemaleRatio_{i,t} + \mathbf{X}'\boldsymbol{\lambda} + \delta_i + \delta_t + \epsilon_{i,t}, \quad (1)$$

where $ROA_{i,t}$ is firm i's return of asset at time t, and $FemaleRatio$ is the ratio of female in board. $\mathbf{X}$ are firm-level controls. Standard errors are clustered at firm level.

IV construction

- Women were more negatively affected by the disruption of the *Gaokao* and benefited less from the subsequent resumption of the higher education system, as one can notice a pattern of inconsistency for cohorts 1960 -1964, who were mostly affected from the resumption of the *Gaokao* system.

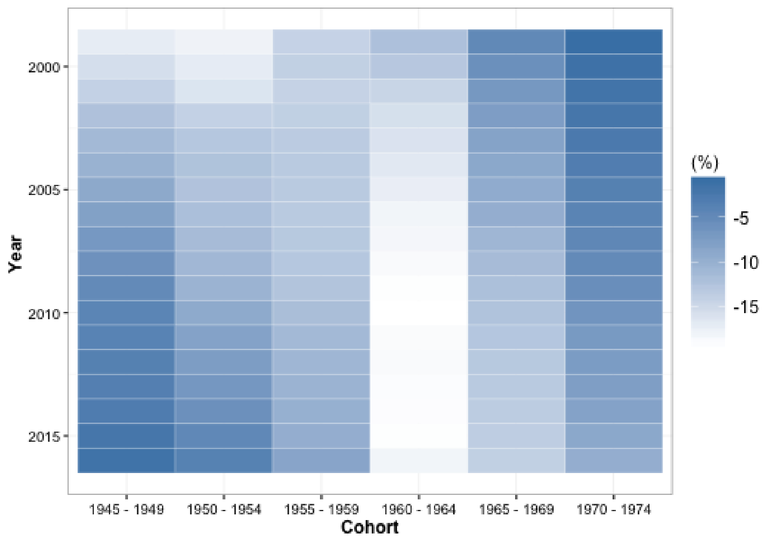

Figure 3: Difference between board female and male ratio by year and cohort

- Based on the above evidence, we construct an IV for gender diversity by taking the difference of female and male directors between these two cohorts. This "difference in difference" (DiD) IV allows us to capture the additional decrease in female board supply caused by the resumption of exams comparing to that of male.

$$DiD\_IV_{i,j,t} = \frac{(\text{female}_{59\backsim 63} - \text{female}_{49\backsim 53})_{i,j,t}}{\text{average num of directors}_{j,t}} - \frac{(\text{male}_{59\backsim 63} - \text{male}_{49\backsim 53})_{i,j,t}}{\text{average num of directors}_{j,t}},$$

where i is firm, j is the industry firm i belongs to, and t is the reporting year. We use the industry yearly mean of number of board directors to attenuate the possible endogenous concern.

Data and Sample

- CSMAR (China Stock Market and Accounting Research Database) database.
- Our final sample consists of 2,720 public Chinese firms listed on the Shanghai or Shenzhen stock exchanges and 27,765 firm-year observations from 1999 to 2015.
- An average firm in the sample has a board consisting of 10 directors and 4 supervisory directors. 15.3% of board members (board and supervisory board) are female.

Empirical Result

	ROA		ROE	ROS
	(1)	(2)	(3)	(4)
Female Ratio	0.250***	0.169***	0.347*	0.521***
	(0.062)	(0.054)	(0.179)	(0.190)
ln (Board Size)	0.002	0.002	0.002	0.022*
	(0.003)	(0.003)	(0.009)	(0.013)
State Ratio	0.003	0.002	0.023*	0.008
	(0.004)	(0.004)	(0.013)	(0.013)
Domestic Legal Ratio	0.010**	0.012***	0.051***	0.028*
	(0.004)	(0.004)	(0.013)	(0.015)
ln (Assets)	0.010***	0.010***	0.016***	0.047***
	(0.002)	(0.001)	(0.005)	(0.007)
Sale Growth	0.016***	0.015***	0.037***	0.043***
	(0.001)	(0.001)	(0.003)	(0.004)
Leverage	-0.138***	-0.136***	-0.096***	-0.420***
	(0.007)	(0.006)	(0.026)	(0.030)
ln (Firm Age)	-0.005**	-0.004	-0.002	-0.029***
	(0.003)	(0.003)	(0.008)	(0.010)
Young IPO Firm	0.002	0.003**	0.015***	0.001
	(0.001)	(0.001)	(0.004)	(0.006)
Tenure	-0.000	-0.001	-0.003	-0.003
	(0.001)	(0.001)	(0.002)	(0.002)
Year fixed effect	✓			
Firm fixed effect	✓	✓	✓	✓
Year × Industry fixed effect		✓	✓	✓
Year × Province fixed effect		✓	✓	✓
Observations	22,172	22,092	22,017	22,103
F stats.	76.28	82.42	82.32	81.26

Figure 4: Second stage results of gender diversity on firm performance

- The second stage results indicate a positive effect of gender diversity on firm performance.
- The economic magnitude is large, we find a one standard deviation increase in female ratio can cause a 4.78% standard deviation increase in ROA, which is about 8.6 million RMB in profit.

Contributions

- We find a positive causal effect using a new identification based on a unique historical episode in China, supporting the view that more qualified female participation in board is effective and favorable to firm performance.
- We provide evidence that historical events can have a long-lasting impact on human capital accumulation and are likely to pass on to economic performance.