Does the Gender Composition of Scientific Committees Matter?

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  - Old boys networks (Zinovyeva and Bagues 2015, Bagues, Sylos-Labini and Zinovyeva 2014)
  - Gender stereotypes (World Value Survey)

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  - Old boys networks (Zinovyeva and Bagues 2015, Bagues, Sylos-Labini and Zinovyeva 2014)
  - Gender stereotypes (World Value Survey)
- Gender quotas in scientific committees:
  - Spain, France, Finland, European Commission...

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- Gender quotas are costly for senior female researchers!
- Empirical evidence: few studies, small samples, mixed results
  - Same-sex preference
    - Casadevall and Handelsman (2013, 1845 obs.), De Paola and Scoppa (2014, 1000 obs.)
  - Opposite-sex preference:
    - Broder (1993, 1479 obs.), Ellemers, Heuvel, de Gilder, Maass and Bonvini (2004, 212 obs.)
  - Gender of evaluators has no statistically significant effect:
    - Moss-Racusin, Dovidio, Brescoll, Graham and Handelsman (2012, 127 obs.), Steinpreis, Anders and Ritzke (1999, 238 obs.), Abrevaya and Hamermesh (2012, 2,940 obs), Jayasinghe, Marsh and Bond (2003, 687 obs.)

In this paper:

- Nation-wide evaluations in Italy and Spain
  - 100,000 applications, 8,000 evaluators, 300,000 individual evaluation reports
- Transparent identification strategy
  - Evaluators selected out of a pool using random draw
- Does gender composition of scientific committees matter?
  1. Do more women in committee increase chances of female candidates?
  2. Do they increase quality of promoted candidates?

What mechanism?

- Richness of information allows testing different theories:
  1. Old-boys networks
  2. Gender segregation across research interests
  3. Stereotypes
  4. Influence within committee

Institutional Background

- Nation-wide evaluations to become associate or full professor (1^{st} stage):
  - In Italy, *Abilitazione Scientifica Nazionale* (2012-2014)
  - In Spain, *Habilitación* (2002-2006):

- The timeline of the national evaluations:
  1. The call is announced
  2. Candidates apply
  3. Random selection of evaluators that satisfy minimum requirements
  4. Evaluation takes place

Italy vs. Spain

- In Italy:
  - Evaluations on CVs
  - No limit on the number of qualifications
  - It does not necessarily lead to promotion
  - 5 committee members
  - Very transparent: CVs, evaluation criteria and evaluations published on-line
- In Spain:
  - Oral qualifying exams
  - Number of qualifications limited
  - It implies almost automatically promotion
  - 7 committee members
  - Only final outcome observed

Data

- In Italy:
  - 184 committees in corresponding fields
  - Evaluators:
    - 7,241 eligible evaluators, 8% of initially rostered evaluators resigned
    - Share of women in committees 19% (all-male committees 41%)
  - Candidates:
    - 69,020 initial applications, 375 per committee, 38% women
    - 14% of candidates dropped out after committees were formed; 59,150 final candidates
- In Spain:
  - 967 committees in 174 fields
  - Evaluators:
    - 29,930 eligible evaluators, 2% of initially rostered evaluators resigned
    - Share of women in committees 19% (all-male committees 31%)
  - Candidates:
    - 31,243 applications, 32 candidates per exam, 34% women

Links between candidates and evaluators

- Strong ties
  - Coauthors and/or colleagues
  - Student-advisor relationship (Spain)
- Weak ties
  - Participation in assessment of the same doctoral thesis (Spain)
- Research interest overlap
  - Same officially defined subfield (Italy)
  - Overlap of Unesco subfield codes of doctoral dissertations (Spain)

Causal effect of committee gender composition

- We estimate the following equation using the sample of initial applicants:

$$Y_{i,e} = \beta_1 Female_i + \beta_2 Female_i * Female_e + \\ + \beta_3 Female_i * Female_e^{expected} + \mu_e + \epsilon_{i,e} \quad (1)$$

where

  - $Female_e^{expected}$ is the expected proportion of women in the committee

- β_2 captures the causal impact of committees' gender composition on the relative success rate of female candidates
- Key identification assumption: random selection of committee members (see randomization checks in the paper)

Table : Effect of female evaluators on the relative success of female candidates

	1	2	3	4
	Italy		Spain	
		IV		IV
Female candidate	0.003	0.009	-0.011*	-0.011*
	(0.006)	(0.008)	(0.007)	(0.007)
Female candidate* Share of women in committee	-0.107***	-0.132***	-0.015	-0.016
	(0.026)	(0.035)	(0.028)	(0.028)
Controls:				
Female candidate* Expected share of women in committee	Yes	Yes	Yes	Yes
Exam FE	Yes	Yes	Yes	Yes
Research productivity	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes
Other predetermined characteristics	Yes	Yes	Yes	Yes
N of observations	69020	69020	31243	31243
Average success rate of female candidates	0.35	0.35	0.11	0.11
The effect of an additional female evaluator on the relative success of female candidates, 95% confidence interval (in % of the average success rate of female candidates)	[-6%, -2%]	[-8%, -3%]	[-9%, 5%]	[-9%, 5%]

Notes: OLS and IV estimates. Standard errors are clustered by exam.

Do female evaluators increase the *quality of selection*

- Compare the observable quality of candidates who qualified in committees with different gender compositions:

$$x_{ie} = \beta_0 + \beta_1 Female_e + \beta_2 Female_e^{expected} + \epsilon_{ie}$$

where x_{ie} is a proxy of candidate i's quality, measured at the time of the evaluation or during the following five years.

Do female evaluators increase the quality of selection?

Table : **Quality of qualified candidates**

	1	2	3	4	5	6	7
Sample:	Publications	Citations	Total AIS	A-journal articles	PhD students advised	PhD committees	Success in future peer evaluation
				Italy, before the evaluation			
All	0.001	0.123	-0.117	-0.186			
	(0.060)	(0.102)	(0.134)	(0.183)			
Women	-0.017	0.148	-0.020	-0.300			
	(0.078)	(0.114)	(0.137)	(0.234)			
Men	-0.008	0.084	-0.203	-0.071			
	(0.083)	(0.129)	(0.187)	(0.186)			
				Spain, before the evaluation			
All	-0.004	0.068	-0.082	-0.200	0.121	-0.143	
	(0.142)	(0.216)	(0.237)	(0.244)	(0.135)	(0.131)	
Women	0.171	0.446	-0.004	-0.142	0.565**	0.052	
	(0.216)	(0.396)	(0.426)	(0.357)	(0.239)	(0.230)	
Men	-0.149	-0.225	-0.201	-0.218	-0.163	-0.291*	
	(0.191)	(0.282)	(0.292)	(0.349)	(0.175)	(0.168)	
				Spain, after the evaluation			
All	-0.005	-0.056	-0.092	-0.200	0.169	-0.083	0.040
	(0.131)	(0.211)	(0.219)	(0.244)	(0.133)	(0.135)	(0.052)
Women	0.248	-0.009	-0.097	-0.142	0.116	-0.114	0.001
	(0.220)	(0.380)	(0.401)	(0.357)	(0.222)	(0.243)	(0.056)
Men	-0.167	-0.131	-0.230	-0.218	0.077	-0.129	0.018
	(0.181)	(0.273)	(0.275)	(0.349)	(0.189)	(0.184)	(0.076)

'Old boys' networks'

1. Networks matter for promotion:
   - Colleague premium is 10% in Italy and 41% in Spain.
   - Co-author premium is 14% in Italy and 113% in Spain.
   - Advisor premium is 82% in Spain
2. Networks are gendered:
   - Same affiliation: same-sex links are 13% more likely than mixed-gender links in Spain and 9% more likely in Italy
   - Co-authorship: same-sex links 22% more likely than mixed-gender links in Spain and 19% more likely in Italy
   - PhD supervisions: female candidates are 20% more likely to have a female advisor
3. Connections in committee are unfrequent in this context.

Gender segregation across subfield

1. Research overlap with evaluators matter for promotion
2. Gender segregation at the field level is limited:
   - In Italy, female candidates are 3.5% more likely to be in the same subfield as a female professor
   - In Spain, overlap between female candidates and female eligible evaluators is 2% larger than the overlap between female candidates and male evaluators

Table : **Stereotypes?** Heterogeneity analysis

	1	2	3	4
	Italy		Spain	
Research overlap	$> median$	$< median$	$> median$	$< median$
	-0.047	-0.183**	0.063	-0.110**
	(0.045)	(0.073)	(0.048)	(0.043)
Discipline	SSH	STEMM	SSH	STEMM
	-0.117**	-0.135***	-0.026	0.003
	(0.053)	(0.039)	(0.039)	(0.041)
Feminization of field	$> median$	$< median$	$> median$	$< median$
	-0.152***	-0.077	-0.018	-0.016
	(0.042)	(0.056)	(0.040)	(0.037)
Level of promotion	FP	AP	FP	AP
	-0.107*	-0.144***	0.121**	-0.072**
	(0.058)	(0.038)	(0.054)	(0.032)

Interactions within the committee

- Information from individual votes:
  - Female evaluators are slightly more favorable towards female candidates.
  - The presence of women in committee makes men less favorable towards female candidates

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  - we can reject any positive impact in Italy
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- Interaction within committee might have unexpected consequences

Thank you for your attention!