

The gender promotion gap in Italy

Empirical studies based on promotions

CGHE Seminar #93

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What the presentation is about

- Context of promotions in academia (externally driven labour market)
- Examples of “gender problems” in public debate
- Findings from “the trench warfare” (published in *Scientometrics*)
- Possible further steps of analysis (homophily)

Context

- Italy is an externally driven academic labour market (Musselin 2005)
- Promotions link to salary increase, which means that promotions determine (gender) pay gaps
- Academics are civil servants, which implies that MIUR (Dept) is the employer and it stores and provide individual details at national level
- After Gelmini Reform (Dec-2010), promotions are totally played at institutional level without necessity to comply specific national regulations – provided a national merit base fit-for-role (ASN) is previously achieved (Marini 2014, Marini 2017, Marzolla 2016)

Some literature about Gender and Academic Career

Universities are “gendered organisations” (J. Acker, 1990), built around a prestige economy which is shaped on the male norm (Aiston & Jung, 2015; Coate & Howson, 2014)

Unconscious gender bias and work allocation negatively affect women (Barrett & Barrett, 2011; Easterly & Ricard, 2011; Guarino & Borden, 2017; Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012; Roos & Gatta, 2009; Valian, 2005)

As a result:

- Women are underrepresented in senior management and high rank leadership positions (EU, 2016; Morley, 2013, 2014)
- They have lower chance to become professors (Danell and Hjerm, 2013; Perna, 2001, 2005), even when checking by productivity (Weisshaar 2017)
- In the case of Italy, most of the evidence focuses on ASN and presents mixed findings (Abramo et al., 2015; Bagues et al., 2017; De Paola & Scoppa, 2015; Marini 2017)

The realm of awkward and sensitive topic

- Since promotions/recruitment are merit based and are public transparent competitions (Bourdieu 1987), candidates who lose may formally complain and sue the Committee (Marini 2018)
- *Actual* competitions happen before day of interview
 - Strife is among (groups of) seniors who usually try to promote their own protégés
 - There can be consensus and no, or limited, conflict in enacting this practice
- Day of interview is usually the moment when formal stuff is pursued accurately in order to avoid complaints
- Candidates' identities, feedback and credentials are formally public and expected to be so. Pure meritocracy is very stressful, and impossible to be totally met.
- There is a long tradition of “rigging competitions”, also whenever regulations change.
 - The new system of ASN supposedly should bypass it.

A fictitious example

Napoleonic system	Anglo-Saxon system
Candidates cannot hide themselves (L.M. will know soon that you want to “betray” him/her)	Candidates are not known until positive outcome of interview (L.M. won’t know your real plans)
Public list of candidates	No disclosure of candidates’ identities
Public results based on merit	Decision based on discretion, reinforced by specific managers’ desiderata
Formal complain allowed, but is time consuming and potentially eroding relationships	Written feedback as possible explanation of decision of outcome of interview
Newspaper are happy to report scandals (harshly)*	Newspapers are happy to report issue & cases**
Few mobility expected	Mobility driven by flexibility & performance
Seniority in a place counts	Seniority may count negatively (Sennett 1998)
Poorly funded system	Properly funded system

Real examples

Lo scienziato Strumia: «La fisica? Non è donna».

«Sospeso con effetto immediato». Il fisico pisano Alessandro Strumia aveva mostrato delle slide in cui sosteneva che le donne fanno le vittime ma i veri discriminati sono gli uomini. L'ira della direttrice Fabiola Gianotti: «Dichiarazioni inaccettabili»

di **Stefano Montefiori**, corrispondente da Parigi



Sport

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1,600 scientists rebuke Cern physicist over gender bias

Alessandro Strumia hits back at petition sparked by claim physics was built by men



▲ Prof Alessandro Strumia gave what some have described as a highly offensive presentation about women's role in physics. Photograph: Cern

More than 1,600 scientists have backed a campaign condemning the Italian researcher who claimed physics was “invented and built by men”.

[Overview](#)[Timetable](#)[Contribution List](#)[Registration Form](#)[List of participants](#)[Computing access](#)[Health insurance, visa](#)[Accommodation](#)[Directions to and inside CERN](#)[Child care](#)[TH secretariat](#)[✉ thworkshops.secretariat...](mailto:thworkshops.secretariat...)

Bibliometrics data about gender issues in fundamental theory



28 Sep 2018, 14:00

30m

4-3-006 - TH Conference Room (CERN)

Speaker

[Alessandro Strumia](#) (Universita & INFN Pi...)

Description

COMMENT FROM THE WORKSHOP ORGANIZERS

Alessandro Strumia applied to give a presentation on “Bibliometrics data about gender issues in fundamental theory”. The committee was skeptical of his motivations but decided to allow him to give a scientific presentation on data analysis. The committee is deeply disappointed that the presentation, which had not been shared prior to its delivery, included attacks on individuals and was contrary to CERN's values, as set out in the CERN Code of Conduct. CERN's official statement on the matter can be found here: <https://press.cern/press-releases/2018/09/updated-statement-cern-stands-diversity>

Presentation Materials

[CERN statement](#)



3 di 14

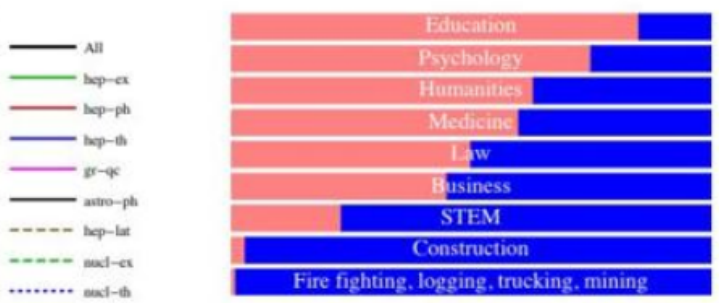
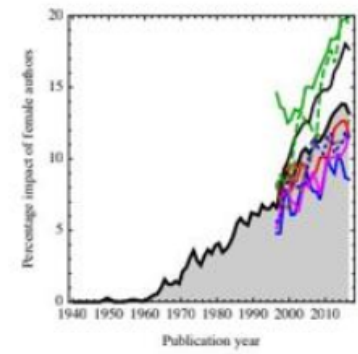


Le donne? Vanno meglio nelle materie umanistiche (dove il confine fra giusto e sbagliato è meno netto)

perché (DOVE IL CONFINE FRA GIUSTO E SBAGLIATO è MENO NETTO)

% of women in different fields

Less women in STEM than in humanities (where right/wrong good/bad distinctions is less clear) or ~legal professions (where real power is).



Also at CERN: female %_{admin} >> %_{physicists} >> %_{technicians}.

Does not look discrimination

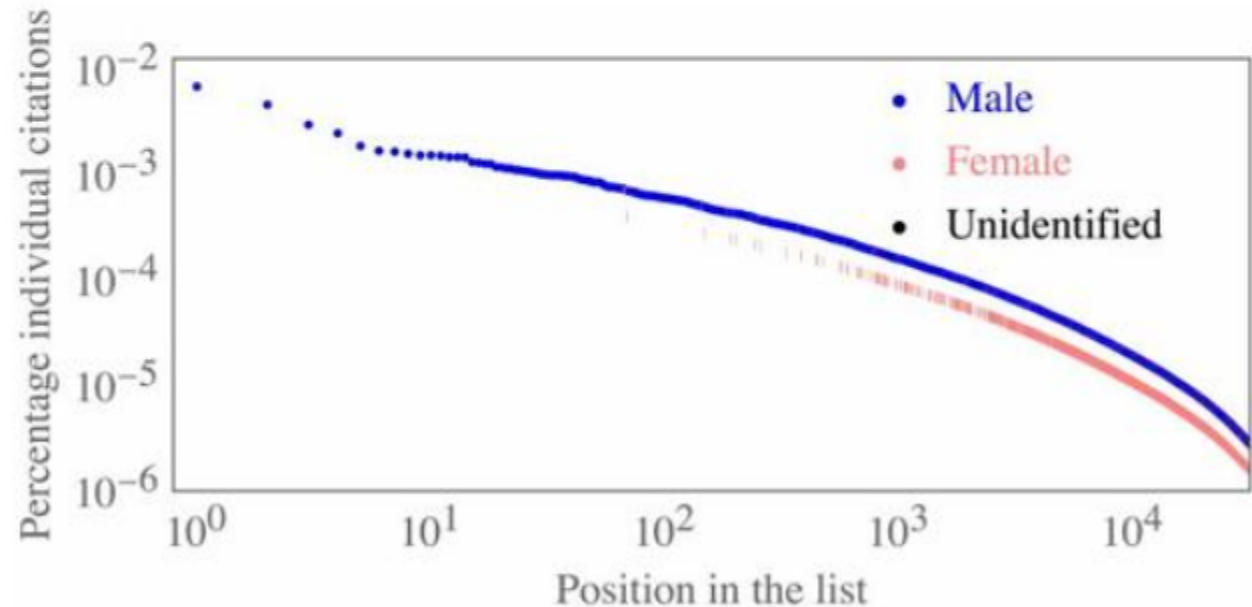
- 4 I fisici al top? Sono uomini, uomini, uomini >
- 5 Le donne sono discriminate positivamente >
- 6 La lista d'attesa per loro è più corta >
- 7 La (supposta) discriminazione Paese per Paese >
- 8 La fisica è stata inventata dagli uomini (ma è aperta alle donne su invito) >
- 9 Le quote rosa sono ingiuste >
- 10 La vignetta ironica (si fa per dire) >
- 11 Il precedente (inglorioso) di Summers >
- 12 Il vittimismo delle minoranze >
- 13 Conclusioni >

I fisici al top? Sono uomini, uomini, uomini

Sexism in conferences?

Silvia Penati et al. complain when key speakers at conference are men.
Key speakers are top-authors invited to attract participants.

Top authors are man, man, . . . man and produced 10%, as the bottom 500



Why female-only physics speakers at "gender equality" conferences?

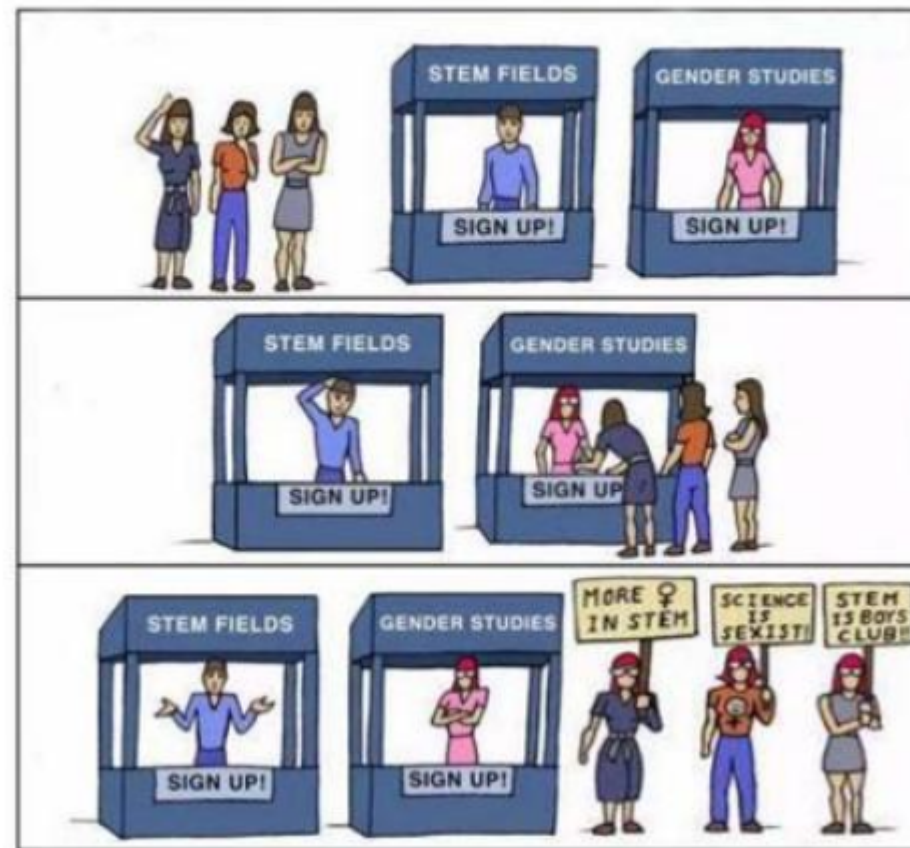
La fisica è stata inventata dagli uomini (ma è aperta alle donne su invito)

Discrimination against women

Physics invented and built by men, it's not by invitation.

Curie etc. welcomed after showing what they can do, got Nobels...

La vignetta ironica (si fa per dire)





Updated statement: CERN stands for diversity

30 Sep 2018

Updated on 1 October 2018

From 26 to 28 September, CERN hosted the first workshop on [High Energy Theory and Gender](#) focusing on recent developments in theoretical high-energy physics and cosmology, and discussed issues of gender and equal opportunities in the field.

It is unfortunate that one of the 38 sessions, by a scientist from one of the collaborating universities, risks overshadowing the important message and achievements of the event.

[Update] On Monday 1 October, CERN suspended the scientist from any activity at CERN with immediate effect, pending investigation into last week's event.

<https://t.co/HhvNSxPVPg> <https://t.co/o5QGg4L9VZ>

— CERNpress (@CERNpress) 1 ottobre 2018

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Corruzione »



Corruzione a Roma, Scarpellini: "Ecco i politici a cui ho dato gli appartamenti"



"Devo fare la lista dei buoni e dei cattivi": così parlava il professor



Onu, scandalo per le spese pazze dello zar dell'ambiente Solheim



Corruzione: 6 arresti e 12 indagati a Pontinia



Dall'ex collaboratore di Ricucci agli avvocati delle grandi aziende: chi sono i sette docenti arrestati per i concorsi truccati

Il più noto alle cronache è Guglielmo Frasoni, avvocato d'affari e collaboratore di Stefano Ricucci. Nell'elenco anche docenti di Bologna, Cassino, Tor Vergata e Napoli

25 settembre 2017



CASE

MOTORI

LAVORO

ASTE



Attività Commerciali

Firenze Vendita Cogefim 14011 - PODERE RISTRUTTURATO - prov FI IN PROVINCIA di FIRENZE - PODERE RISTRUTTURATO in pietra a vista - mantenute. . .

CERCA UNA CASA

Vendita Affitto Asta Giudiziaria

Provincia

Concorso università, arriva la rinuncia ufficiale di Conte

Il premier risulta escluso dalla procedura di selezione per la cattedra di Diritto privato alla Sapienza. La comunicazione è datata 10 settembre, giorno in cui avrebbe dovuto sostenere l'esame di inglese, poi rinviato

ABBONATI A

Rep:

28 settembre 2018

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g+

in



Il presidente del Consiglio Giuseppe Conte non prenderà parte al [concorso per la cattedra di Diritto privato](#) all'università La Sapienza di Roma. Dopo il rinvio dell'esame di lingua inglese e l'annuncio della rinuncia per

Il rettore della Normale di Pisa Vincenzo Barone: "Impossibile promuovere le donne"

La denuncia in un'intervista "Se una collega fa carriera si scatena una guerra di veleni"

17 ottobre 2018



Alla vigilia dell'anno accademico arriva la denuncia del rettore della prestigiosa università **Vincenzo Barone** in un'intervista a 'Qn' che racconta come sia difficile promuovere le donne nel mondo universitario. "Ogni volta che si tratta di valutare o proporre il nome di una donna per un posto da docente, si scatena il finimondo". "Preparazione, merito e competenze", spiega Barone,

23rd Oct 2018
The Guardian

Jumpin' jets, a woman! Call to update children's books with female academics

Dr Frankenstinker, Professor Branestawm ... How can little girls become academics when all the role models are men?





NEWSWEEK.COM

Hungary's leader Orbán bans gender studies in universities because it's "not a science"

Back to scientific analysis of scientific career

“The trench warfare of gender discrimination...”
... and further steps about diversity



www.alamy.com - DW7DW6

Some first evidence

Table 1 Proportion of women at the full professor level, evolution 2012–2016. *Source:* MIUR Ministry and ASN repository

Disciplinary areas	2012		2016		Marginal increase of women in full professor rank
	Tot. full professors	% Women	Tot. full professors	% Women	
A1 Mathematics and informatics	833	18.0	799	19.1	6.3
A2 Physics	471	9.8	475	11.2	14.2
A3 Chemistry	563	19.2	534	22.8	19.1
A4 Earth sciences	202	16.8	192	17.7	5.2
A5 Biology	1037	29.7	931	32.2	8.5
A6 Medicine	1831	12.8	1811	14.6	14.0
A7 Agricultural and veterinary sciences	691	16.4	675	17.5	6.9
A8 Civil engineering and architecture	800	15.1	724	18.2	20.5
A9 Industrial engineering and information systems	1358	6.6	1406	8.7	33.5
A10 Classical studies, philology, arts and literature	1204	41.3	1041	42.1	1.9
A11 History, philosophy and psychology	1148	30.6	1063	34.8	13.8
A12 Law	1388	20.6	1429	23.0	11.4
A13 Economics and statistics	1351	19.8	1383	22.1	11.5
A14 Political and social sciences	365	24.1	336	26.2	8.6
Total	13,242	20.3	12,799	22.1	8.6

Table 2 ASN and promotion by gender and disciplinary area, absolute numbers and percentages (*italic*).
Source: MIUR Ministry and ASN repository

Disciplinary areas		ASN						Promotions			
		M			F			M		F	
		a	b	c	a	b	c	d	e	d	e
A1	Mathematics and informatics	725	309	<i>42.6</i>	261	111	<i>42.5</i>	63	<i>20.4</i>	18	<i>16.2</i>
A2	Physics	1063	635	<i>59.7</i>	255	154	<i>60.4</i>	68	<i>10.7</i>	11	<i>7.1</i>
A3	Chemistry	430	253	<i>58.8</i>	249	163	<i>65.5</i>	49	<i>19.4</i>	19	<i>11.7</i>
A4	Earth sciences	327	141	<i>43.1</i>	98	30	<i>30.6</i>	24	<i>17.0</i>	2	<i>6.7</i>
A5	Biology	821	449	<i>54.7</i>	591	270	<i>45.7</i>	72	<i>16.0</i>	33	<i>12.2</i>
A6	Medicine	2427	1185	<i>48.8</i>	735	318	<i>43.3</i>	219	<i>18.5</i>	48	<i>15.1</i>
A7	Agricultural and veterinary sciences	513	324	<i>63.2</i>	237	138	<i>58.2</i>	58	<i>17.9</i>	22	<i>15.9</i>
A8	Civil engineering and architecture	801	323	<i>40.3</i>	310	116	<i>37.4</i>	75	<i>23.2</i>	22	<i>19.0</i>
A9	Industrial engineering and information systems	1338	690	<i>51.6</i>	282	138	<i>48.9</i>	153	<i>22.2</i>	27	<i>19.6</i>
A10	Classical studies, philology, arts and literature	961	484	<i>50.4</i>	1010	525	<i>52.0</i>	78	<i>16.1</i>	63	<i>12.0</i>
A11	History, philosophy and psychology	920	355	<i>38.6</i>	571	261	<i>45.7</i>	66	<i>18.6</i>	48	<i>18.4</i>
A12	Law	688	299	<i>43.5</i>	326	165	<i>50.6</i>	86	<i>28.8</i>	39	<i>23.6</i>
A13	Economics and statistics	911	532	<i>58.4</i>	457	247	<i>54.0</i>	114	<i>21.4</i>	47	<i>19.0</i>
A14	Political and social sciences	331	138	<i>41.7</i>	164	73	<i>44.5</i>	36	<i>26.1</i>	16	<i>21.9</i>
Total		12,256	6117	<i>49.9</i>	5546	2709	<i>48.9</i>	1161	<i>19.0</i>	415	<i>15.3</i>

a Number of applicants

b Number of winners

c Percentage of success (b/a [%])

d Number of promoted

e Percentage of promoted (d/b [%])

Premises

- Promotions to full professor (from associate rank or below)
- Mobility by institution is negligible
- Promotions are no more a national struggle within disciplinary communities; institutions rule, also on performativity indicators (Capano & Pritoni 2018)
- Multilevel analysis at institutional level is able to capture the invisibility of new institutional procedures and criteria in selecting promotions out of those who are fit-for-the-role (ASN)
- Institutional constraints based on performance indicators determine the total amount of possible promotions/recruitment – main confounding variable (Marini & Meschitti 2018)
- Arguably the Italian system is undermining some stratification, we used VQR to check by “national official reputation” of Departments

Variables

- *Observations: all Italian academics who passed ASN from inception (2012) until 2015*
- Promotion (binary)
- Merit indicators (from national ASN source)
 - Number of articles
 - Citations
 - H index
 - Books
 - Articles or Chapters
 - Articles in “first ranked” journals
- Gender
- Age
- PO (amount of money to be spent by institution out of a performative formula)
- VQR (first and second waves)
- Rank of academics

Table 3 Summary of variables to predict promotion to full professor. *Source:* MIUR Ministry, ASN and ANVUR repositories

Variable	Obs.	Mean	SD.	Min.	Max.
Prom_or1316	9714	.2536545	.4351246	0	1
Ind1	7678	.9058766	1.670424	– 1	53.76577
Ind2	7935	1.819094	5.917959	– 1	178.8
Ind3	7584	.8518571	2.171892	– 1	43.44
Age	8778	48.45033	6.979624	28	70
Sex	9714	1.3042	.4600915	1	2
VQR_R (2010)	7656	1.084919	.3499847	– .44	2.83
VQR_R (2014)	6415	1.083772	.2621625	0	2.97
PO	9714	.1300439	.2742291	0	7.986667
<i>Position</i>					
0 Not employees ^a	1590				
1 fixed term r10	18				
2 fixed term r05	24				
3 researcher not conf	88				
4 researcher	1112				
5 associate not conf	856				
6 associate conf	4771				
7 associate	172				
Total (“0” not included)	7041				

Possible interpretations

- At parity of publications and citations, women are less likely to be promoted in comparison to men
- This is striking because discrimination against women at ASN level was very small, whereas when things go not transparent and not directly accountable, gender discrimination is remarkable
- Space for promotions are so scarce that:
 - it is a struggle between men, and only males not-bestowed promotions are noted – females' ones are given for granted
 - diversity is not taken into account, meaning that statistically dominant gender is more likely to continue to have advantages.
 - The latter point in turns compels to analyse if this dynamic happens in disciplines where women are more (which in turn should take into account if humanities are penalised in relation to other “more useful” disciplines)

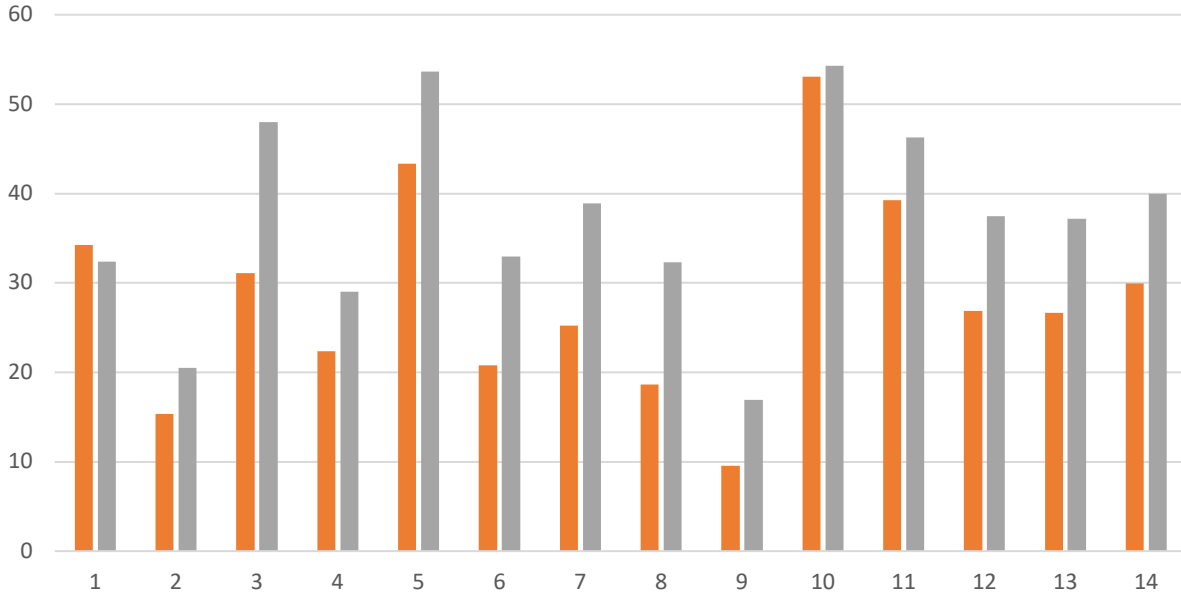
Further steps in analyses: is there homophily?

Area	%W in 2000	%W in 2017	%W FP in 2000	%W FP in 2017
1	34.27	32.36	13.82	19.66
2	15.38	20.53	4.61	12.37
3	31.09	47.97	9.59	25.89
4	22.35	29.00	7.79	18.23
5	43.33	53.61	20.53	33.41
6	20.82	32.98	5.35	15.65
7	25.23	38.91	6.09	17.66
8	18.63	32.34	7.47	18.78
9	9.55	16.89	2.35	9.48
10	53.10	54.28	30.96	42.54
11	39.25	46.25	18.52	36.06
12	26.88	37.48	7.79	24.15
13	26.63	37.21	9.74	23.14
14	29.98	39.95	9.92	26.44

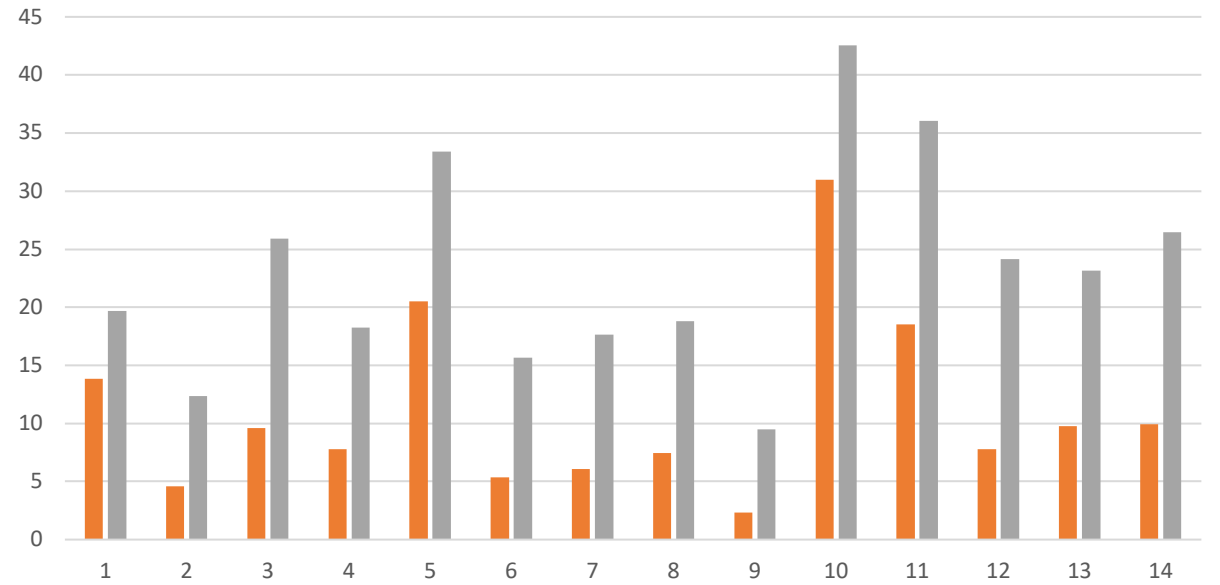
Is it possible that women are more likely to be discriminated when they belong to a disciplinary community which is poorly populated by women at highest rank?

Did anything changed after implementation of Gelmini Law since promotions are no more disciplinary battle, but an institutional one instead?

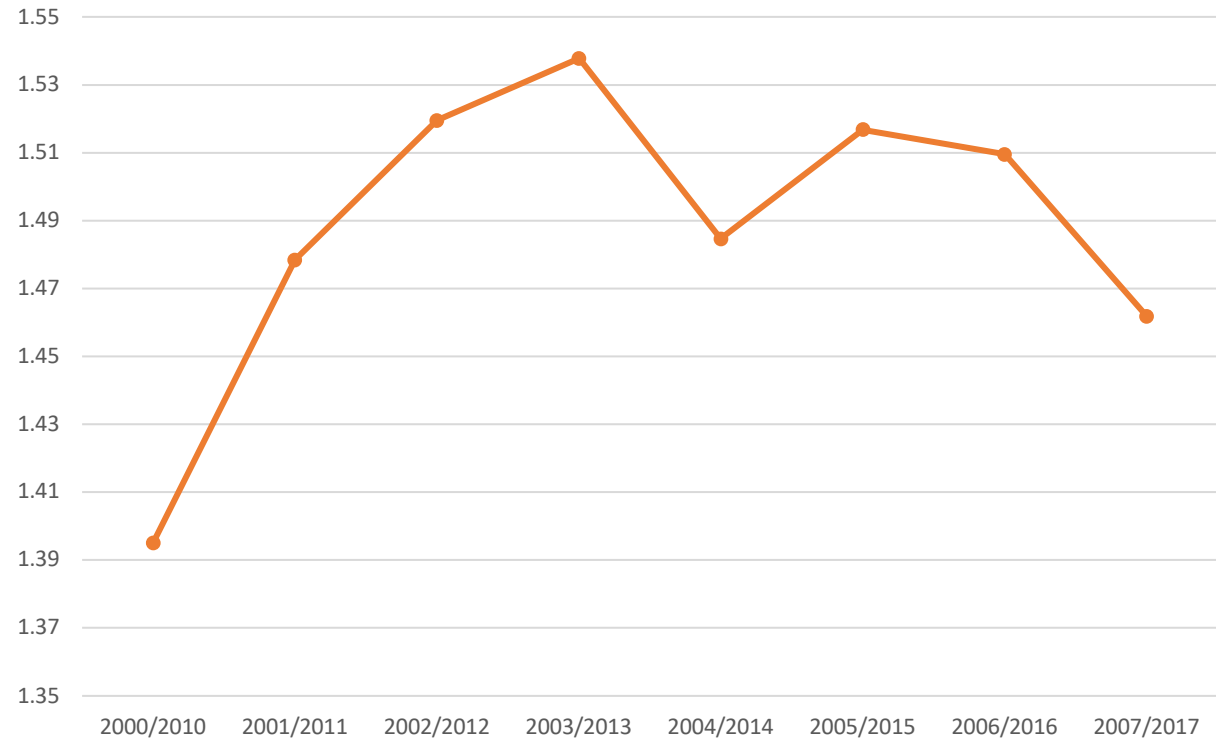
% of women by area (2000y vs. 2017y)



% of women in FP rank by area (2000y vs. 2017y)



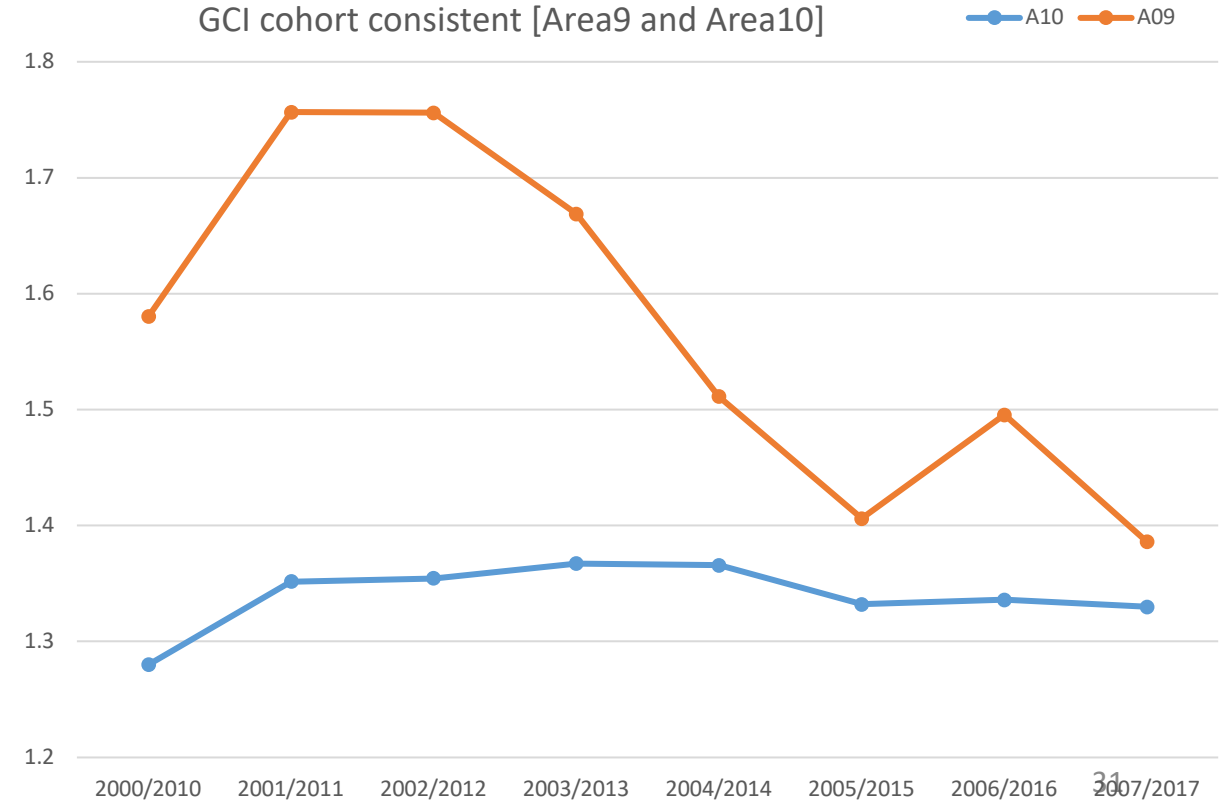
GCI cohort consistent



Apparently there is betterment across time. Also the percentage of women within FP ranks by discipline do not play a relevant role

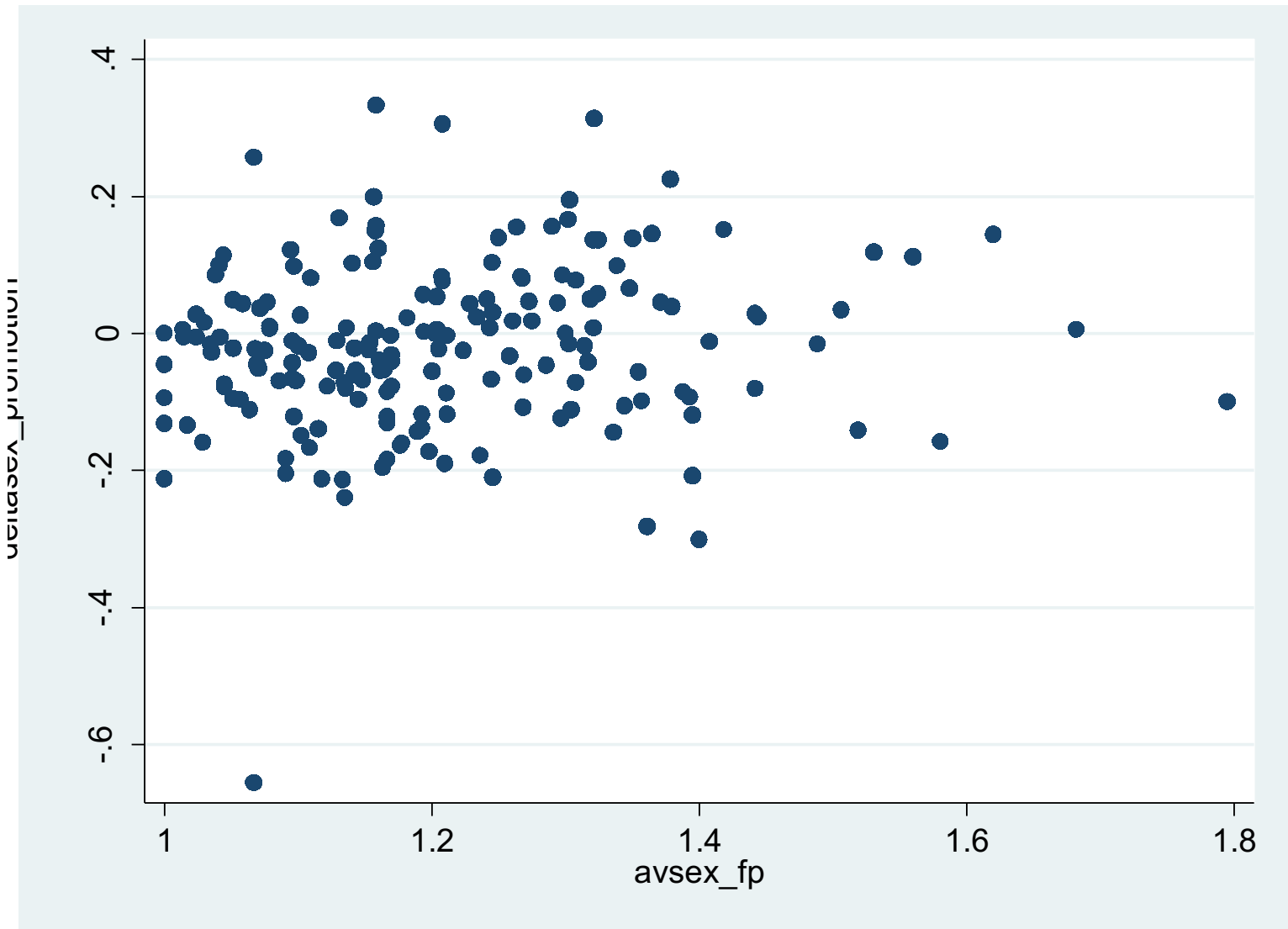
A Glass Ceiling Index based only on one-step blow rank-and-file and based on a lag of 10 years to analyse the destination of cohorts

GCI cohort consistent [Area9 and Area10]



Analysis

- Variables:
 - Average of Sex at Full Professor rank by institution
 - Layer of multilevel analysis by institution
 - Degree of masculinity by discipline * institution for each “top” and “mid” ranks.
 - Only for next slide: difference between percentage of women among the group who got promoted and same for the group who did not get promoted (yet) though having ASN
- Observations:
 - Also promotions to Associate Professor
- Assumption:
 - Communities of full professors who are more misbalanced by gender may favour that gender
 - If yes, is it the same for both ranks?



R= 0.1368

p= 0.0641

N= 184

The more a disciplinary community has women at full professor rank, the more the difference of women who won and who lost is at advantage of the former

Promotions to Full Professor

```

Mixed-effects logistic regression
Group variable:          ateneo

Number of obs      =      5,155
Number of groups   =          77

Obs per group:
    min =          1
    avg =         66.9
    max =         403

Integration method: mvaghermite
Integration pts.   =          7

Log likelihood = -2601.9911
Wald chi2(9)      =         70.20
Prob > chi2       =         0.0000
-----+-----
prom_or1316 |      Coef.   Std. Err.      z    P>|z|    [95% Conf. Interval]
-----+-----
      sex2 |   .4724326   .0919463     5.14   0.000   .2922211   .652644
    ind1_I |   .1123034   .0238458     4.71   0.000   .0655664   .1590404
    ind2_I |  -.0163655   .0080154    -2.04   0.041  -.0320754  -.0006556
    ind3_I |   .0457034   .0158501     2.88   0.004   .0146377   .0767692
      age |  -.0097817   .0058889    -1.66   0.097  -.0213237   .0017603
       PO |  -.1861685   .2455465    -0.76   0.448  -.6674309   .2950939
    rung1 |   .0263227   .0125134     2.10   0.035   .0017968   .0508486
  masc_top |   .1970004   .1344264     1.47   0.143  -.0664705   .4604713
  masc_mid |  -.2908916   .1441751    -2.02   0.044  -.5734696  -.0083137
    _cons | -1.397573   .3189933    -4.38   0.000  -2.022788  -.7723571
-----+-----
ateneo      |
  var(_cons) |   .7513933   .1915524                .4559013   1.238408
-----+-----
LR test vs. logistic model: chibar2(01) = 257.52      Prob >= chibar2 = 0.0000

```

Promotions to Associate Professor

```

Mixed-effects logistic regression
Group variable:          ateneo

Number of obs      =      7,968
Number of groups   =         84

Obs per group:
    min =          1
    avg =        94.9
    max =        530

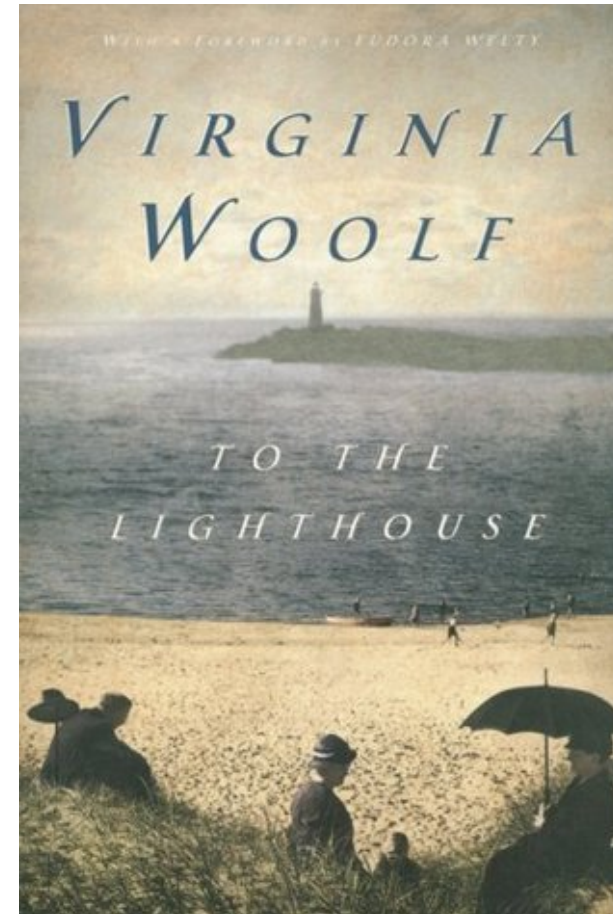
Integration method: mvaghermite
Integration pts.   =          7

Log likelihood = -5193.5812
Wald chi2(8)      =      80.02
Prob > chi2       =      0.0000
-----+-----
prom_ass1316 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
      sex2 |   .0616174   .0491864     1.25   0.210   - .0347863   .1580211
    ind1_II |   .0081565   .0146168     0.56   0.577   - .0204918   .0368049
    ind2_II |  -.0038464   .0049804    -0.77   0.440   - .0136078   .005915
    ind3_II |   .0510487   .0118232     4.32   0.000   .0278757   .0742217
      age |  -.0277551   .0047786    -5.81   0.000   - .037121   -.0183892
       PO |  -.0944718   .0973471    -0.97   0.332   - .2852685   .0963249
     rung1 |   .0662552   .0086384     7.67   0.000   .0493242   .0831862
   masc_top |  -.0967789   .0816977    -1.18   0.236   - .2569035   .0633458
      _cons |   1.164009   .2140195     5.44   0.000   .7445389   1.58348
-----+-----
ateneo      |
  var(_cons) |   .2827657   .0638846                .1816005   .4402878
-----+-----
LR test vs. logistic model: chibar2(01) = 375.18      Prob >= chibar2 = 0.0000

```

Thank you! Questions welcome...

*[...] there was Mr. Tansley
whispering in her ear, "Women
can't paint, women can't write ..."*



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