Toulouse School of Economics

Gruen Lecture

ANU, 6 February 2014

Can and should anything be done to change the unequal representation of women in positions of economic power in advanced societies?

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The WAR *of the* SEXES

How Conflict and Cooperation Have Shaped Men and Women from Prehistory to the Present

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Outline of presentation

- *The War of the Sexes* argues that our evolutionary past profoundly influences our gender relations today
- This is NOT biological determinism – we are a flexible, adaptable species, very different even from our close relatives
- A particular angle on the gender gap: the importance of networks
- Helps us move beyond the sterile debate about whose “fault” is the continued gender gap in the distribution of economic power
- The policy conclusions we draw will turn out to be very contingent on how we interpret expressed differences in preferences for work environments

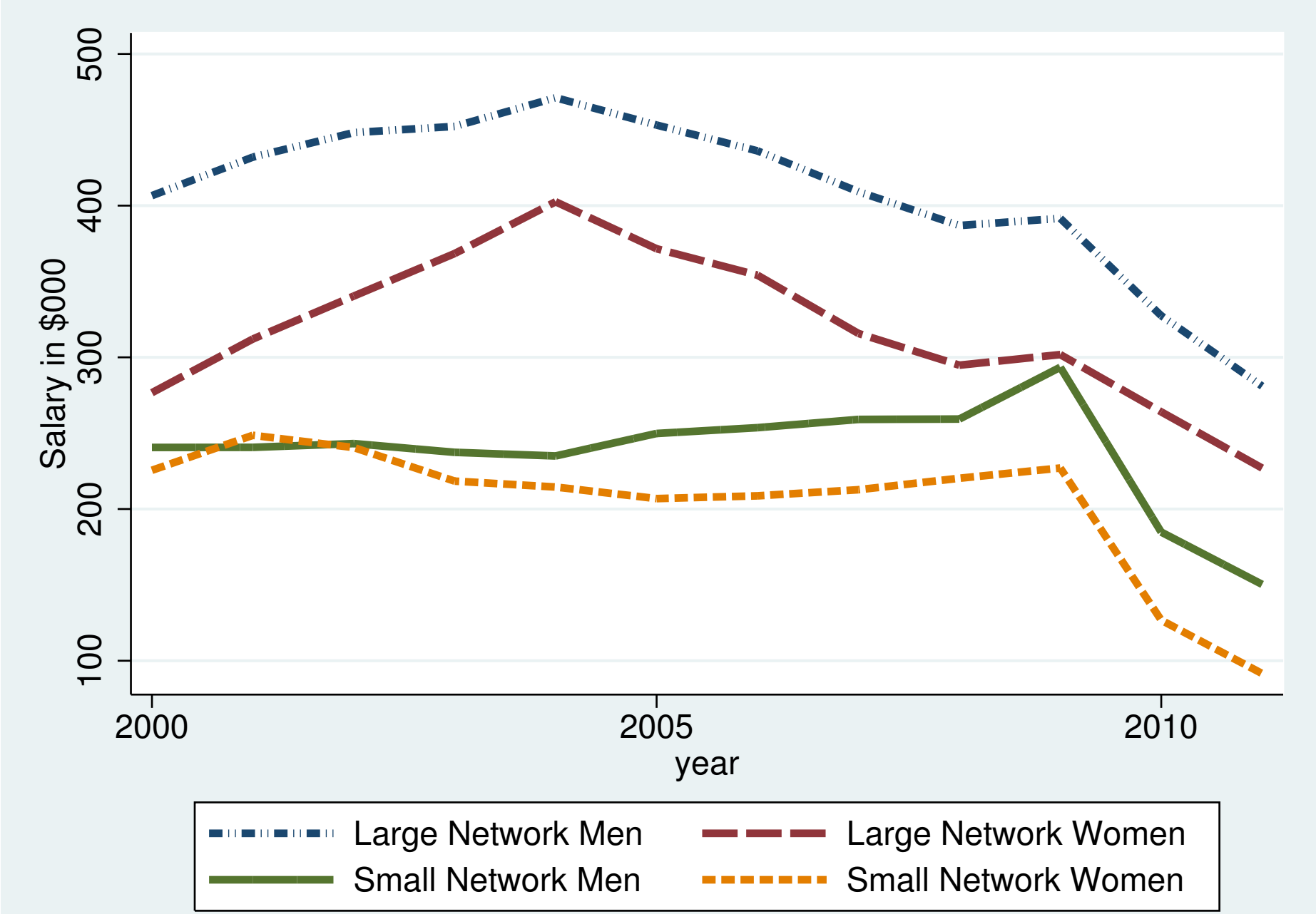
Our biological inheritance

- Sexual conflict is everywhere in nature:
  - Females produce large, scarce eggs and guard preciously their mating opportunities
  - Males produce small, plentiful sperm and seek to multiply matings
- Males use either force or persuasion to induce females to mate, and many male behaviors are best understood as strategies
- There is *sexual dimorphism* in many species – that makes it startling (and fascinating) how little there is in human beings
- But there is still some….

Main question of our own research:

- A subtle dimension of sexual dimorphism: *networks*
- Do men and women network differently, and if so could this explain (part of) the continuing differences in the gender distribution of power in advanced industrial societies?
- This presentation reports joint work with Nicoletta Berardi, Guido Friebel, Marie Lalanne, Bernard Richter and Peter Schwardmann
- Understanding how network behavior influences distributions of economic power is a key to thinking about what if anything can be done to change that distribution
- As the information economy grows, networks become MORE important

The simple answer to our question: YES!



Why does this matter? Women in the labor market

- The transformation of labor markets by women's participation since WWII has been spectacular (US figures):
  - Women's participation has risen from just over 30% to just under 60%
  - In 2009 women made up 51.4% of managerial & professional jobs
  - Women have overtaken men in higher education
- But some occupations have continuing low participation of women (32% of lawyers, physicians, 25% architects, 1.2% airline pilots)
- Women's salaries are 20% lower, lower even within occupations
- Women are scarce at the very top: 15.7% of board members and 2.4% of CEOs of Fortune 500 companies in 2010

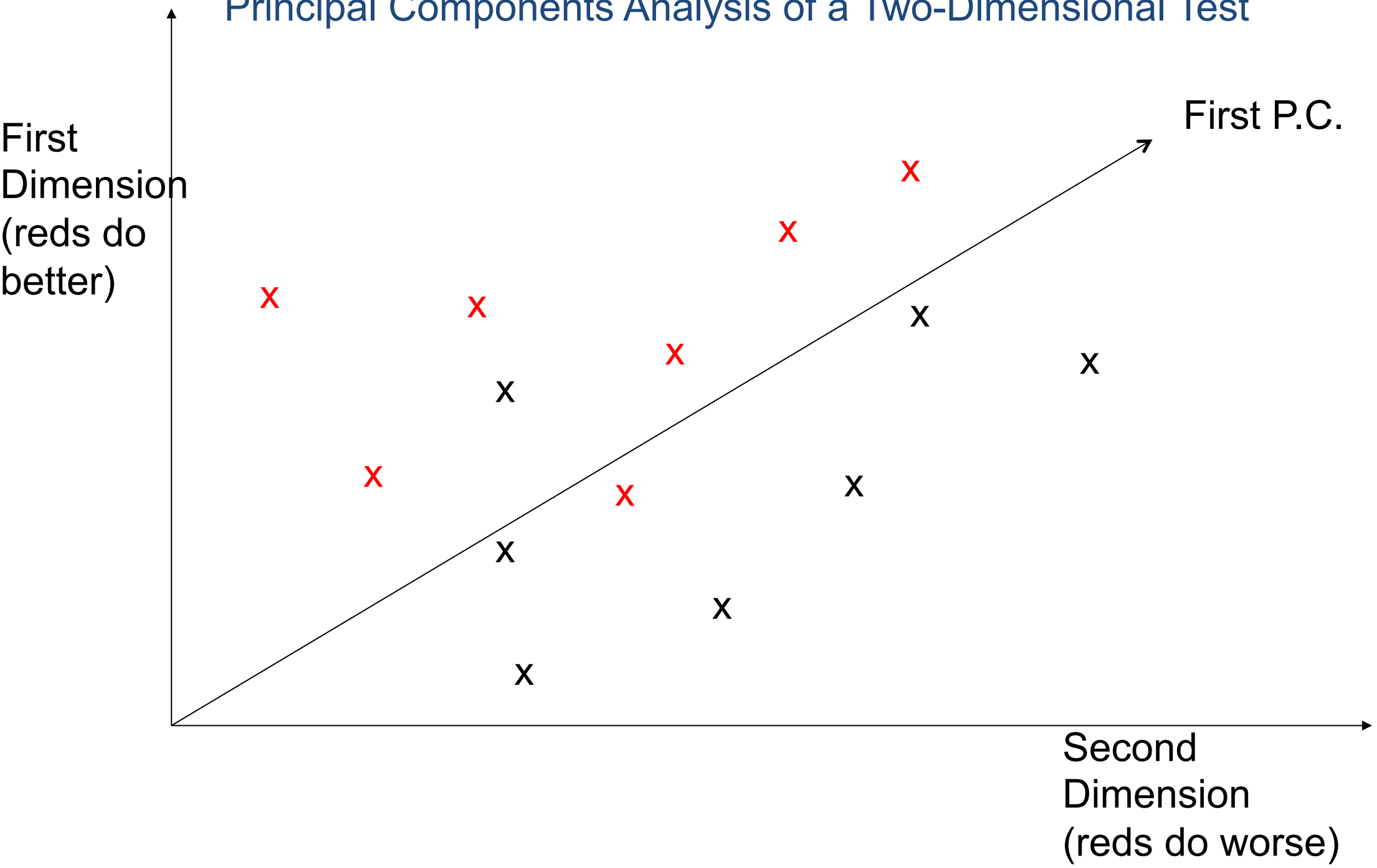
What are the explanations?

- Is it talent? NO
- There are gender difference in tests of
  - component skills
  - personality characteristics
- But these are not systematically related to any measure of aggregate talent – not even in variability
- Is it preferences? PARTLY
- Preferences for
  - competitiveness and risk-taking
  - negotiating styles
  - flexibility in work,
- Women pay a very high price for these preferences –WHY?

Talent and the gender gap (I)

- A large literature tries to see whether the persistent differences between men's and women's salaries in industrialized countries might be (partly) due to gender differences in talent (IQ) or personality
- The literature is inconclusive – not because of lack of evidence but because of lack of theoretically coherent ways to organize the evidence
- Existing studies show a small advantage in favor of men in terms of *g*, the common component of different constituent tests – but some of these tests favor men on average while others favor women
- The calculation of *g* is therefore sensitive to the choice of tests to include

An Illustration:
Principal Components Analysis of a Two-Dimensional Test



Talent and the gender gap (II)

- There is NO theoretical rationale for the weighting of different component tests in an IQ measure
- Some researchers just assert a weighting (eg Lynn, 1999, who claims that IQ is just the sum of a verbal comprehension measure plus a measure of reasoning plus a measure of spatial abilities)
- There is also no *general* basis for the view that men have higher variability in traits (because of their single X chromosome) so this leads them to be more represented at the extremes
- This is because extreme physiological traits do not necessarily translate into extreme economically-relevant behavioral traits (example: testosterone and spatial ability)

Talent and the gender gap (III)

- For the Big Five personality traits there are conflicting findings on gender differences, and on association with labor market outcomes
- Conscientiousness is positively associated with outcomes, though less than IQ (women score higher on average in most studies)
- Emotional stability is weakly positively associated, and men score consistently higher on average
- Agreeableness is negatively associated with outcomes but only for men (ie aggressiveness pays, but only for men)
- Overall only 3 to 4 per cent of gender gap is explained by personality

Gender differences in preferences

- There are some clear gender differences in some aspects of preferences
  - Risk aversion
  - Preferences for competitive environments (but these are sensitive to context)
  - Preferences for flexibility in work (see Goldin, AEA Presidential Address 2014)
- None of this evidence means that these differences are genetic (though they could be)
- What is striking is how high a price women pay for such differences
  - Women returning to work after raising children earn less (no surprise)
  - But they still earn less 25 years later! Is this really a productivity difference?

The story so far

- The revolution in society brought about by women's entry into the labor market in the last half century is spectacular
- This makes the remaining under-representation of women in positions of economic power all the more puzzling
- There is NO evidence of a talent gap, but there is some evidence of a preference gap
- Why are women's preferences so costly to them?
- Is it productivity – or is it signaling?

The missing element: coalitions and networks

- Female chimpanzees form more stable and loyal coalitions than males do
- The same is likely to have been true of women during prehistory
- There's some evidence that it is still true of women today
- Stable, loyal coalitions sound like a good thing
- But in the modern business world they don't do enough to get you noticed – it's about *visibility*!
- There's evidence that talented women are flying beneath the radar of the (mostly male) recruiters to the top positions

Why expect networking to be part of the answer?

- General consideration from biology: « Coalitions..can be a reproductive strategy; and if this is true, male and female coalitions will tend to be different » – Bobbi S. Low, *Why Sex Matters*.

- The logic of sexual selection: women are more selective than men about entering into many partnerships, but invest more, and over a longer period, in those partnerships they choose to undertake

- Evidence from primatology and sociology: women invest relatively more in *strong ties*, men relatively more in *weak ties* (Granovetter)

- But weak ties matter more for professional advancement

Differences in coalition behaviour between male and female primates

- In chimpanzees, conflicts are rarer between females than between males, but are less often reconciled (de Waal, 1989)
- Male coalitions are strategic, status-oriented, flexible
- Female coalitions are smaller, more supportive, more stable, less effective at obtaining resources
- Similar findings are reported for rhesus monkeys

What about humans? Two kinds of evidence

- Data on social habits
  - Surveys (Gwen Moore, Ronald Burt) report women have smaller, more stable networks of friends in both social and professional contexts
  - Men report spending larger proportion of time calling colleagues and acquaintances, women spend more time calling friends
  - Friebel & Seabright (*Journal of Economic Psychology* 2011) report different lengths and frequencies of calls
- Experiments
  - Friebel, Lalanne, Richter, Schwardmann & Seabright (2013) show that when subjects can decide which partners to play with in a repeated trust game after learning the result of the first round, men and women behave differently

Figure 1:
Gender difference in duration of mobile phone calls by age group, Italy and Greece
(male average, whole sample = 1)

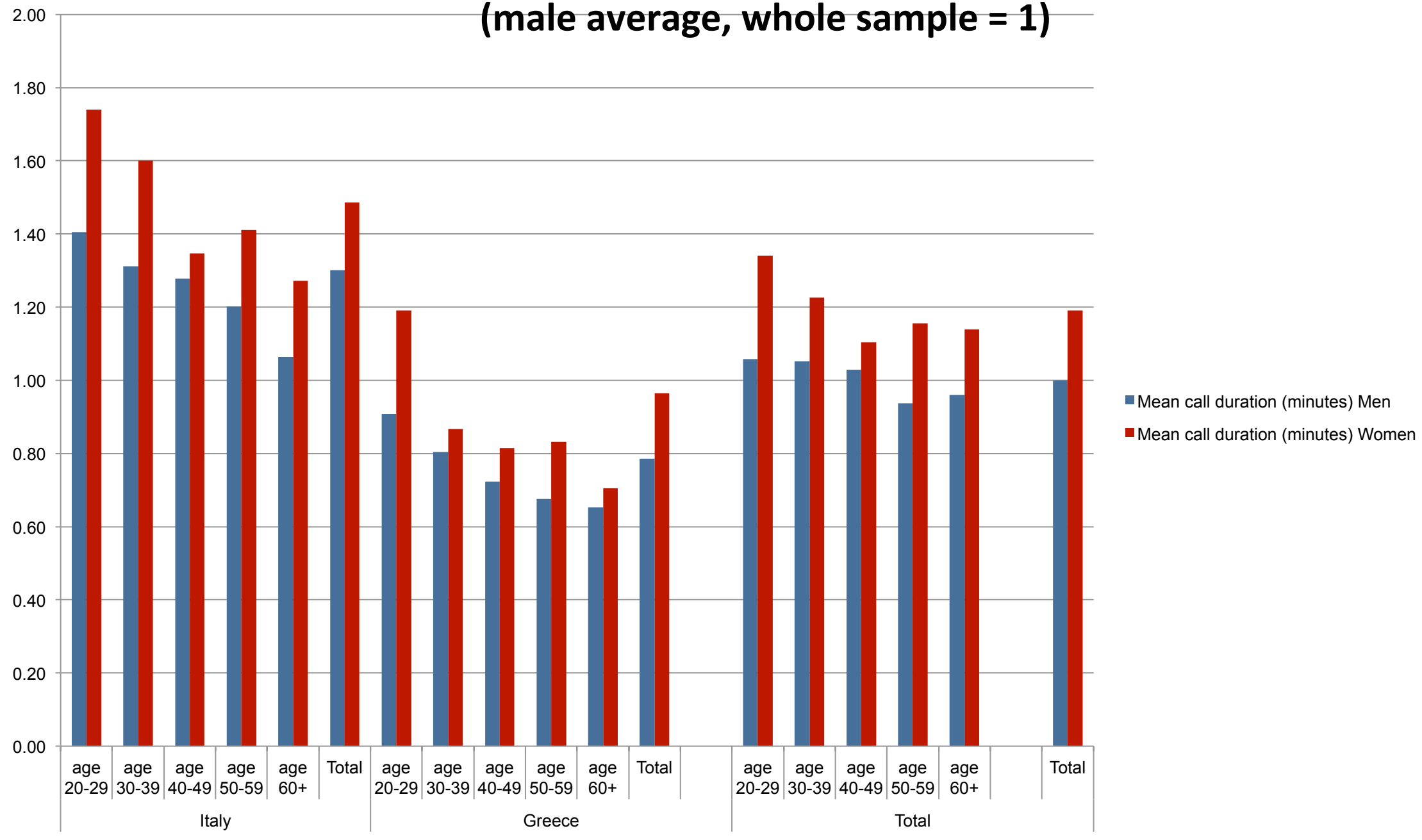


Figure 2:
Gender difference in number of mobile phone calls by age group, Italy and Greece
(male average, whole sample = 1)

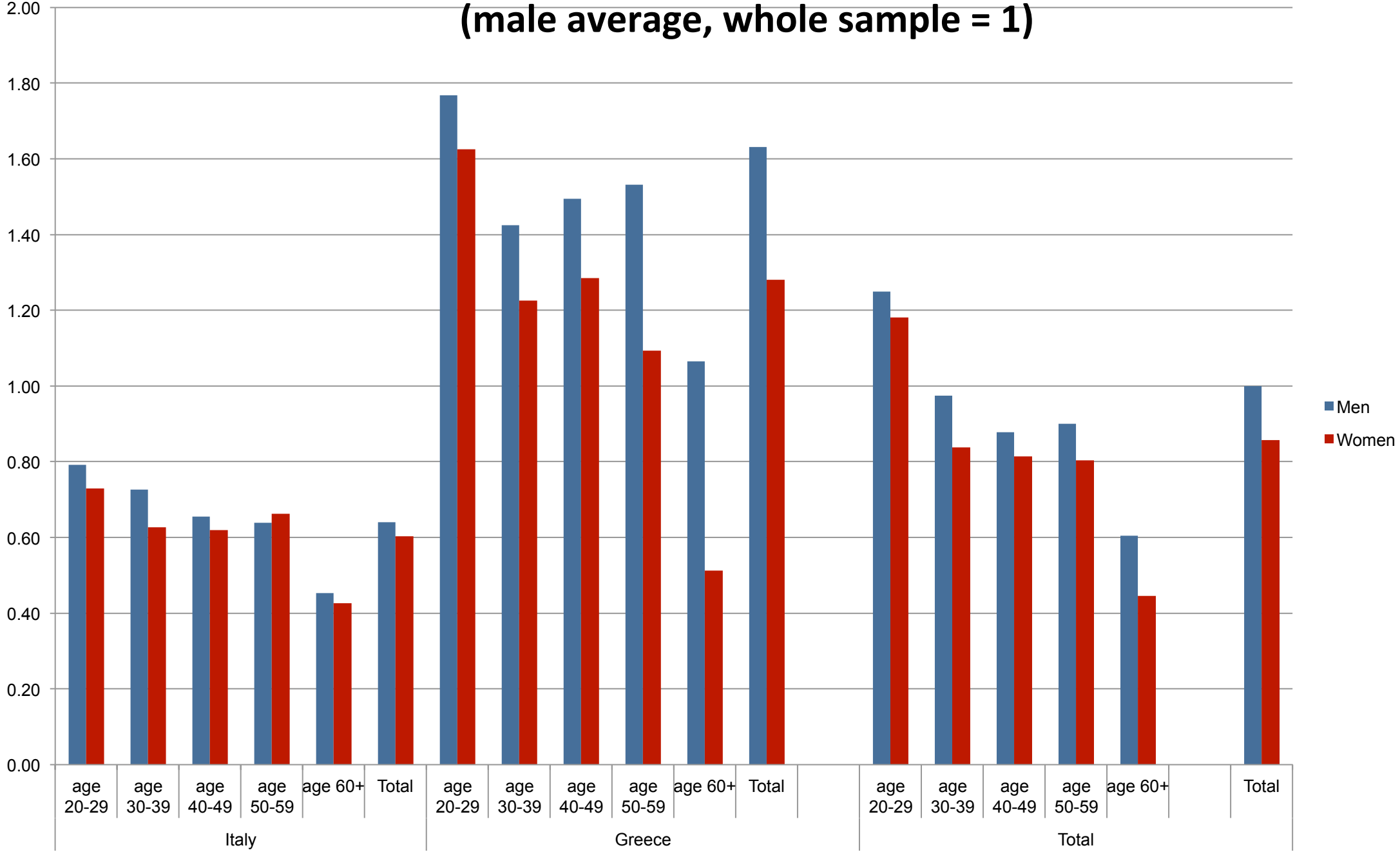
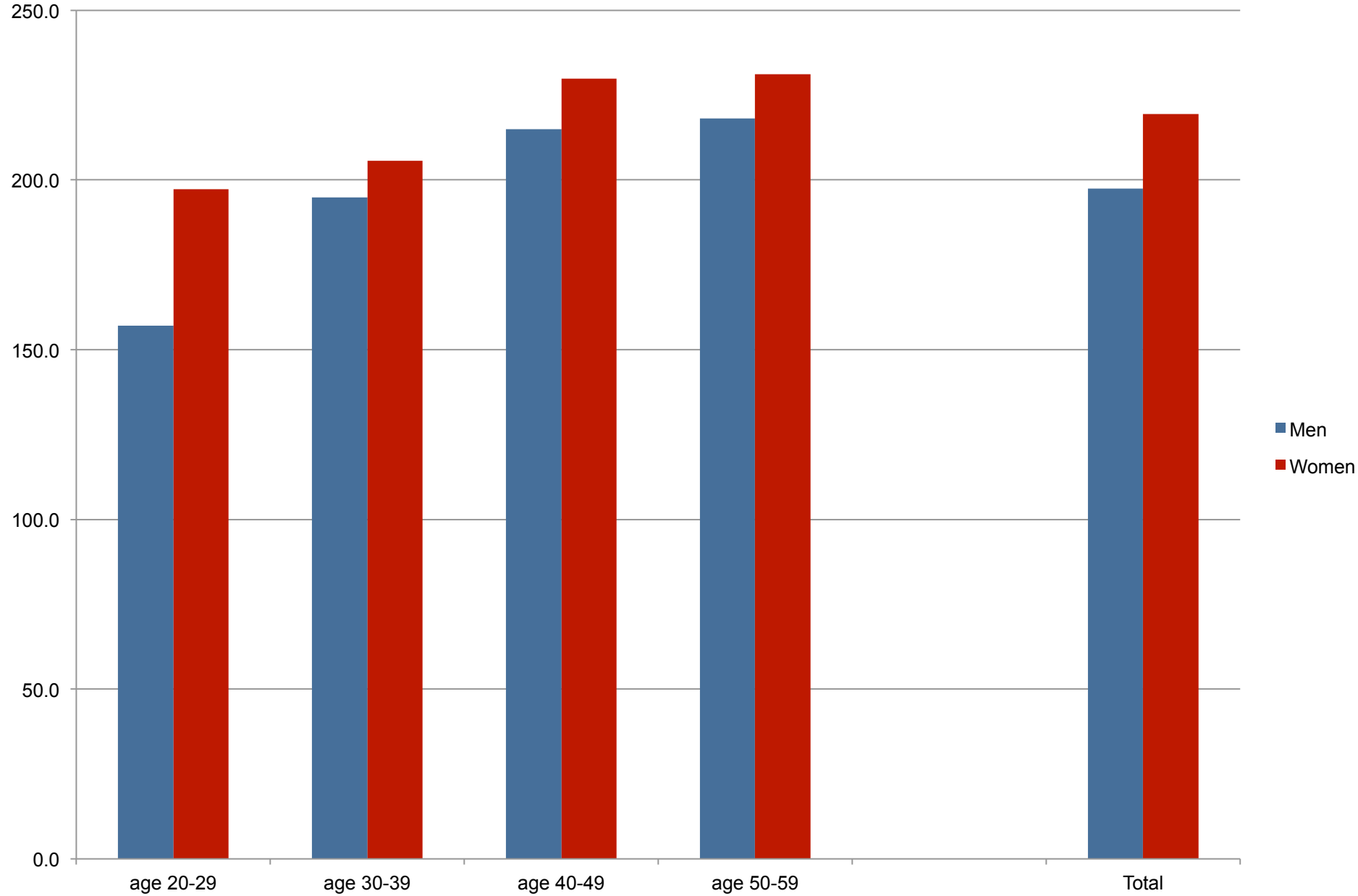


Figure 3:
Gender difference in duration of call centre calls in seconds by age group,
Germany



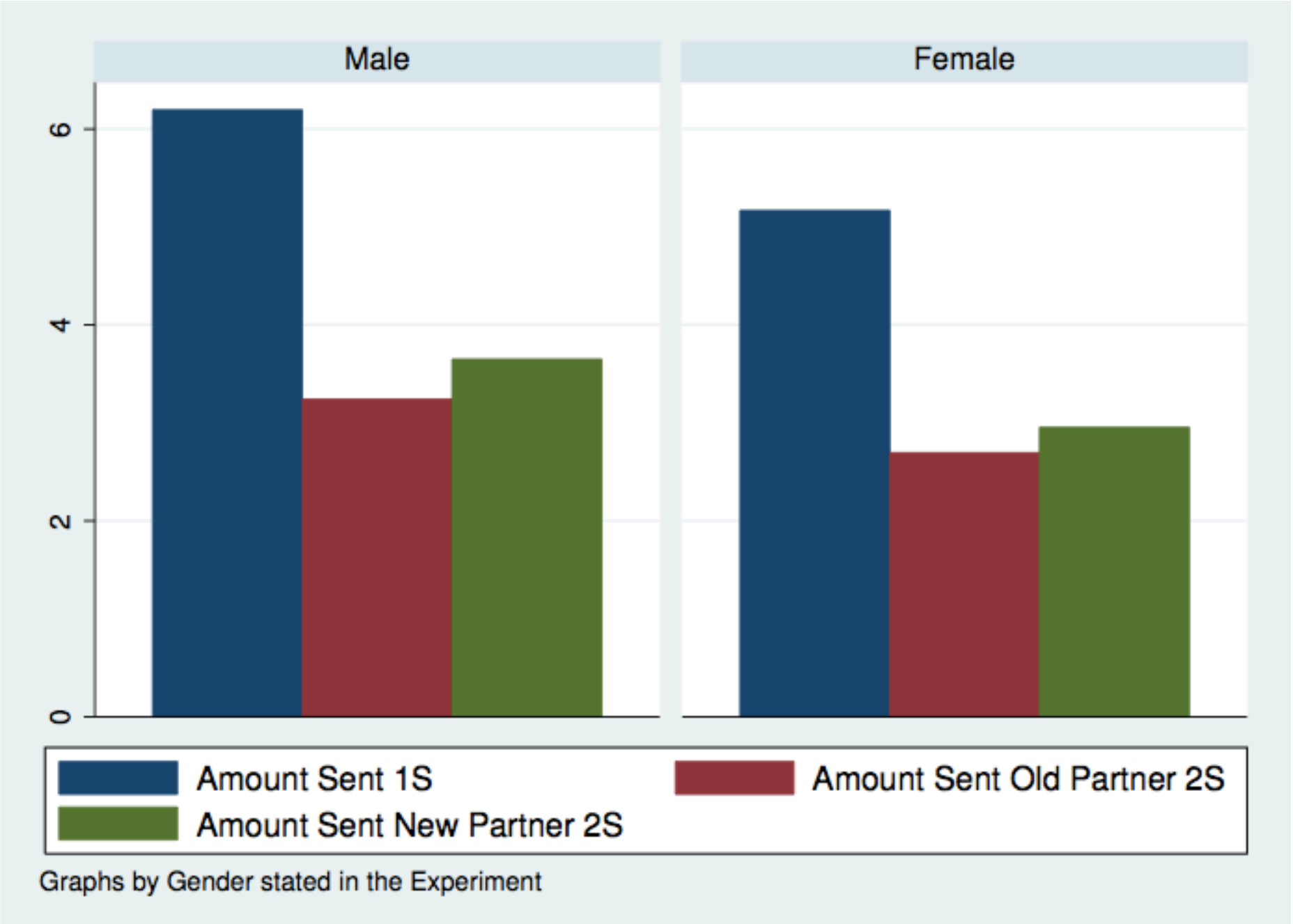
Experimental evidence for gender differences in formation of links

- Subjects play a trust game twice
- They have an endowment of 10 tokens which they can send to a random, anonymous partner. Any amount sent is tripled and the partner chooses how much, if any, to return
- After the first round, subjects are told the result and then divide a new endowment of 10 between and old and a new partner
- We find evidence for two hypotheses about gender difference in strategies:
  - differential selectivity
  - differential opportunism

Experimental evidence for gender differences in formation of links (II)

- Differential selectivity: women invest less than men in a new interaction
- Differential opportunism: women's investment in a new social interaction is less responsive than men's to information about the likely economic returns to that interaction
- Consistent with sexual selection: females make greater average investment in sexual encounters, and are more concerned about long-term nature of both sexual and social relationships
- Consistent also with the idea that their networks links are more loyal, more stable, less opportunistic

Women are more selective – at all stages



Women send less – because they act less on their optimism

Table 1: Amount Sent (First Stage)

Variables	I	II	III
Female	-1.451***	-1.495***	0.090
	(0.434)	(0.428)	(1.083)
Optimism		1.174***	1.703***
		(0.300)	(0.504)
Optimism*Female			-1.206
			(0.759)
N	363	363	363
LR Chi^2	11.11	20.70	23.22

Significance levels : * : 10% ** : 5% *** : 1%

Women respond less to the return on previous play

Table 2: Amount Sent to Old Partner (Second Stage)

Variables	I	II	III	IV
Female	-0.406	1.427*	1.443*	2.238**
	(0.363)	(0.788)	(0.785)	(1.058)
Optimism			0.508*	0.785**
			(0.278)	(0.372)
Optimism*Female				-0.626
				(0.559)
Partner's Return Rate		0.322***	0.318***	0.316***
		(0.038)	(0.038)	(0.038)
Partner's Return Rate*Female		-0.133**	-0.132**	-0.128**
		(0.063)	(0.063)	(0.063)
Partner's Amount Sent		0.156**	0.159**	0.160**
		(0.072)	(0.073)	(0.072)
Partner's Amount Sent *Female		0.010	-0.002	0.004
		(0.108)	(0.108)	(0.108)
Threshold 1 Treatment		0.165	0.178	0.185
		(0.423)	(0.421)	(0.421)
Threshold 1 Treatment*Female		-1.199*	-1.165*	-1.202*
		(0.635)	(0.633)	(0.632)
N	363	363	363	363
LR Chi^2	1.24	103.51	106.85	108.11

Significance levels : * : 10% ** : 5% *** : 1%

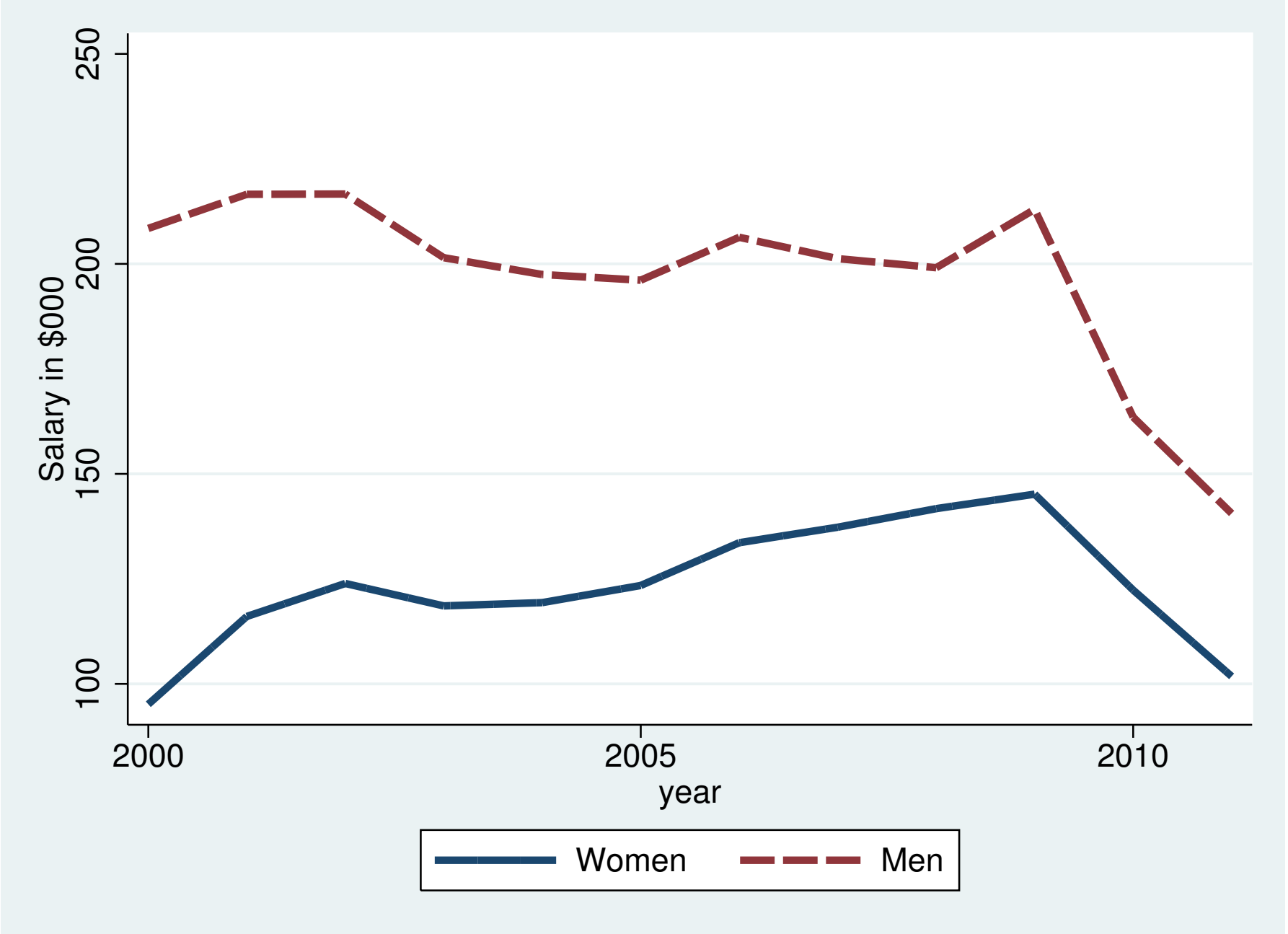
What about the *effect* of networks?

- In work with Marie Lalanne, we test for the effect of networking opportunities on senior corporate remuneration
- Tricky statistical issues – how do we know that gender differences are not just capturing unobservable differences in talent?
- There's evidence that individual networks matter for career advancement for two reasons:
  - They are valuable to the employer
  - They help the employee discover better opportunities
  - See Nicoletta Berardi and Paul Seabright: ''Professional Networks and Career Coevolution'', CEPR DP no 8632, 2011

Data description and methodology:

- Our dataset: more than 22 000 top executives and board members working for roughly 4000 US, UK, French and German companies (>1m USD marketcap) from 1999 to 2011; whole BoardEx dataset: roughly 380 000 individuals:
- Demography, education, employment history
- Social network information from: universities, non for profit organizations and previous companies. We use previous employment links to current members of whole Boardex dataset
- Links should be interpreted as opportunities for interactions; we do not observe actual investment in social interactions.

A dramatic gender disparity in salaries:

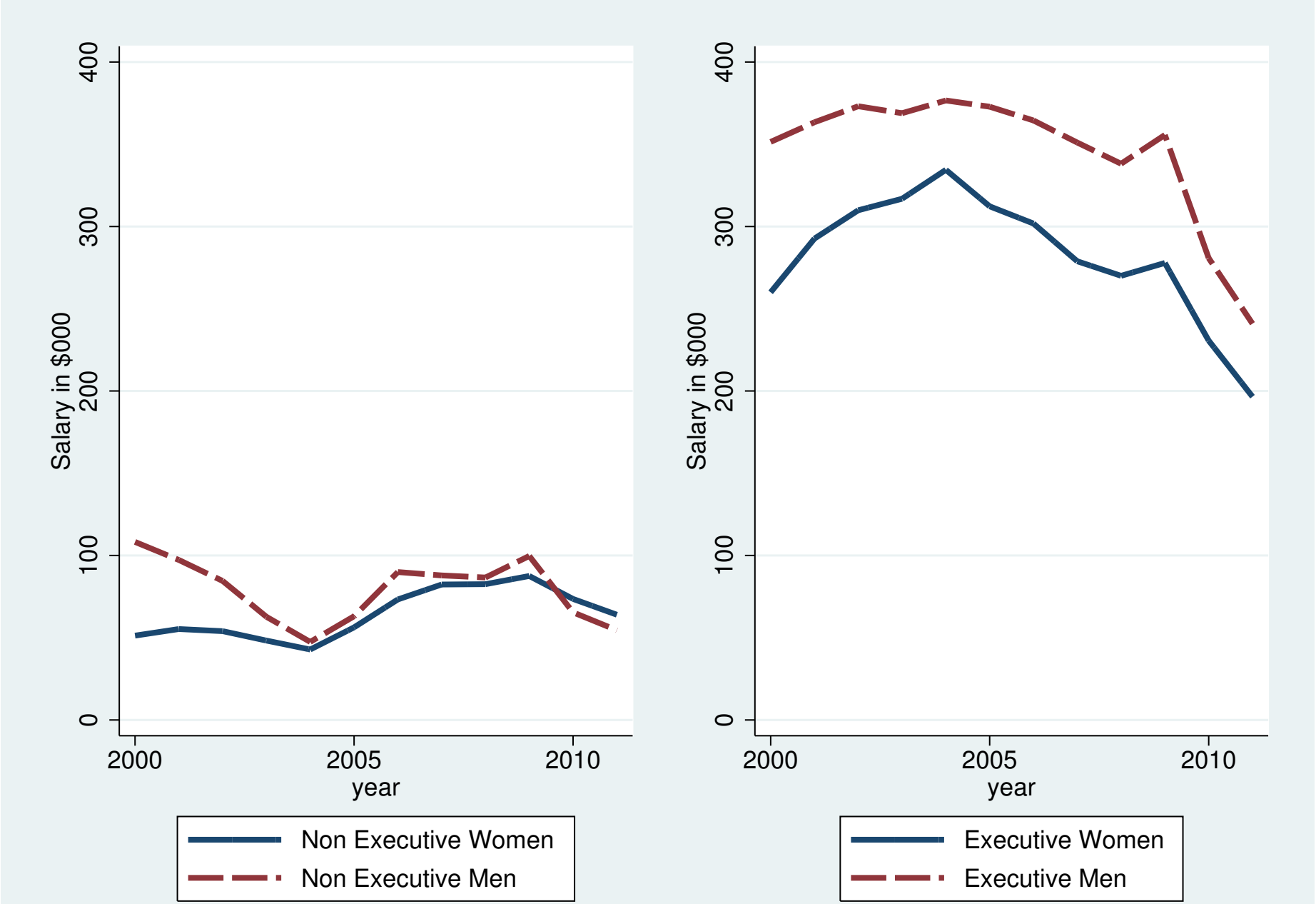


Part of this is a composition effect

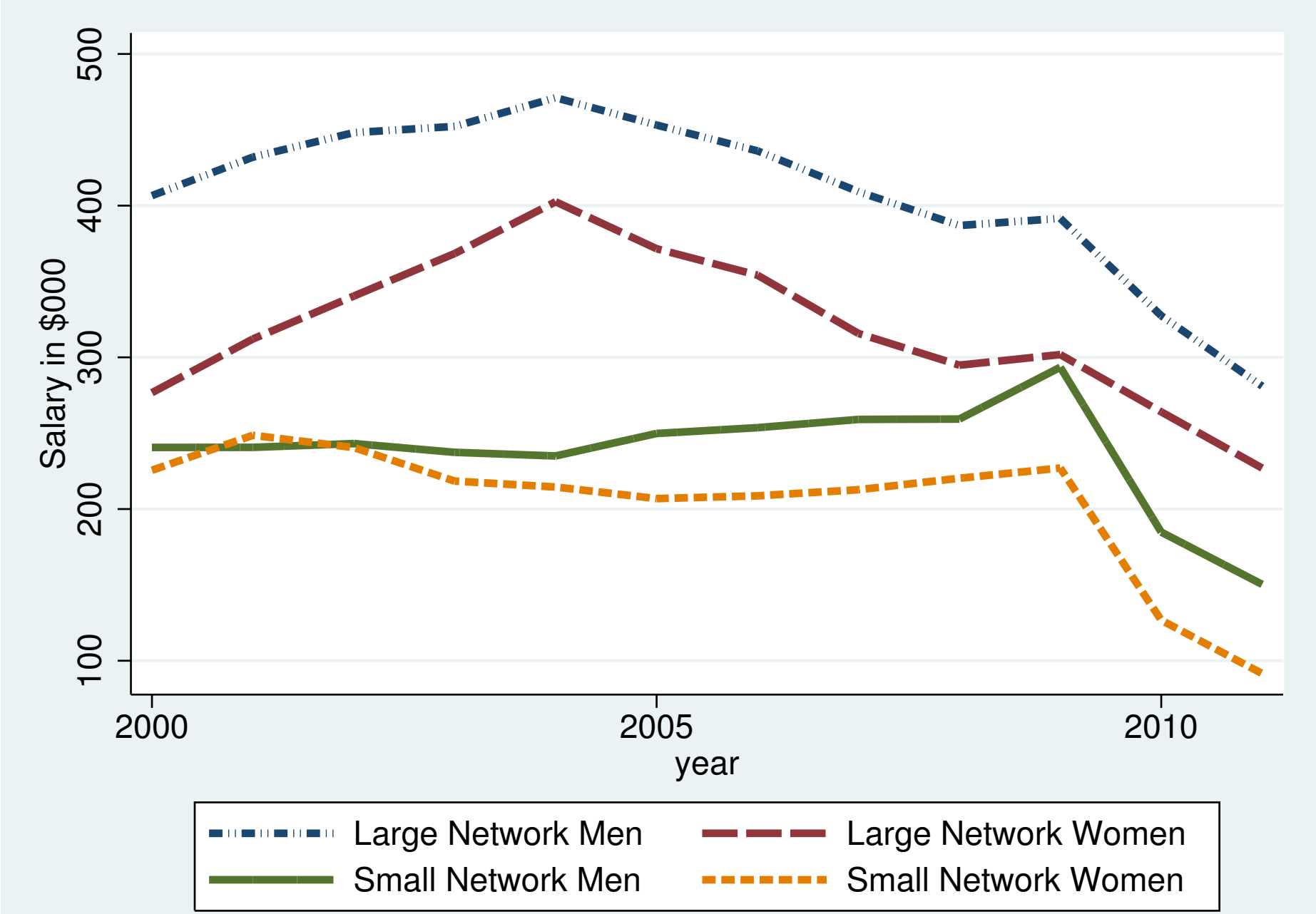
Table 3: Gender by executive status in 2008

Gender	Non executives	Executives	Total
Men	11 568 (57.20%)	8 656 (42.80%)	20 224 (91.02%)
Women	1 457 (73.03%)	538 (26.97%)	1 995 (8.98%)
Total	13 025 (58.62%)	9 194 (41.38%)	22 219 (100%)

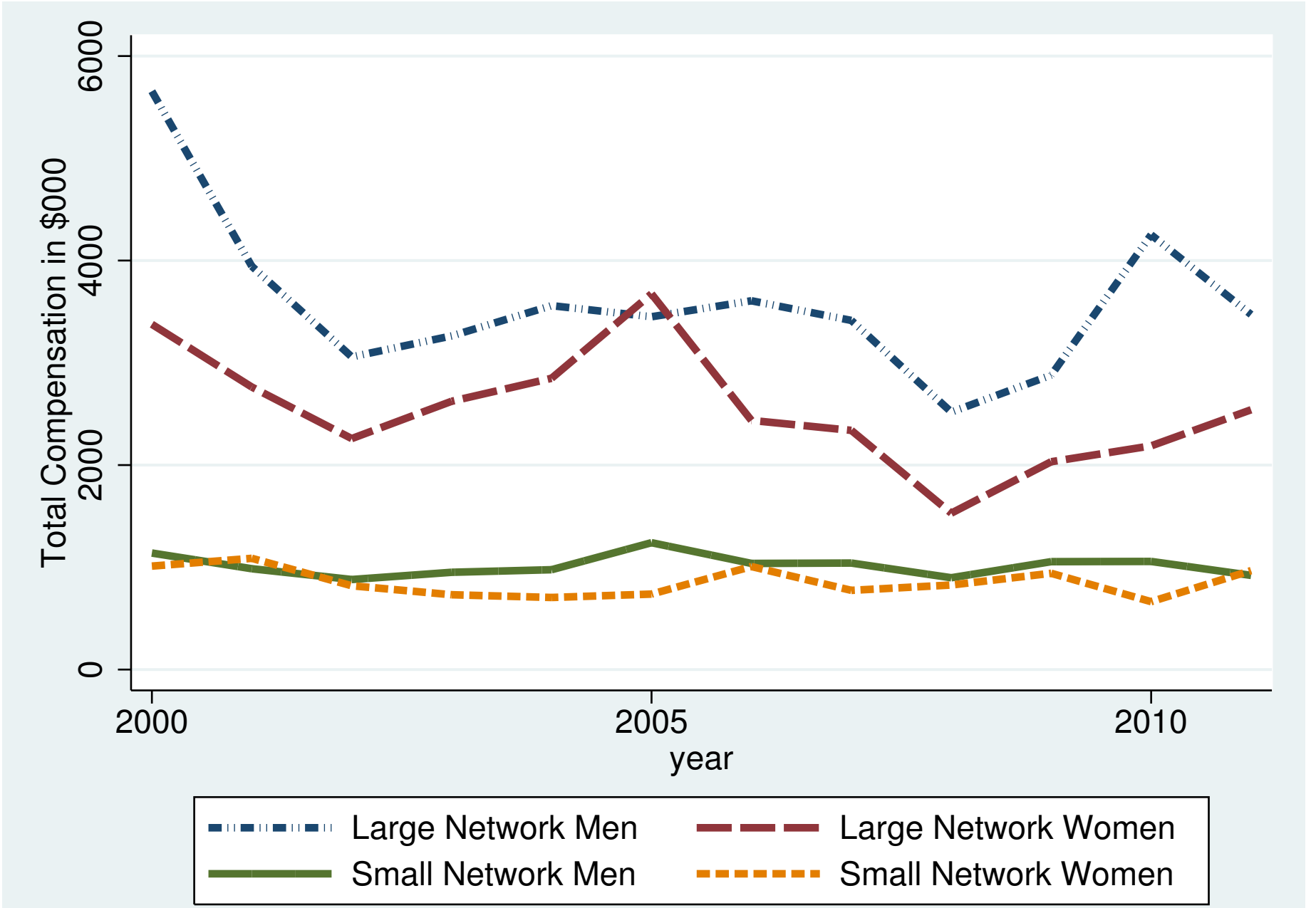
The gender gap for non-executives and executives



Networks and salaries over time, by gender



Networks and total compensation 2000-2011



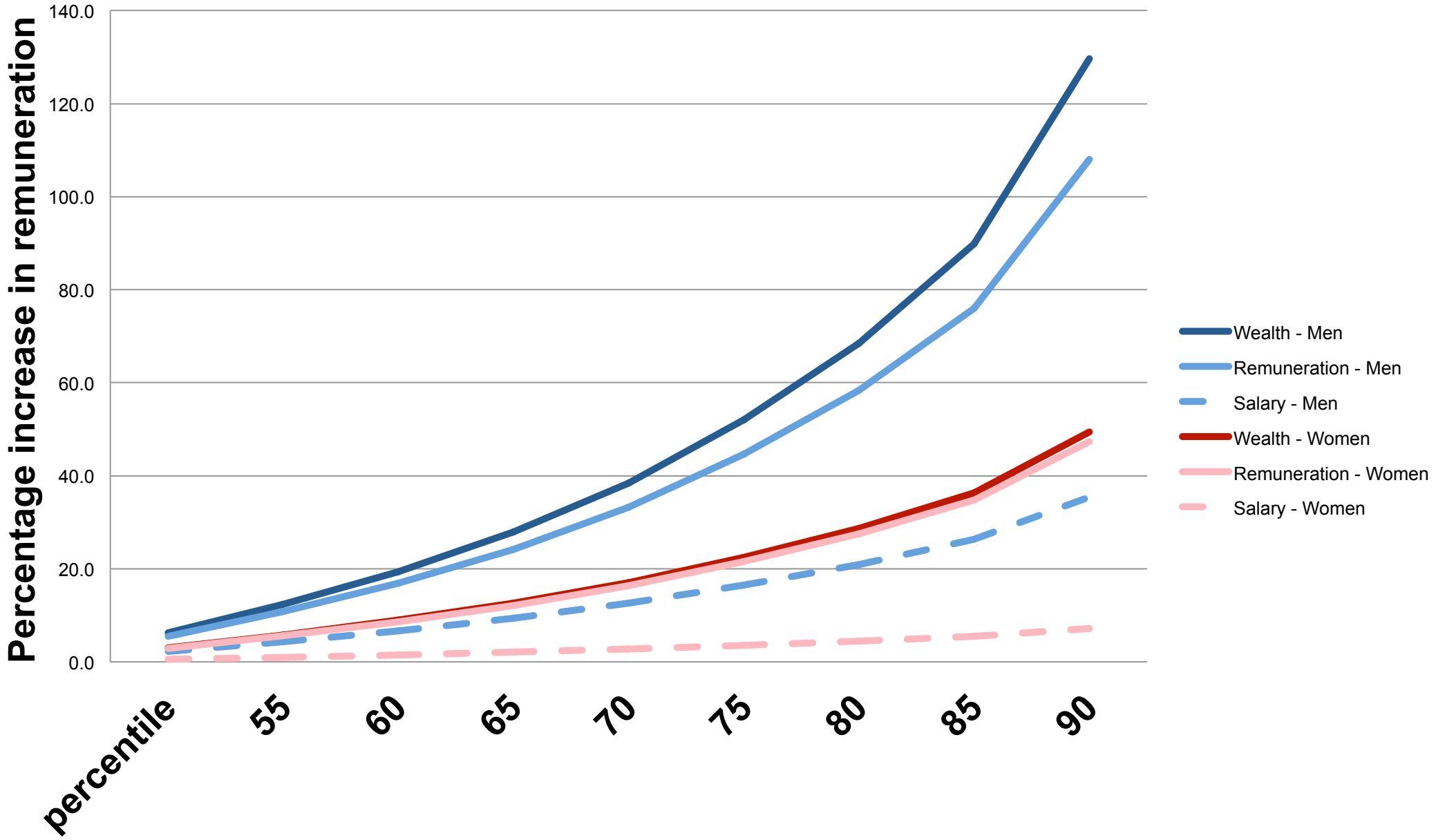
How do we know networks are the cause?

- We use a placebo method (by analogy with clinical trials)
- Maybe successful executives are also ones who are hired by firms that give them large networks
- So we construct for each person their placebo connections – those who worked at the same firm at a different time
- Real connections have a much bigger impact on salary than do placebo connections
- Connections weighted by date and duration have an even bigger effect!

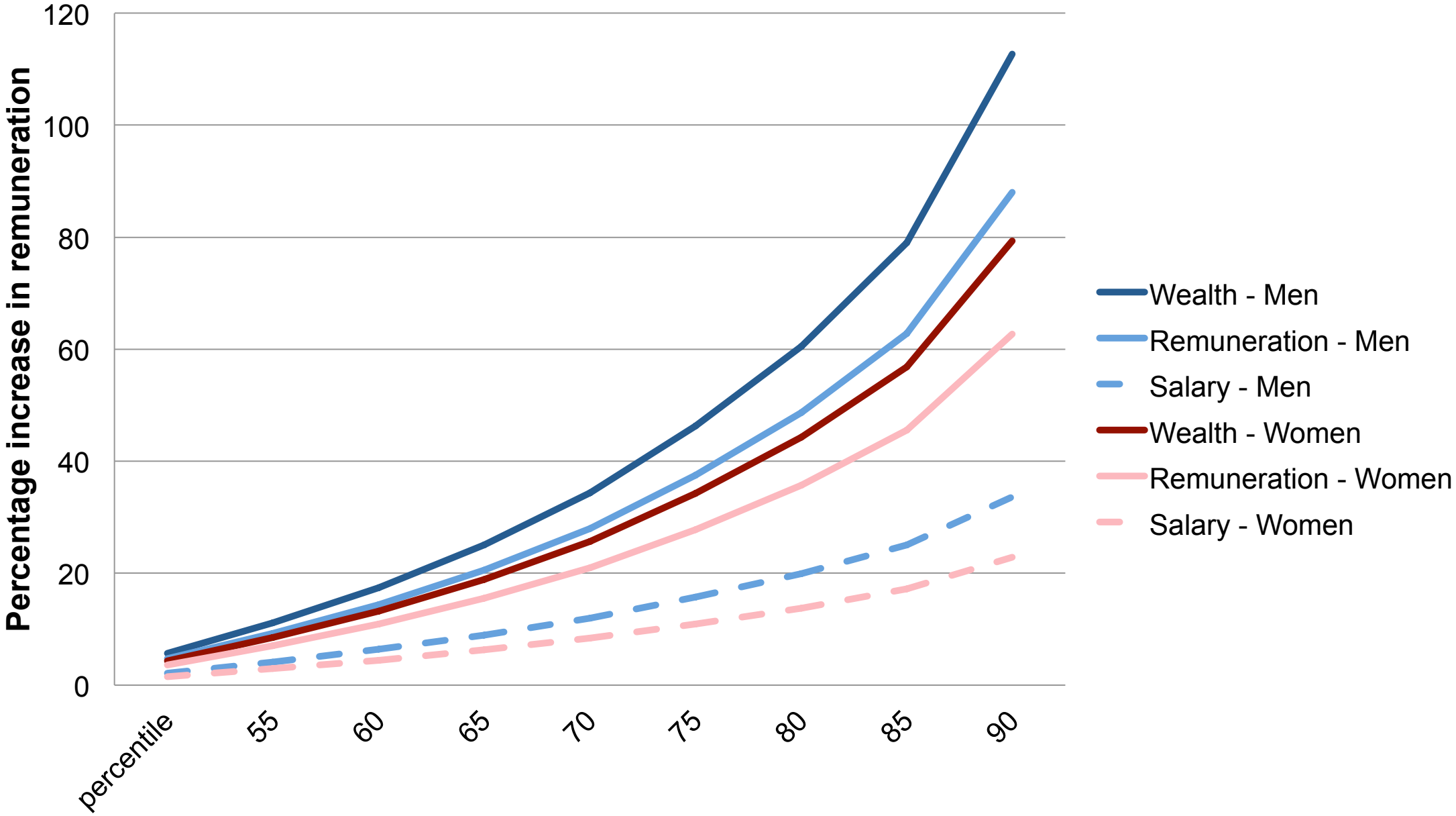
A comparison of the effects of placebo, real and weighted connections

	Total salary (men)	Total salary (women)	Total remuneration (men)	Total remuneration (women)
The effect of a 10% increase in:				
Placebo connections	0.2%	-0.4%	1.0%	0.03%
Real connections	1.8%	0.7%	4.4%	2.9%
Connections weighted by duration/date	3.3%	2.0%	7.0%	5.2%

Increase in remuneration implied by increases in connections above the median, 2008 estimates only; no adjustment for placebo



Increase in remuneration implied by increases in connections above the median, All-year estimates; adjustment for placebo



What are the mechanisms?

- It also helps women to have more women in their networks
- Is it having more women in your network or working for a Female-Friendly Firm (FFF) that matters?
- We can define FFFs as those that have
  - a higher proportion of women on their board, or
  - A higher female proportion in their top management team
- Working for FFFs helps women – but it also helps men!
- WHY???

FFFs: A paradox – they help men!

		FF Board	FF Top Management Team
MEN	Do networks help recruitment into FFFs?	YES (strongly)	NO
MEN	Do FFFs boost salary?	YES	YES
WOMEN	Do networks help recruitment into FFFs?	YES (slightly)	NO
WOMEN	Do FFFs boost salary?	NO	YES

A possible explanation

- Being “female friendly” may not be an intrinsic, strategically chosen characteristic of firms, but an outcome of other strategic choices
- Suppose firms differ in how “scientifically” managed they are
- More scientifically run firms could pay their managers better
- They could also be better able to find talent where it exists – more female friendly (in their top management team)
- Just having a FFF may be a matter of “window dressing”

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"We want a woman to join the board and we all agree you're our man, Ms Adams."

How networks explain the high price of women's preferences

- If talented women are under-rewarded, why aren't smart entrepreneurs seeking them out?
- They network (somewhat) differently
- Their career choices sacrifice conspicuousness
- Male networks don't appear to seek them out
- So women's preferences are costly to them
- But men's preferences are costly to them too!
- There is a signaling game in modern employment that makes us all, women and men, worse off than we might be
- There must be a better way….

What are the implications for policy?

- An important issue is how to interpret the evidence on gender differences in preferences
- The preferences manifest themselves given existing constraints (prices, norms, interpretations of signals)
- Respecting preferences may be compatible with seeking to modify constraints
- Are equilibria of signaling games open to modification?
- If so, by whom?

Possible fields of action

- Governments?
- Firms?
- Individuals?
- Educators?

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