

# Citation counts: consequences on the development of economics

Panel “Research Evaluation in Economic Theory and Policy Making”

Carlo D’Ippoliti



SAPIENZA  
UNIVERSITÀ DI ROMA

# Everybody pays for economic policy mistakes

- Ferguson and Johnson (2018): the Queen's question

“The cycle of austerity and policy failure has now reached a critical point. ... Placing entire responsibility for this set of plagues on bad economic theory or deficient policy evaluation does not make sense. ... But from the earliest days of the financial collapse, reflective economists and policymakers nourished some of the same suspicions as the general public. ... To win back public confidence, economists need to justify and support their ideas. That can happen only if we guarantee pluralism”

<http://www.g20-insights.org>

# After 2007, some point to weaknesses in economic theory...

“Macroeconomics [...] has succeeded: Its central problem of depression prevention has been solved, for all practical purposes, and has in fact been solved for many decades.”

Lucas R.E. (2003), “Macroeconomic Priorities”, *American Economic Review*, vol. 93 (1): 1-14.

*1193 citations on Google Scholar (26/5/2018)*



“[Last year] I expressed serious worries about the American economy, which strongly conditions the economies of the other countries, particularly in Europe.”

Sylos Labini P. (2003), “Prospects for the world economy”, *PSL Quarterly Review*, vol. 56 (226): 179-206.

*9 citations on Google Scholar (26/5/2018)*

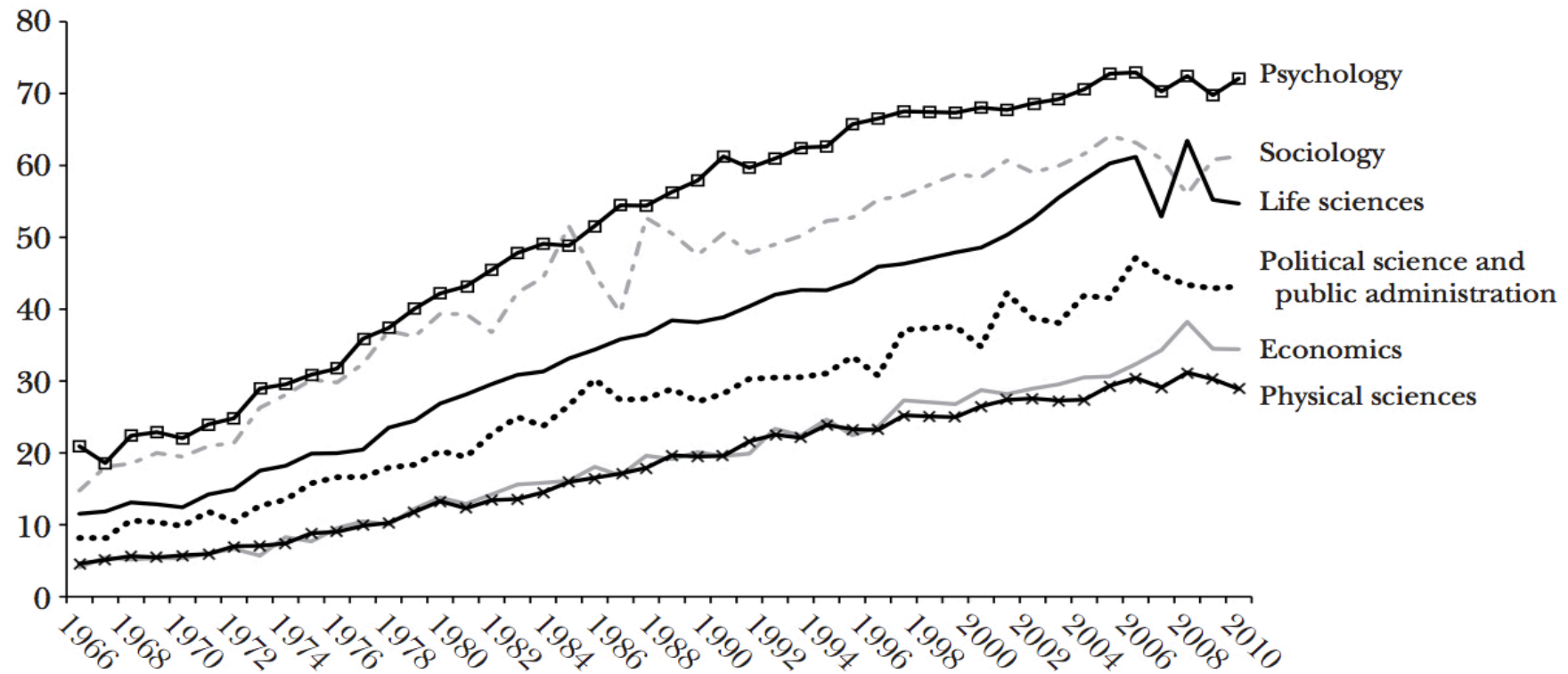


## ... but there is more

- Quantitative measures of supposed scientific “quality” are often used as tools of research evaluation
  - negative impact on pluralism documented in Italy, France, Australia and the UK.
- This way, new incentives are introduced for both researchers and institutions
  - Regardless of scientific malpractice or misconduct – even the “normal” process of scientific debate is being affected
- These methods:
  - (i) produce discrimination within academia, and
  - (ii) boost conformism: the diffusion of a single-minded faculty of academic economists prone to group thinking

# Heckman (2018): economics is highly hierarchical

Percentage of Doctorates Awarded to Women in Selected Disciplines, 1966–2011



Source: Fourcade et al. (JEP, 2015)

# This is reflected in citation metrics

## Citations from the Flagship Journal to Articles Published in the 25 Top Journals in Each Discipline, 2000–2009

(as a percentage of total citations in each journal)

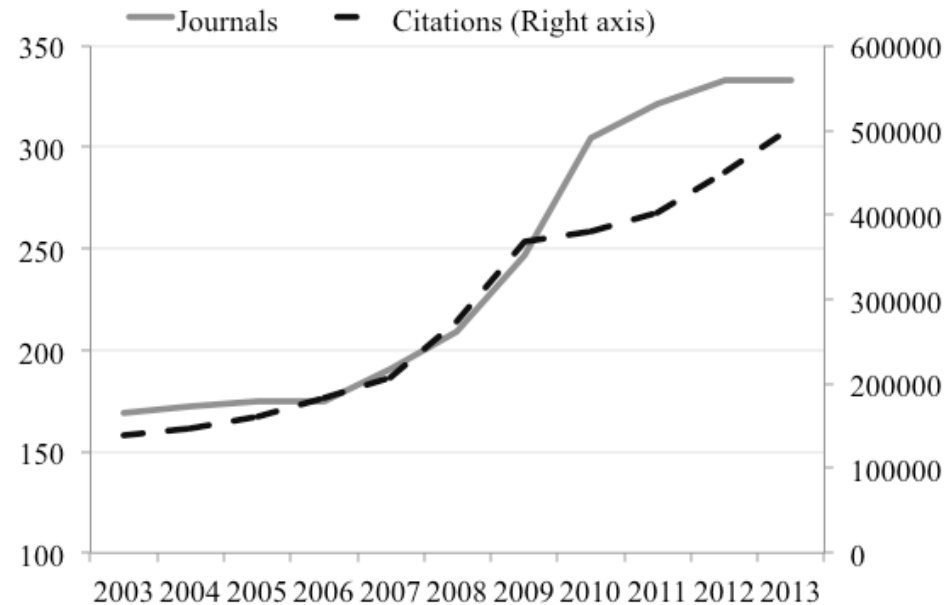
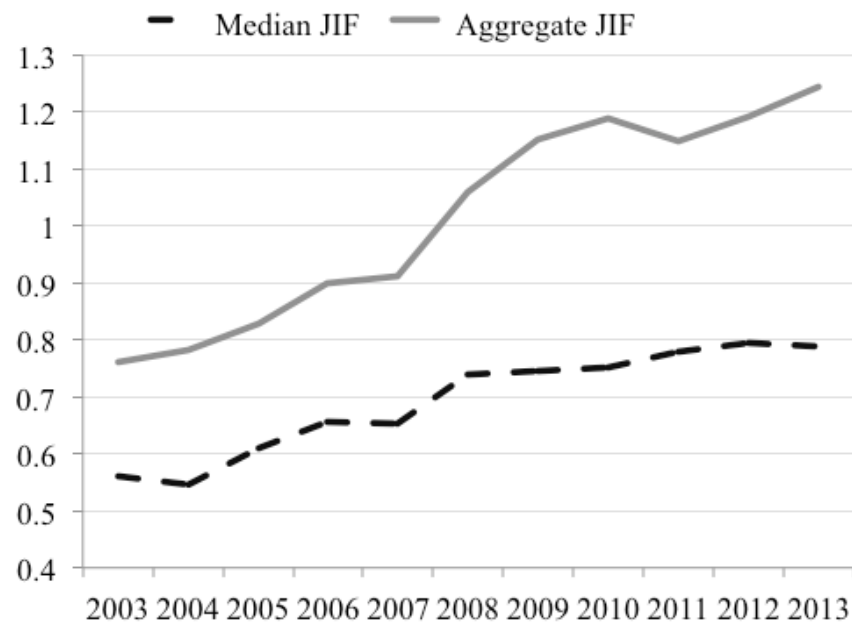
<i>Citing journal</i>	<i>Cited journals (% of all references)</i>			<i>Total number of papers/citations from this journal</i>
	<i>Top 25 economics journals</i>	<i>Top 25 political science journals</i>	<i>Top 25 sociology journals</i>	
<i>American Economic Review</i>	40.3%	0.8%	0.3%	907/ 29,958
<i>American Political Science Review</i>	4.1%	17.5%	1.0%	353/ 19,936
<i>American Sociological Review</i>	2.3%	2.0%	22%	399/ 23,993

- ... but 43% of papers published in the Top 5 authored by scholars in leading US universities
  - (Harvard, Yale, Princeton, MIT, Chicago, Berkeley and Stanford)
- 81% by scholars living in the USA. And the others?

# Outside of the USA, many countries resort to:

- journal rankings (CNRS in France, ABS in the UK, Anvur in Italy, ...), often based on the Journal Impact Factor
- simple indicators based on publications and/or citation counts (*h*-index, ...)
- These are often considered an antidote against nepotism and **cronyism**:
  - Bias in peer review: Jappelli et al. (2017), Lerback/Hanson (2017)

# But citation counts have their own bias!





# Citations: skewed, biased, and ambiguous

- citation counts correlate with:
  - publication level: number and reputation of authors, publication age, language, kind of publication, reputation of the journal, number of pages, title length;
  - author level: academic age, field and degree of specialization, and gender.
- Systematic differences across and within disciplines, self-citations, selective/implicit citations, citations inflation, etc.
  - $h$  index is not robust to even trivial changes in the papers or citation counts
- Most of all, **citations do not measure scientific “quality” alone**

Table 1 – Theoretical perspectives on the meaning of citation counts<sup>2</sup>

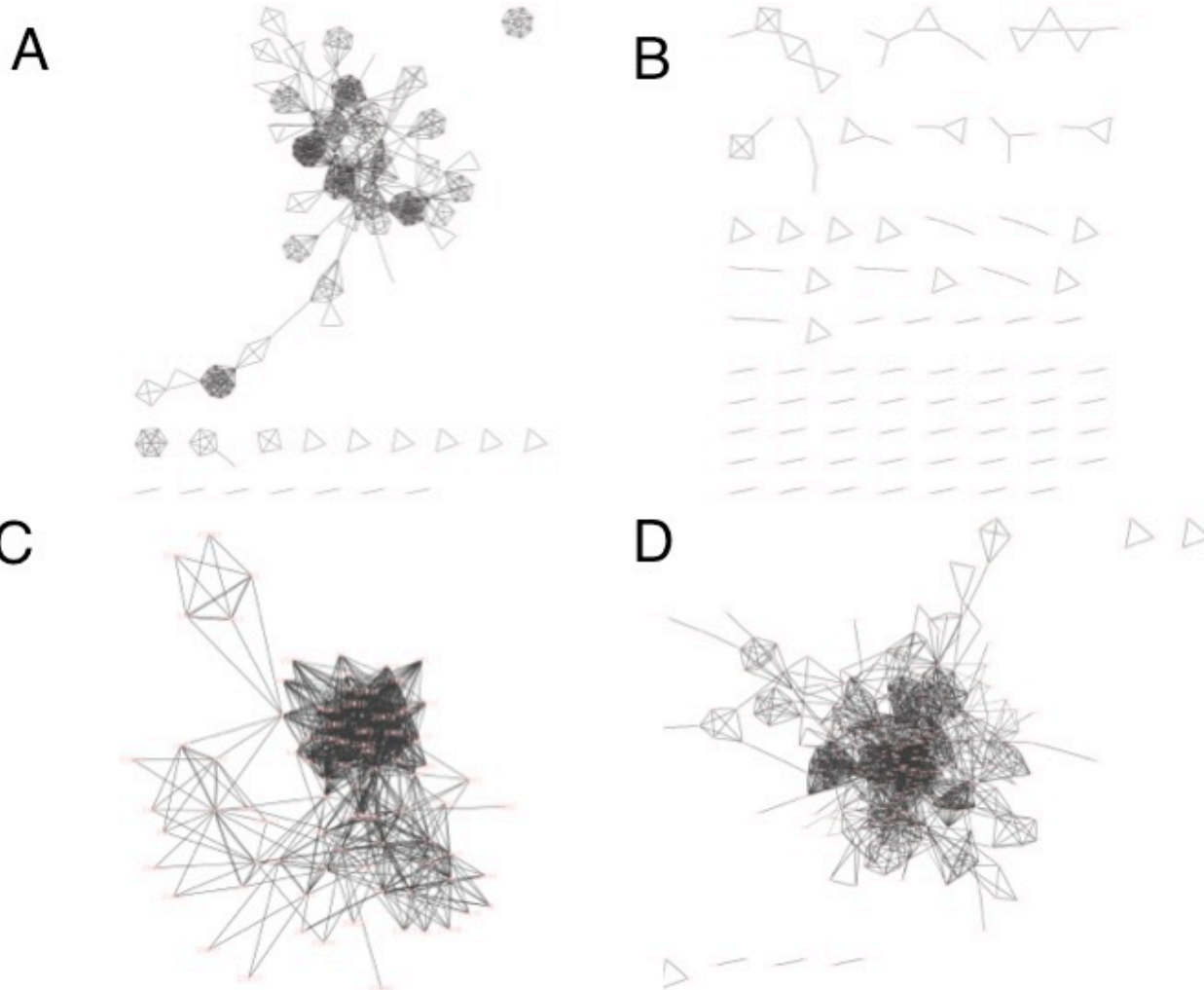
<b>Author</b>	<b>References are</b>	<b>Cites measure</b>
Garfield (1979)	Supportive, illustrative or elaborative of points in a document	Importance
Small (1978)	Elements in a symbol making process	Highly cited papers are concept symbols
Merton (1996)	Registration of intellectual property & peer recognition	Intellectual influence
Cole & Cole (1967)		Socially defined quality
Gilbert (1977)	Tools of persuasion	Authoritativeness
Cronin (1984)	A reflection of authors' personalities and professional milieu	Unclear, complex interplay of norms and personal factors
Martin & Irvine (1983)	Influence, social and political pressure, awareness	With matched groups, differences indicate differences in influence
Zuckerman (1987)	Response to Gilbert - motives and consequences analytically distinct	Proxies of more direct measures of influence
Latour (1987)/ Luukkonen (1997)	Resources authors wield to support their knowledge claims in a dynamic and hostile environment	Usefulness to subsequent authors in both social and cognitive dimensions
Cozzens (1989)	Reward, rhetoric, communication intersect in refs – rhetoric first	Recognition, persuasiveness, awareness
White (1990)	Acknowledgements of related documents	Co-cites = historical consensus of important authors and works
Van Raan (1998)	Partly particular, but in large ensembles biases cancel out	highly cited = top research
Wouters (1999)	Product of scientist	Product of indexer

Source: Hichs and Melkers (2012)

# Researchers respond to incentives too

- Evidence of incest/inbreeding in top US departments and top journals
  - Heckman (2017), Fourcade et al. (2015), Colussi (2017)
- D'Ippoliti (2017) a case quite far from the top:
  - Italy
  - all (948) tenured economists in the country, 2011-2016
  - analysis of the social determinants of citations

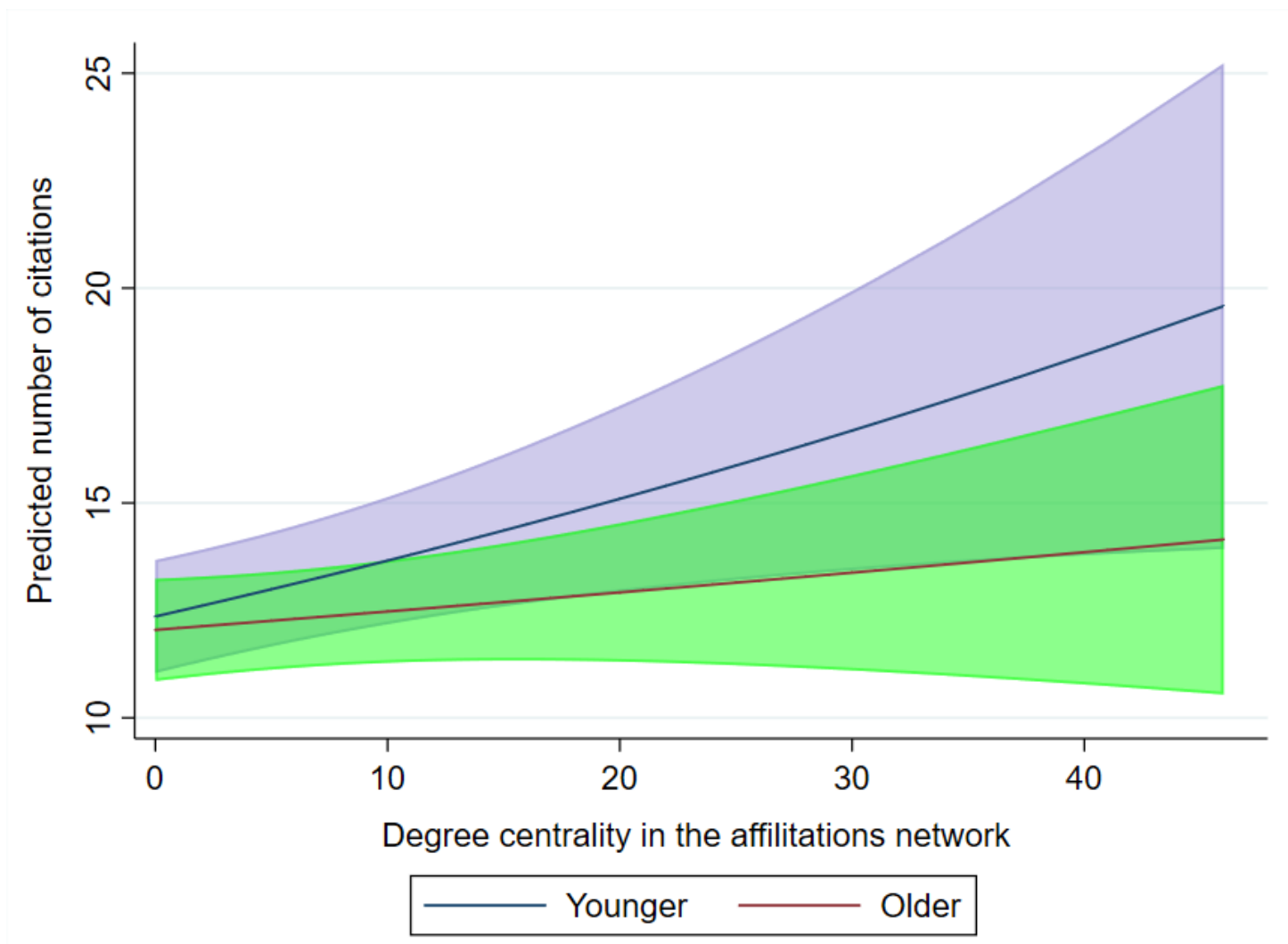
# Network of co-authorship, topics, institutional affiliations, journals, and mass media



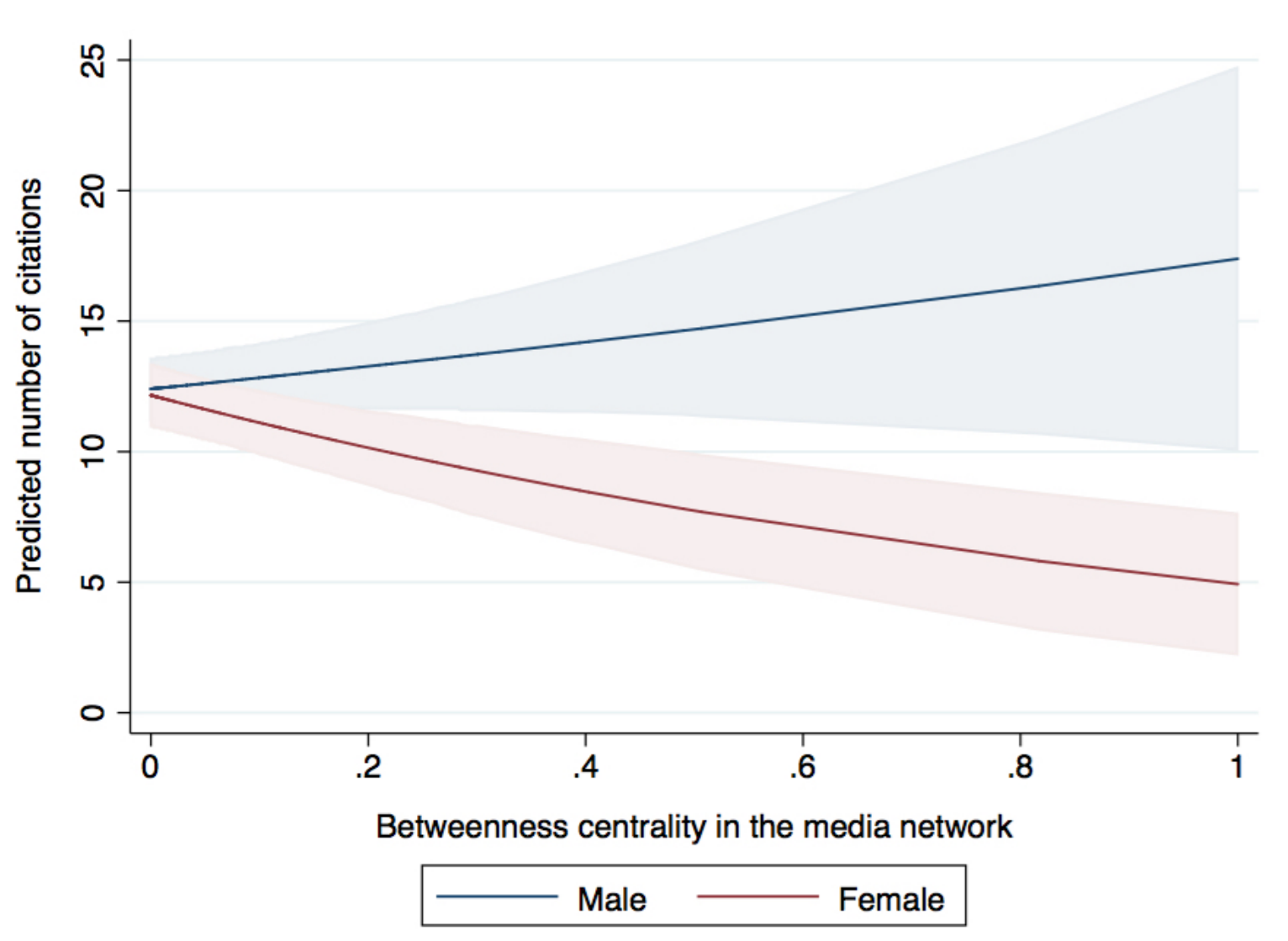
# Main results

- Being **coauthors** makes it **5.2 times** more likely for two economists to cite each other
- Working on similar **topics**: **2.9**
- Publishing in the same **journals**: **3.3**
- Being affiliated in the same **institutions**: **1.9**
- Political proximity: writing in the same media increases the odds of citation by + **5% per common media**

# When aggregating citations, biases do not cancel out!

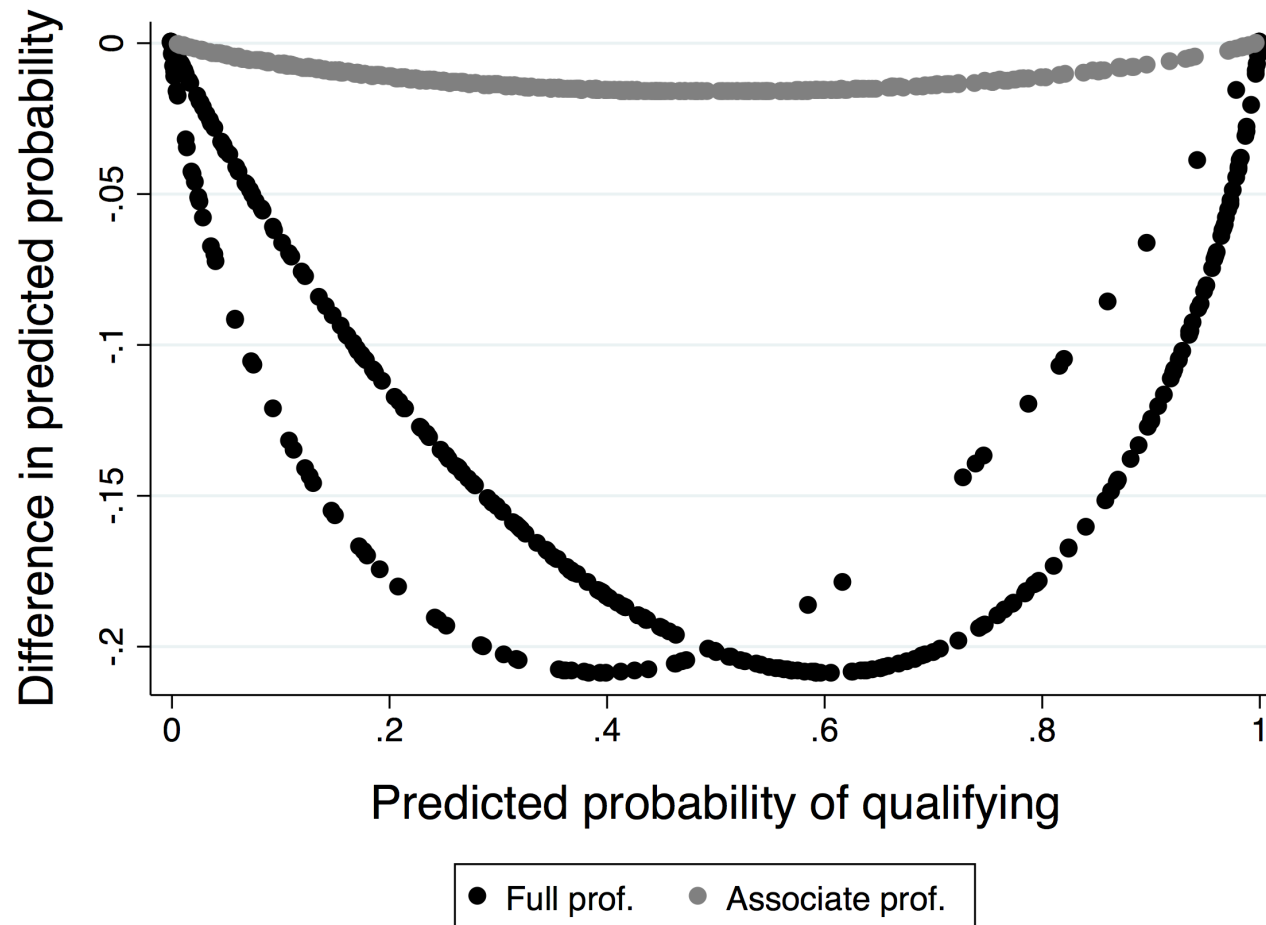


# Example: “bipartisanship” good for men, not for women



# Some consequences: the citations glass ceiling

(Men – Women) difference in the prob. to qualify as full prof. in Italy





# We are not talking about corruption

- Past research on Italy and Spain shows that candidates for promotion within academia, who have personal connections with members of the judging commission are more likely to be promoted
- However, when considering candidates' methods and topics of research, the relevance of connections with the commission members disappears!

## Probability to qualify as associate prof., Italy (ASN), marginal eff.

	(1)	(2)	(3)
<b>Cronyism</b>			
Connections with the ASN commission	0.0607** (0.0276)	0.0303 (0.0275)	0.0279 (0.0272)
<b>Diversity of ideas</b>			
Wide interests: n. of different JEL codes		-0.433*** (0.0906)	-0.434*** (0.0901)
Heterodox economist (share of pubs)			-0.651** (0.323)
Observations	586	540	540

# Women are discriminated against twice

## Top 5 fields of research for men and women

	Women		Men
Labor and Demographic Economics	17%	Microeconomics	17%
Microeconomics	13%	Macroeconomics and Monetary Economics	14%
Industrial Organization	11%	Economic Dev., Tech. Change, and Growth	13%
Agr. and Natural Res. Econ., Envir.	10%	Labor and Demographic Economics	12%
Macroeconomics and Monetary Economics	9%	Industrial Organization	10%

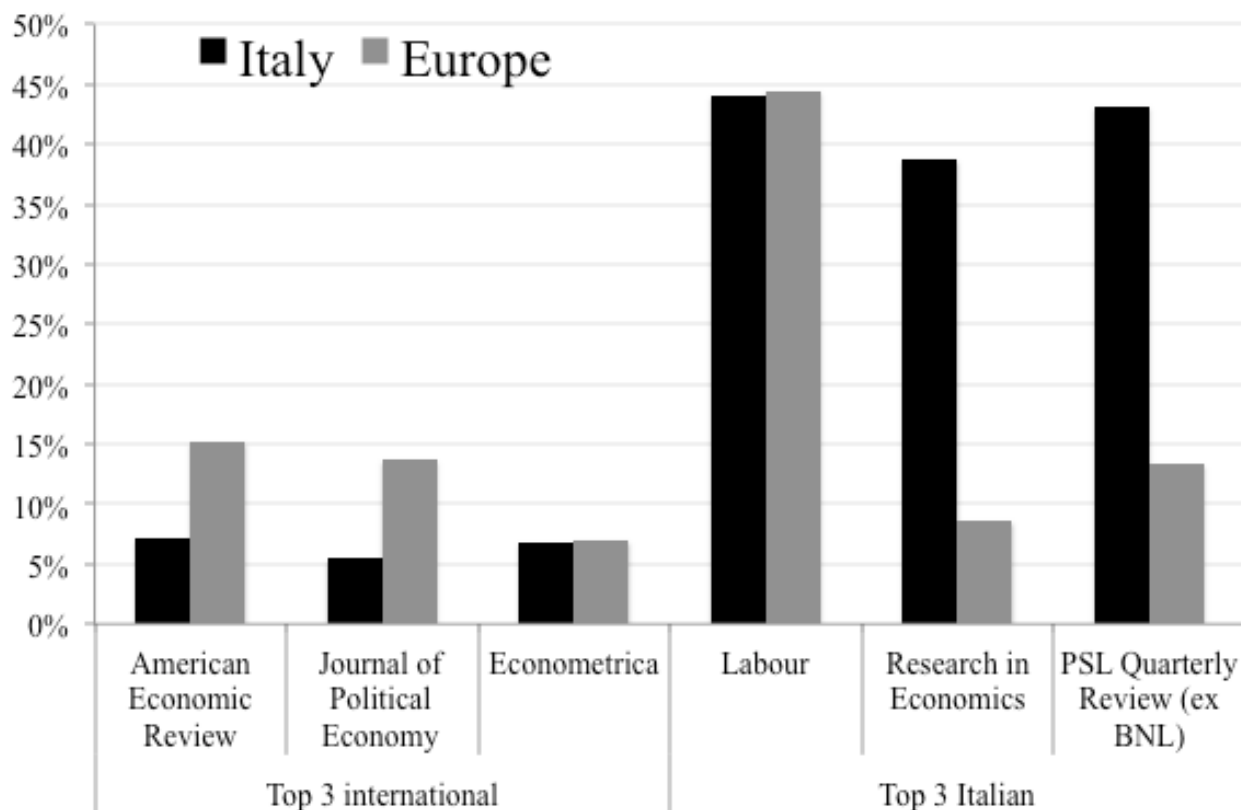
- Even on matters of policy opinions often diverge between women and men economists (May et al., 2013; 2018)

# Consequences: homologation to a standard of “excellence”

- In the Italian ASN, candidates who qualified as full professors most often used the words (among others) in their publications:
  - Network
  - Experiment
  - Family
  - Model
- And less often than candidates who did not qualify:
  - Italy
  - Growth
  - Unemployment
  - Innovation

# Consequences: “peripheral” concerns

Share of articles containing these words  
in top 3 international and top 3 Italian journals



# Some implications

- If you think peer review is biased, try citations!
  1. Never use just one indicator: several measures, several dimensions (publications, downloads, abstract views, ...).
  2. Indicators should not be simplistic: prevent bias (by discipline, sub-fields, etc.) and adopt pluralism as an explicit objective.
  3. Indicators must be complemented: to know how good is a piece of research, we still must read it.

# Policy implications

- the direction of present and future economic research is being shaped by objectionable indicators that provide legitimation in terms of quantitative and supposedly unbiased measures
- by asking that everybody becomes similar to an idealized figure of economist, we suppress variety within the debate and therefore impoverish economics as a field of research (and of political debate)
- younger scholars and those at higher risk of discrimination, especially women, increasingly must conform to an idealized benchmark of research quality
  - **national academies of science** must get involved and react!

# For more information:

[http://www.g20-insights.org/policy\\_briefs/research-evaluation-in-economic-theory-and-policy-identifying-and-overcoming-institutional-dysfunctions/](http://www.g20-insights.org/policy_briefs/research-evaluation-in-economic-theory-and-policy-identifying-and-overcoming-institutional-dysfunctions/)

<https://www.ineteconomics.org/research/research-papers/many-citedness>

<https://www.ineteconomics.org/perspectives/blog/how-academic-conformity-punishes-women-and-restricts-the-diversity-of-economic-ideas>

**carlo.dippoliti@uniroma1.it**